3FMProject

Bringing
Dublin Port
To 2040

Environmental Impact Assessment Report

Chapter 21

Summary of Mitigation Measures and Conclusions

Volume 2 Part 5

COMHLACHT CHALAFORT ÁTHA CLIATH
DUBLIN PORT COMPANY

rps
A TETRA TECH COMPANY

Third & Final
Masterplan
Project

21 SUMMARY OF MITIGATION MEASURES AND CONCLUSIONS

21.1 Summary of Mitigation Measures

DPC seeks to achieve the highest possible standards of environmental management during both the construction and operational phases of the 3FM Project. A summary of all proposed mitigation measures and monitoring requirements proposed within the Environmental Impact Assessment Report (EIAR) are contained in this Chapter.

21.1.1 Construction Phase Mitigation Measures

This EIAR assesses the likely significant effects of the 3FM Project on the environment arising from the construction of the 3FM Project. Integration of the engineering design team with the planning and environmental team from an early stage in the project has enabled mitigation by design to be used, causing many likely significant effects to be eliminated or reduced to an acceptable level during the preliminary design stage. This includes the incorporation of a range of mitigation measures into the design of permanent works including noise barriers; the provision of Interpretative markers to delineate the alignment of the Great South Wall (GSW); active travel routes; and other community, biodiversity and heritage gain elements.

Following an examination, analysis and evaluation of the direct and indirect significant effects of the project in relation to the receiving environment, additional mitigation measures and monitoring programmes have been recommended which will be fully implemented during the construction phase of the 3FM Project.

Table 21.1 summarises the mitigation measures and monitoring programmes recommended within the EIAR during the construction phase of the 3FM Project. All mitigation measures proposed within the Natura Impact Statement (NIS) have been included in this EIAR. The development of the mitigation measures has greatly benefitted from the experience gained from monitoring the effectiveness of similar mitigation measures during the construction of the ABR Project since 2016 and more recently the ongoing construction of the MP2 Project since 2022.

Table 21.1 Construction Phase Mitigation measures and monitoring

Potential Impact	Summary of Proposed Mitigation
Chapter 6 RISKS OF MAJOR ACCIDENTS & DISASTERS	
Potential for loss of life or injury to employees, Contractors, visitors and local residents.	The design of the 3FM Project has been informed by a COMAH land use planning assessment, 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 NORA (and other COMAH) establishments. Based on this conservative assessment, it is considered that the final design layout of the 3FM Project would satisfy the HSA's criteria under
Potential for damage to the environment.	
Potential for damage to the facilities, plant and equipment of DPC, its	

Potential Impact	Summary of Proposed Mitigation
commercial partners, tenant companies and neighbours.	its land use planning guidelines. The 3FM Project will therefore not increase the risk of major accidents and disasters. To remain vigilant, DPC 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 of the estate and that are likely to have a direct, knock on effect). In the event of an incident, DPC would activate its plan accordingly, in which case people would be directed away from the source of the hazard. DPC's Emergency Management Plan competencies are continuously enhanced through participation in training and exercises at different levels.
Chapter 7 BIODIVERSITY, FLORA & FAUNA	
Japanese Knotweed, a regulated invasive plant species listed in the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011, as amended, has been recorded at locations on the Poolbeg peninsula in, or adjacent to Dublin Port lands. Two other regulated invasive plant species have been detected, Sea Buckthorn and 3-cornered leek. A precautionary approach will be undertaken to prevent the importation and spread of Invasive Alien Species.	DPC has developed an Invasive Alien Plant Species Management Plan (2019) for all the port estate. In addition, a project specific Invasive Alien Species (IAS) Management Plan will be implemented for the duration of the proposed construction works. A draft IAS Management Plan which includes an initial IAS Assessment is presented in the Draft CEMP and summarized in Table 21.2. The IAS Management Plan links into the Construction Waste Management Plan and Construction Traffic Management Plan to prevent the introduction or spread of IAS. The Plan outlines containment and eradication measures to be implemented when any IAS are identified. Prevention Prevention measures will range from raising awareness of IAS and the potential for their dispersal, to ensuring best practice in relation to the movement of materials, plant and personnel into, within or out of the operations area. Measures to be implemented shall include: • Ensuring that rock armour, gravels, sand or soils to be imported to the site are sourced from authorised/licensed quarry operators; • Specifying that such material should be free of invasive plant species and their propagules; • Implementing a waste management plan for the proper storage and controlled movement of waste materials; • Implementing a materials handling plan for the proper storage and controlled movement of materials; • Implementing a construction traffic management plan for control of vehicle and plant access and movements, including wheel wash and plant inspection at site entrance; • Ensuring that all vehicles and construction plant arriving on site are reasonably clean and free of significant deposits of mud and plant

Potential Impact	Summary of Proposed Mitigation
	debris (particularly tyres, wheel arches, excavator buckets and tracks) that might be a vector for spread of IAS; • Cordoning off any IAS locations on site identified and mapped in the initial IAS assessment; • Washing down machinery that has operated in IAS infested areas in designated locations before moving within the site or leaving the site; • Inclusion of IAS awareness in toolbox talks using visual aids for the identification of the most likely species to be encountered prepared by the initial IAS assessment; • Notification of any suspected new occurrences of IAS to the Environmental Facilities Manager. • Compliance with the Sea Pollution (Ballast Water Management Convention) Regulations 2023 to control non-native aquatic species. Containment / Treatment If any IAS is identified on the construction site, the management plan will contain its spread in the first instance and subsequently eradicate it, if possible, from the site. This will include implementation of the following measures: • Cordoning off any invasive species infestations to limit movement of people / machinery in infested area and relevant buffer zones; • Confirmation of the identification of the species concerned, and collation of relevant information; • Selection of the most appropriate best practice methods for control / treatment; • Prioritisation of treatment areas; • Undertaking physical or chemical control measures as appropriate in line with best practice guidance and in compliance with health and safety requirements; • Ensuring control measures are undertaken by suitably qualified personnel; • Handling and disposal of treated material appropriately to prevent further spread.
An artificial badger sett enclosure is <3m from the site boundary. The nearest sett entrance is c. 8m from the site boundary. Increased activity during the construction (fence removal, landscaping etc.) may cause increased	An Ecological Exclusion Zone (EEZ) will be set up to ensure no disturbance to the artificial badger sett at Irishtown Nature Park prior to commencement of pre-site clearance and construction works. Temporary hi-visibility fencing will be erected 25 m from the sett. No vehicles, storage or stockpiling of materials will be allowed within the EEZ.

Potential Impact	Summary of Proposed Mitigation
disturbance to badgers using the artificial sett.	This disturbance will be temporary. When the works are complete, and the new grassland habitat is vacated, there will be benefits for badger i.e., the provision of wider protective grassland buffering, as well as screening (boundary tree planting alongside the new Area O – Ro-Ro Terminal).
Precautionary measures will be undertaken to minimise the risk of injury or disturbance to birds in the area of operations.	DPC has developed a Black Guillemot Management Plan 2023-2030, and a Tern Colony Management Plan 2023-2030 to secure the conservation objectives for Black Guillemot and Tern species in Dublin Port. A project specific Bird Management Plan will be implemented for the duration of the proposed construction works. A draft Birds & Marine Ecology Management Plan is presented in the Draft CEMP and summarized in Table 21.1. The following precautionary measures will be undertaken to minimise the risk of injury or disturbance to nesting and breeding birds in the area of operations: • The 3FM Project Black Guillemot Management Plan shall be implemented in full. • Where known Black Guillemot nesting sites are likely to be unavailable to birds in the following season due to 3FM Project construction works, they will be blocked in advance over the winter preceding the breeding season to prevent access and nest boxes will be deployed in the immediate vicinity. • A programme to monitor Black Guillemots in Dublin Port shall be undertaken. This monitoring programme shall continue throughout the construction phase and for a period of two years after the completion of the works, with surveys during the breeding season from March to May. The results of this monitoring programme shall be submitted to the planning authority at 12-monthly intervals to maintain a public record. • The 3FM Project Tern Colony Management Plan shall be implemented in full. • A programme to monitor the existing Tern colonies and proposed additional Tern Colony under the 3FM Project shall be undertaken. This monitoring programme shall continue throughout the construction phase and for a period of two years after the completion of the works, with surveys undertaken within the period from April to September, under licence from NPWS. The results of this monitoring programme shall be submitted to the planning authority at 12-monthly intervals to maintain a public record. • No pre-construction site clearance or removal of vegetation in terrestrial areas shall take place during the bird breeding season (1st March – 31st August).

Potential Impact	Summary of Proposed Mitigation
	• Planting in the shelterbelt south of Area O shall include use of native species that maximise the foraging and nesting opportunities for passerines using the area. • No rock breaking shall take place during demolition of the Sludge Jetty within 75m of tern sub-colonies at CDL or ESB Platform during May and June. • No piling shall take place within 75m of tern sub-colonies at CDL or ESB Platform during May and June. • All Capital Dredging shall take place during the winter months (October – March). An additional benefit from this mitigation measure is that Terns will have migrated from Dublin Port during the periods of capital dredging. • There is evidence that Sand Martin nest in crevasses in the harbour wall of Pigeon House Harbour to the east of the Sludge Jetty. There were however no Sand Martins recorded during surveys undertaken in 2024. The 3FM Project has been designed to avoid any direct impact on the length of harbour wall where Sand Martins have previously nested. Construction works proposed in the vicinity of the Harbour Wall will be planned to minimise disturbance during the bird breeding season. <u>Monitoring</u> • DPC is committed to continuing a programme to monitor Black Guillemots, Common Tern and Arctic Tern in Dublin Port throughout the construction phase of the 3FM Project and for a period of two years after the completion of such works. The results of this monitoring programme will be submitted to the planning authority at 12-monthly intervals to maintain a public record. • DPC will also continue to undertake a programme to monitor winter wetland birds in a subset of the adjacent European Sites of the South Dublin Bay and River Tolka Estuary Special Protection Area. This programme shall include the Tolka Estuary and the maritime area adjacent to the Great South Wall in the Lower Liffey Estuary. This monitoring programme will continue throughout the construction phase and for a period of two years after the completion of such works, with monthly surveys from October to March. The results of this monitoring programme will be submitted to the planning authority at 12-monthly intervals to maintain a public record. • A programme to monitor the Sand Martin colony at the entrance to Pigeon House Harbour shall be undertaken. Site visits between April and August will monitor activity to estimate apparently occupied nests. The results of this monitoring programme shall be submitted

Potential Impact	Summary of Proposed Mitigation
	to the planning authority at 12-monthly intervals to maintain a public record.
Precautionary measures will be undertaken to minimise the risk of injury or disturbance to marine ecology and fisheries in the area of operations.	A Birds and Marine Ecology Management Plan will be implemented for the duration of the proposed construction works, presented in the Draft CEMP and summarized in Table 21.1. A Dredging Management Plan will also be implemented for the duration of the proposed construction works, presented in the Draft CEMP and summarized in Table 21.1. The following key mitigation measures shall apply to Capital Dredging to minimise the impact of the proposed works on marine ecology: • No over-spilling at the surface of the dredger for all dredging activities within the inner Liffey Channel will be permitted. This includes all proposed capital dredging required for the 3FM Project; • The dredger will work on one half of the channel at a time within the inner Liffey channel to prevent the formation of a silt curtain across the River Liffey; • A schedule of no-dredging windows has been prepared and will apply to specified locations in the navigation channel. The capital dredging of sediments within the navigation channel will be carried out during the winter months (October – March) to negate any potential impact on salmonid migration (particularly smolts) and summer bird feeding, notably terns, in the vicinity of the dredging operations. In addition, upstream of Berth 49 the no-dredging period will be extended to include the period from 15th March to 31st March. • A trailing suction hopper dredger (TSHD) or back-hoe dredger will be used for the capital dredging works. When operating in the River Liffey Channel, the TSHD pumps will be switched off when the drag head is being lifted and returned from the bottom as the dredger turns between successive lines of dredging to minimise the risk of fish entrainment. • A maximum of 4,100m³ of sediment and entrained water will be loaded into the dredger's hopper for each loading/dumping cycle. The following key mitigation measures shall apply to impact piling activities to minimise the impact of the proposed works on fisheries: • No impact piling for construction activities for the SPAR Bridge, SPAR Viaduct, the Maritime Village and Ro-Ro Terminal will take place during March to May inclusive, the three months of the year when vulnerable smolts are likely to run in their highest numbers. • Due to the greatly reduced number of adult salmon returning in recent years, down to circa 250 individual salmon, an additional no-

Potential Impact	Summary of Proposed Mitigation
	piling window will apply to July and August for impact piling at the Ro-Ro Terminal. • The July-August closed period for piling also applies to impact piling at the Turning Circle boundary wall and temporary works piling. • The July-August closed period for piling also applies to the Lo-Lo Terminal (Area N outer piles and dolphins).
Precautionary measures will be undertaken to minimise the risk of injury or disturbance to marine mammals in the area of operations	A Marine Mammals Management Plan will be implemented for the duration of the proposed construction works, presented in the Draft CEMP and summarized in Table 21.1. The following precautionary measures will be undertaken to minimise the risk of injury or disturbance to marine mammals in the area of operations in line with National Parks and Wildlife Service (NPWS) Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters (2014): • A trained and experienced Marine Mammal Observer (MMO) will be put in place during piling, dredging, demolition and dumping operations. The MMO will scan the surrounding area to ensure no marine mammals are in a pre-determined exclusion zone in the 30-minute period prior to operations. The NPWS exclusion zone is 500m for dredging and demolition works and 1,000m for piling activities. • Noise-producing activities will only commence in daylight hours where effective visual monitoring, as performed and determined by the MMO, has been achieved. Where effective visual monitoring is not possible, the sound-producing activities will be postponed until effective visual monitoring is possible. Visual scanning for marine mammals (in particular harbour porpoise) will only be effective during daylight hours and if the sea state is WMO Sea State 4 (≈Beaufort Force 4 conditions) or less. • For piling activities, where the output peak sound pressure level (in water) exceeds 170 dB re: 1µPa @ 1m, a ramp-up procedure will be employed following the pre-start monitoring. Underwater acoustic energy output will commence from a lower energy start-up and thereafter be allowed to gradually build up to the necessary maximum output over a period of 20-40 minutes. • If there is a break in piling / dredging including dredging & piling plant activity for a period greater than 30 minutes then all pre-activity monitoring measures and ramp-up (where this is possible) will recommence as for start-up. • Once normal operations commence (including appropriate ramp-up procedures), there is no requirement to halt or discontinue the activity at night-time, nor if weather or visibility conditions deteriorate, nor if

Potential Impact	Summary of Proposed Mitigation
	marine mammals occur within a radial distance of the sound source that is 500m for dredging and demolition works, and 1,000m for piling activities. • Once normal dredging operations commence there is no requirement to halt or discontinue the activity at night-time, nor if weather or visibility conditions deteriorate, nor if marine mammals occur within a radial distance of the sound source that is 500m for dredging and demolition works. Notwithstanding this, MMOs will implement additional best-practice mitigation where feasible by directing operations to areas where marine mammals are absent, or requesting delays to activities to provide animals an opportunity to disperse. • Any approach by marine mammals into the immediate (<50m) works area will be reported to the National Parks and Wildlife Service. • Non-piling windows, and implementation of piling controls when marine mammals occur in specified monitoring zones have been set for impact piling. • Piling is restricted to 0700h and 1900h (Monday to Friday), 0800h to 1300h (Saturday) and no piling will take place on Sundays or Bank Holidays. Therefore, during piling periods, active piling operations will only occur for a maximum of about 38% of that period, allowing extensive unimpeded use of the harbour area by marine mammals throughout project construction. • An extended monitoring zone will be implemented for harbour porpoise during piling at Area N and Area K. This zone will include all areas within the Bull Walls, and no piling will be permitted if harbour porpoise are present in this area during a pre-watch. A minimum of two MMOs are required to effectively monitor this extended zone. • The MMO will keep a record of the monitoring and log all relevant events using standardised data forms available from NPWS and submit to the NPWS on completion of the works. • In line with international best practice, a combination of visual and acoustic mitigation techniques will be used to ensure there are no significant impacts on all Annex II marine species, including harbour porpoise, grey seal and harbour seal. Static Acoustic Monitoring (SAM) through the deployment of FPODS will be used. SAM monitoring sites will be established and maintained throughout the project and for two years post-construction. This technique is to complement and not replace visual techniques.

Potential Impact	Summary of Proposed Mitigation
	• The deployment of a SAM system will complement and extend the extensive database currently being collected as part of the ABR and MP2 Project environmental monitoring programmes. • The deployment of a Passive Acoustic Monitoring (PAM) system at North Bank Light in the inner Liffey channel will continue for the duration of the construction phase. The PAM system uses a hydrophone to detect the presence of marine mammals in real time.
Chapter 8 Land, SOILS, GEOLOGY, HYDROGEOLOGY	
The potential risk to construction workers from contaminants during the earthworks is low with the exception of identified asbestos fibres at identified locations.	The risk to construction workers via the inhalation of asbestos fibres during earth works / ground disturbance shall be mitigated through the appropriate use of PPE / RPE.
There is potential for ground gas within Area O which was formally a landfill site operated by DCC.	A venting system is recommended in order to allow a steady release of ground gases during the construction phase. This will mitigate the risk of off-site ground gas migration. The type and specifications for the venting system will be determined at detailed design stage of the project. The construction phase will include the installation of ground gas protection measures within buildings in Area O. To achieve the appropriate level of protection, consideration has been given to BS8485:2015+A1:2019 'Code of Practice for the Design of Protective Measures for Methane and Carbon Dioxide Ground Gases for New Buildings'.
Chapter 9 WATER QUALITY and FLOOD RISK	
Mobilised suspended sediment and cement release through construction and demolition activities are the principal potential sources of water quality impact during the construction phase of the works.	A Water Quality Management Plan will be implemented for the duration of the proposed construction works, presented in the Draft CEMP and summarized in Table 21.1. The following precautionary measures shall be undertaken to minimise the risk of impacting on water quality within the receiving environment: • sound design principles will be followed to adhere to relevant Irish guidelines and recognised international guidelines for best practice; • appropriate erosion and sediment controls during construction to prevent sediment pollution will be implemented; • Where preferential surface flow paths occur, silt fencing or other suitable barriers will be used to ensure silt laden or contaminated surface runoff from the site does not discharge directly to a water body or surface water drain.

Potential Impact	Summary of Proposed Mitigation
	• In the event that dewatering of foundations or drainage trenches is required during construction and/or discharge of surface water from sumps, a treatment system prior to the discharge will be used; silt traps, settlement skips etc. This measure will allow additional settlement of any suspended solids within storm water arising from the construction areas. • Management and auditing procedures, including tool-box talks to personnel will be put in place to ensure that any works which have the potential to impact on the aquatic environment are being carried out in accordance with required permits, licences, certificates and planning permissions. • Existing and proposed surface water drainage and discharge points will be mapped on the Drainage layout. These will be noted on construction site plans and protected accordingly to ensure water bodies are not impacted from sediment and other pollutants using measures to intercept the pathway for such pollutants. • A project specific Pollution Incident Response Plan has been prepared and suitable training will be provided to relevant personnel detailed within the Pollution Incident Response Plan (see Draft CEMP and Table 21.1).
Capital Dredging and Spoil Disposal	A Dredging Management Plan will be implemented for the capital dredging proposed as part of the 3FM Project. The mitigation for dredging operations in the 3FM Project has been informed by the MP2 Project and the ABR Project monitoring and experience working in the same locations. The following key relevant mitigation measures will apply to each dredging campaign in the 3FM Project: • Loading will be carried out by a back-hoe dredger or trailing suction hopper dredger (TSHD). • The capital dredging activity will be carried out during the winter months (October – March) to negate any potential impact on salmonid migration (particularly smolts) and summer bird feeding, notably terns, in the vicinity of the dredging operations. • No over-spilling from the vessel will be permitted while the dredging activity is being carried out within the inner Liffey Channel. • The TSHD pumps will be switched off while the drag head is being lifted and returned to the bottom as the dredger turns between successive lines of dredging to minimise the risk of fish entrainment. • The dredger's hopper will be filled to a maximum of 4,100 cubic metres (including entrained water) to control suspended solids

Potential Impact	Summary of Proposed Mitigation
	released at the dumping site. This is equivalent to a maximum quantity per trip of 2,030 tonnes (wet weight). • Full time monitoring of marine mammals within 500m of loading and dumping operations will be undertaken in accordance with the measures contained in the Guidance to Manage the Risk to Marine Mammals from Man-Made Sound Sources in Irish Waters (NPWS 2014). • A documented Accident Prevention Procedure will be put in place prior to commencement. • A documented Emergency Response Procedure will be put in place prior to commencement. • A full record of loading and dumping tracks and record of the material being dumped will be maintained for each trip. • Dumping will be carried out through the vessel's hull. • The dredger will work on one half of the channel at a time within the inner Liffey channel to prevent the formation of a silt curtain across the River Liffey. When any dredging is scheduled to take place within a 500m radius of power station intakes, the relevant stakeholders will be notified so that precautionary measures can be taken if deemed necessary.
Accidental release of highly alkaline contaminants from concrete and cement may arise during the demolition of buildings and structures and the construction of hardstand areas, waterside berths, quay walls, jetties, bridging structures, etc. Concrete and cement pollution may give rise to significant impacts on water quality in the absence of mitigation.	The following precautionary measures shall be undertaken to minimise the risk of impacting on water quality within the receiving environment: • Breaking of concrete (associated with structure demolition) has the potential to emit alkaline dust into the receiving environment. Where necessary a barrier between the dust source and the sensitive receptor (the water body in this case) will be erected to limit the possibility of dust contacting the receptor; • Concrete use and production shall adhere to control measures outlined in Guidance for Pollution Prevention (GPP5): Works and maintenance in or near water (2017). Any on-site concrete production will have the following mitigation measures: bunded designated concrete washout area; closed circuit wheel wash; and initial siting of any concrete mixing facilities such that there is no production within a minimum of 10m from the aquatic zone; • The use of wet concrete and cement in or close to any water body will be carefully controlled so as to minimise the risk of any material entering the water, particularly from shuttered structures or the washing of equipment. • Where concrete is to be placed under water or in tidal conditions, specific fast-setting mix is required to limit segregation and washout

Potential Impact	Summary of Proposed Mitigation
	of fine material/cement. This will normally be achieved by having either a higher than normal fines content, a higher cement content or the use of chemical admixtures.
General water quality impacts may arise associated with works machinery, infrastructure and on-land operations including the temporary storage of construction materials, oils, fuels and chemicals. There is the potential for spillage or release of fuel oil and other dangerous substances to result in moderate to significant impacts on water quality in the absence of mitigation.	The following precautionary measures shall be undertaken to minimise the risk of impacting on water quality within the receiving environment: • The risk of water quality impacts associated with works machinery, infrastructure and on-land operations (for example leakages/spillages of fuels, oils, other chemicals and waste water) will be controlled through good site management and the adherence to codes and practices, • Management and auditing procedures, including tool box talks to personnel, will be put in place to ensure that any works which have the potential to impact on the aquatic environment are being carried out in accordance with required permits, licences, certificates and planning permissions; • Existing and proposed surface water drainage and discharge points will be mapped on the Drainage layout. These will be noted on construction site plans and protected accordingly to ensure water bodies are not impacted from sediment and other pollutants using measures to intercept the pathway for such pollutants, • Fuel, oil and chemical storage will be sited on an impervious base within a bund and secured. The base and bund walls must be impermeable to the material stored and of adequate capacity. The control measures in GPP2: Above Ground Oil Storage Tanks and GPP26 “Safe storage – drums and intermediate bulk containers” shall be implemented to ensure safe storage of oils and chemicals; • The safe operation of refuelling activities shall be in accordance with GPP 7 “Safe Storage – The safe operation of refuelling facilities”.
Monitoring Measures	A water quality monitoring system has been designed to ensure robust protection of the marine environment and for users of the inner Liffey channel during the construction phase of the 3FM Project. It is proposed to maintain the four water quality monitoring stations already in position for the ABR Project and MP2 Project. The specification is based on 24/7 real time monitoring with water quality monitoring sensors giving high resolution data with respect to the following parameters • Turbidity • Dissolved Oxygen • Temperature

Potential Impact	Summary of Proposed Mitigation
	• Salinity • pH (additional proposed parameter) • Water level is also measured at one monitoring station to provide information on tidal state. Turbidity is measured as a surrogate for suspended solids. Site specific tests have previously been undertaken by the ABR Project to define the relationship between Turbidity and suspended solids, • A data acquisition and transfer system is being used to enable the transmission of high resolution data at approximately 15 minute intervals. • Trigger levels that will prompt investigation are proposed for Dissolved Oxygen and Peak Suspended Solids based on Turbidity records in the Water Quality Management Plan (see Draft CEMP and Table 21.1). • The Dissolved Oxygen trigger level has been selected to safeguard fish-life. • The monitoring network infrastructure has been in place since 2016 and will continue for the duration of the construction phase of the 3FM Project. • This monitoring system has already generated a robust water quality baseline within the inner Liffey channel with the ability to identify water quality trends. The continuation of the monitoring system will serve to further strengthen the knowledge of water quality trends, a key indicator of the health of the marine environment. • The water quality data currently being collected is circulated to Dublin City Council on a monthly basis. It is proposed that this transfer of information continues for the duration of the construction phase of the 3FM Project. • The data collected is also being shared with research organisations (e.g. Dublin City University, Maynooth University and University College Cork).
Chapter 10 AIR QUALITY	
Construction works have the potential to result in local impacts through dust nuisance at the nearest sensitive receptors and also to sensitive ecosystems.	A draft Dust & Odour Management Plan has been prepared based upon the industry guidelines in the Building Research Establishment document entitled 'Control of Dust from Construction and Demolition Activities' (see Draft CEMP and Table 21.1). The following precautionary measures shall be undertaken to minimise the potential nuisance caused by dust at the nearest sensitive receptors and on sensitive ecosystems:

Potential Impact	Summary of Proposed Mitigation
	• Site roads will be regularly cleaned and maintained as appropriate. Hard surface roads will be swept to remove mud and aggregate materials from their surface while any un-surfaced roads will be restricted to essential traffic only; • Any site roads with the potential to give rise to dust will be regularly watered, as appropriate, during dry and/or windy conditions (also applies to vehicles delivering material with dust potential); • All HGVs and other site vehicles exiting the site will make use of a wheel wash facility prior to entering onto Dublin Port estate roads and public roads, to ensure mud and other wastes are not tracked onto the roads. • Wheel washes will be self-contained systems that do not require discharge of the wastewater to water bodies; • Public roads outside the site will be regularly inspected for cleanliness and cleaned as necessary; • Material handling systems and site stockpiling of materials will be designed and laid out to minimise exposure to wind; • Water misting, or sprays will be used as required if particularly dusty activities are necessary during dry or windy periods; • All vehicles which present a risk of spillage of materials, while either delivering or removing materials, will be loaded in such a way as to prevent spillage on the public road; • It will be required that all vehicles are suitably maintained to ensure that emissions of engine generated pollutants are kept to a minimum; • Monthly monitoring of dust deposition levels will be undertaken for the duration of construction for comparison with the guideline of 350mg/m^2/day (for non-hazardous dusts). This monitoring will be carried out at a minimum of four locations at sensitive receptors around the proposed works. Where dust levels are measured to be above this guideline, the mitigation measures in the area will be reviewed as part of a Dust Minimisation Plan.
The potential exists for odour generation and nuisance to occur during the construction phase.	A draft Dust & Odour Management Plan has been prepared and follows the guidance presented in the Environment Agency of England and Wales “Odour Management Guidance” (H4 Guidance, 2011) (see Draft CEMP and Table 21.1). The odour monitoring and investigation aspects of the OMP will follow the EPA “Odour Impact Assessment Guidance for EPA Licenced Sites”. The OMP will achieve the following: • Employ appropriate methods, including monitoring and contingencies, to control and minimise odour pollution;

Potential Impact	Summary of Proposed Mitigation
	• Prevent unacceptable odour releasing incidents or accidents by anticipating them and planning accordingly. • The plan considers sources, releases and impacts of odour and uses these to identify opportunities for odour management. The OMP will also include a periodic odour audit of the facility by a suitably qualified expert to identify all sources on site together with nature and scale of the odour release and associated construction details. In addition, the plan includes for complaint recording and investigation to ensure that all complaints received at the site are suitably addressed.
CHAPTER 11 CLIMATE	
Emissions of construction generated Green House Gases (GHG) will arise from embodied emissions in site material, direct emissions from plant machinery/equipment as well as emissions from vehicles delivering material and personnel to the construction site.	It is proposed to develop a Project Carbon Management Plan (PCMP) for the project. This PCMP will be aligned with the principles of PAS2080:2023 – a global standard for managing whole-life (embodied and operational) carbon in the built environment and infrastructure. The development of the carbon life cycle assessment presented in the EIAR is the first phase of the PCMP and this plan will be formally developed at detailed design stage by the design team to facilitate handover to the Contractor for construction stage as a contractual obligation for a cap on the levels of embodied and operational carbon. Post construction the PCMP will be handed back to DPC to facilitate the operational management of carbon for the project. The PCMP will minimise the carbon footprint of the construction phase through requiring low emission plant; reducing embodied carbon by specifying low-carbon concrete mixes when possible; re-using/re-cycling material; limiting use of carbon-intensive materials; incorporating sustainable design principles; implementing efficient energy management systems and identifying energy saving opportunities; promoting use of carbon-neutral biofuels and renewable energy if possible. Embodied carbon in the materials employed in the construction phase dominate the climate impact and to mitigate these impacts, sustainable material choices have been made during the engineering design to reduce embodied carbon from the construction of the proposed development by 30%. The construction stage of the Project therefore complies with existing policy requirements and, in particular, the target in Chapter 13 of CAP24, which sets a target to decrease embodied carbon in construction materials produced and used in Ireland by at least 30% by 2030. The mitigation in the proposed development achieves this target in reducing the total embodied carbon in the construction materials for the 3FM Project by 30%. DPC will revisit this mix during detailed design to achieve greater embodied reductions where possible based on industry practices and innovative materials available at the time of construction.

Potential Impact	Summary of Proposed Mitigation
	In addition to the above mitigation regarding material choices, there are a series of additional construction mitigation measures that will also be adopted as follows: • The use of non-concrete assets shall be optimised in the design, e.g. gravel footpaths, grassed drains etc. to minimise the need for concrete. • All aggregates required for pavement materials shall be secondary aggregates. Virgin aggregates shall only be employed where it is demonstrated that secondary aggregates are unsuitable for structural reasons and/or they are unavailable. • Wherever available, the Contractor shall secure construction materials from local/regional sources or sources within the State to minimise material transport emissions and reduce life cycle carbon emissions associated with the construction materials. • For electricity generation at the construction compounds, hydrogen generators or electrified plant shall be utilised over traditional diesel generators. This shall also apply to lower powered mobile plant, as appropriate. • A regular maintenance schedule for all construction plant machinery shall be undertaken to maintain optimum machinery efficiency. • Sustainable timber post fencing will be specified over steel in boundary treatments where possible. • Engines will be turned off when machinery is not in use. • The use of private vehicles by construction staff to access the site will be minimised through the encouragement of use of public transport, encouragement of car sharing, and maximising use of local labour to reduce transport emissions. To implement this, the Contractor shall prepare a Mobility Management Plan for site staff.
Chapter 12 NOISE & VIBRATION	
There is the potential for noise impacts associated with the construction phase of the proposed development at the nearest sensitive receptors in the absence of mitigation.	A Noise & Vibration Management Plan (NVMP) will be implemented for the duration of the proposed construction works. A draft NVMP is presented in the Draft CEMP and summarized in Table 21.1. This document will be reviewed and updated throughout the construction phase. A temporary 4m noise barrier will be installed between the construction works and the nearest properties at Pigeon House Road and the Coastguard Cottages throughout the duration of construction works in this area. This will ensure that the relevant BS5228 noise threshold limits will not be exceeded at these properties. *British Standard BS5228:2009+A1:2014 – Noise and vibration control on construction and open sites: Part 1 - Noise* outlines a range of measures that shall be used to reduce noise impacts at the nearest noise sensitive receptors. The measures, which will be applied, include:

Potential Impact	Summary of Proposed Mitigation
	• Ensuring that mechanical plant and equipment used for the purpose of the works are fitted with effective exhaust silencers and are maintained in good working order, • Careful selection of quiet plant and machinery to undertake the required work where available, • All major compressors will be 'sound reduced' models fitted with properly lined and sealed acoustic covers which will be kept closed whenever the machines are in use, • Any ancillary pneumatic percussive tools will be fitted with properly lined and sealed acoustic covers which will be kept closed whenever the machines are in use, • Any ancillary pneumatic percussive tools will be fitted with mufflers or silencers of the type recommended by the manufacturers, • Machines in intermittent use will be shut down in the intervening periods between work, • Ancillary plant such as generators, compressors and pumps will be placed behind existing physical barriers, and the direction of noise emissions from plant including exhausts or engines will be placed away from sensitive locations, in order to cause minimum noise disturbance, • Handling of all materials will take place in a manner which minimises noise emissions, • Audible warning systems will be switched to the minimum setting required by the Health and Safety Authority, • A complaints procedure will be operated by the Contractor throughout the construction phase and all efforts will be made to address any noise issues at the nearest noise sensitive properties.
There is the potential for vibration impacts associated with the construction phase of the proposed development at the nearest noise sensitive receptors and sites of cultural heritage significance in the absence of mitigation.	Vibration monitoring will be undertaken throughout the construction phase where vibration generating activities have the potential to generate significant vibration impacts at the nearest sensitive properties. Chapter 16 Cultural Heritage provides details and the management plans that will be in place to control construction activities in close proximity to sites of cultural significance. As part of these management plans, vibration monitoring will be undertaken at these sites where there is potential for vibration-generating activities to impact upon these sites.
There is potential for underwater noise as a result of piling activities in the absence of mitigation.	The use of vibratory piles for a substantial portion of the piling requirements will reduce the amount of impact driving and underwater noise generation.

Potential Impact	Summary of Proposed Mitigation
	Pile driving activity will be carried out as efficiently as possible to reduce the duration of the piling activity. Piling will only take place for a portion of each working day and will not be carried out at night. Seasonal constraints on pile driving will be implemented through mandatory non-piling windows for specific construction activities. Non-piling windows vary from two to five months in duration. All piling, dredging and demolition works will be undertaken in accordance with NPWS Guidance (2014) at set out under Chapter 7 Biodiversity, Flora and Fauna.
Monitoring Measures	Continuous terrestrial noise monitoring will be undertaken for the duration of the construction works in accordance with BS7445: Description and Measurement of Environmental Noise. All measurements will be made using Type 1 precision digital sound levels meters and associated hardware. The following parameters will be recorded as a minimum: LAeq, LAmax, LAmin, LA10 & LA90. The number and location of noise meters will be agreed with Dublin City Council (DCC). These will operate for the entire duration of the construction phase. A permanent secure noise monitoring station has previously been established at the marina adjacent to Pigeon House Road as part of the ABR Project. It is representative of nearest sensitive noise receptors and may prove to be an appropriate location for key elements of the 3FM Project subject to approval of DCC. Noise monitoring stations are also currently in operation at East Wall Road, and at Clontarf, representative of nearest sensitive noise receptors to the north and west of the 3FM Project site. It is proposed that these two monitoring stations will be maintained for the duration of the 3FM Project construction phase. An additional noise monitoring station is proposed towards Sandymount, sited to be representative of nearest sensitive noise receptors to the south of the 3FM Project site. All data will be collected and analysed on a weekly basis and the analysed data will be fed back to DPC and the Contractors with a view to reviewing the compliance of construction phase activities in the context of any relevant conditions in planning approval if granted, and the thresholds/requirements included in the draft Noise & Vibration Management Plan. This will also include any liaison requirement with DCC in this regard. Any noise nuisance issues associated with the construction phase activities will be immediately assessed and analysed in relation to the recorded noise levels and all correspondence with DPC, the Contractor, DCC and the residents will be conducted with the appropriate level of urgency. This will

Potential Impact	Summary of Proposed Mitigation
	include the appropriate liaison with DPC and the Contractor to control activities to ensure that the construction phase activities are in line with any relevant planning conditions and the CEMP. Interim synoptic reports will be produced on a regular basis, usually calendar months, and submitted to DCC and the project liaison group. Summary data and graphical outputs for each year of the construction phase will form part of an Annual Environmental Report. The data will be prepared in an analytical output that will aim to provide a concise representation of the construction phase noise levels from the port and will aim to avoid presentation of lengthy datasets. Underwater noise surveys will be undertaken during the construction phase of the works: The underwater noise surveys will complement the existing underwater noise level measurements which have been recorded during the impact piling carried out inside Alexandra Basin West and in the Liffey channel for the ABR and MP2 Projects. This will provide additional validation of the underwater noise modelling and to ensure the underwater noise levels are contained within the operations area of the port, Underwater noise surveys will be undertaken during the construction period at locations upriver and downstream of the works in the navigation channel. Monitoring will be carried out within two months following commencement of the piling activity.
Chapter 13 MATERIAL ASSETS - COASTAL PROCESSES	
Potential influence of proposed structures upon coastal processes could have negative environmental impacts.	Modelling of tidal currents and the movement of sediments has informed the final open piled design of the proposed Lo-Lo Terminal at Area N and bridge / viaduct spans to mitigate any impact on riverine and coastal environments, nearby European sites, and existing structures including the Great South Wall. This mitigation by design has reduced the potential impact of the 3FM Project on coastal processes to an imperceptible level.
Chapter 14 MATERIAL ASSETS - TRAFFIC & TRANSPORTATION	
Construction traffic during the construction phase of the 3FM Project will be offset by the phased closure of existing operations as the construction sequence progresses to refunction Port lands.	A Construction Traffic Management Plan will be implemented for the duration of the proposed construction works. A draft Construction Traffic Management Plan is presented in the Draft CEMP and summarized in Table 21.1. The following mitigation measures shall be applied: • Adhering to the Dublin City Council HGV Management Strategy; • A pre-defined haulage route will be agreed with DCC to avoid construction traffic through sensitive road networks at critical times; • Temporary warning signage will be installed, as necessary,

Potential Impact	Summary of Proposed Mitigation
	• Wheel washing, roadside cleaning, load checking and general maintenance of larger vehicles will be in place, • Appropriate parking facilities for site operatives and visitors within the site will be provided with all parking areas clearly signed and monitored. • The use of private vehicles by construction staff to access the site will be minimised through the encouragement of use of public transport, encouragement of car sharing, and maximising use of local labour to reduce transport emissions. To implement this, the Contractor shall prepare a Mobility Management Plan for site staff
Chapter 15 MATERIAL ASSETS - SERVICES	
The 3FM Project has the potential to impact on existing and proposed utilities within the Poolbeg Peninsula and in the vicinity of proposed roadworks within the North Port Estate.	The 3FM Project has been designed to avoid any significant impact on existing and proposed utilities. The utilities include: • NORA facilities at Ringsend and Poolbeg, • Uisce Éireann Ringsend Waste Water Treatment Plant; • Encyclis Waste to Energy Plant; • ESB Power Generation; • ESB Power Supply Networks; • Proposed Codling Wind Park Onshore Substation; and • Proposed Dublin City Council District Heating Scheme. No mitigation measures are therefore required.
The 3FM Project requires services - Water Supply, Wastewater and Electricity Supply.	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. Waste Water - 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. Electricity Supply - The appraisal has shown that the current electricity supply to the port is sufficient to meet the existing demands of the Dublin Port Estate. However short-term issues have been identified in ESB Power Networks ability to cater for project demands in the area, not just for Dublin Port but for all other local customers. 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.

Potential Impact	Summary of Proposed Mitigation
	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.
Chapter 16 CULTURAL HERITAGE (including Industrial & Archaeological)	
There is a need for an overarching Archaeology and Cultural Heritage Management Plan to be implemented during the construction phase	DPC has developed a Dublin Port Heritage Conservation Strategy in relation to heritage issues throughout the port estate and this shall apply to the 3FM Project. A project specific Archaeology and Cultural Heritage Management Plan will be implemented for the duration of the proposed construction works, presented in the Draft CEMP and summarized in Table 21.1. Notification obligations relating to underwater archaeological heritage pursuant to Part 5 of the Historic and Archaeological Heritage Act 2023 will be adhered to.
Ground disturbance activities have the potential to expose elements of the Great South Wall.	Archaeological monitoring licensed by the National Monument Service will be conducted of all ground disturbance activities, including site investigations, with the proviso to resolve fully any archaeological material observed at that point. Laser scan surveys of the Pigeon House Harbour area and the Great South Wall have been undertaken to record these structures in advance of any construction works.
The extension of capital dredging into the south side of the localised channel widening area and ship turning circle represents direct and permanent impacts on what appears to be previously un-dredged locations. It is an area of high archaeological potential and the recovery of shipping debris and/or shipwreck must be anticipated.	Archaeological monitoring licensed by the National Monument Service will be conducted of all seabed disturbances that might take place prior to construction, including site investigation, with the proviso to resolve fully any archaeological material observed at that point. Archaeological monitoring of all dredging activities and associated seabed disturbance activities conducted within the berth pockets and the localised channel widening area will be carried out, with the proviso to resolve full any material of archaeological significance observed at that point.
Monitoring Measures	Retaining an Archaeologist: • An archaeologist experienced in maritime archaeology will be retained for the duration of the relevant works. Retaining a Heritage Architect: • A heritage architect experienced in maritime and industrial heritage will be retained for the duration of the relevant works, to advise specifically in relation to works associated with the Great South Wall. Archaeological licences will be required to conduct the on-site archaeological works. Licence applications require the inclusion of detailed method statements, which outline the rationale for the works, and the means by which the works will be resolved.

Potential Impact	Summary of Proposed Mitigation
	Monitoring will be carried out by suitably qualified and experienced maritime archaeological personnel licensed by the Department of Culture, Heritage and the Gaeltacht. Archaeological monitoring will be conducted during all terrestrial, inter-tidal/foreshore and seabed disturbances associated with the development. The monitoring will be undertaken in a safe working environment that will facilitate archaeological observations and the retrieval of objects that may be observed and that require consideration during the course of works. The monitoring will include a finds retrieval strategy that is in compliance with the requirements of the National Museum of Ireland. Any appropriate archaeological discoveries shall be notified to the Minister pursuant to section 139 of the Historic and Archaeological Heritage and Miscellaneous Provisions Act 2023. The time scale for the construction phase will be made available to the archaeologist, with information on where and when ground disturbances will take place. In the event of archaeologically significant features or material being uncovered during the construction phase, machine works will cease in the immediate area to allow the archaeologist/s to inspect any such material. Once the presence of archaeologically significant material is established, full archaeological recording of such material will be recommended. If it is not possible for the construction works to avoid the material, full excavation will be recommended. The extent and duration of excavation will be a matter for discussion between DPC and the licensing authorities. It is recommended that the core of a suitable archaeological team be on standby to deal with any such rescue excavation. This would be complimented in the event of a full excavation. It is recommended that an archaeological dive team is retained on standby for the duration of any in-water disturbance works on the basis of a twenty-four or forty-eight hour call-out response schedule, to deal with any archaeologically significant/potential material that is identified in the course of the seabed disturbance activities. A site office and facilities will be provided by DPC on site for use by archaeologists. Secure wet storage facilities will be provided on site by DPC to facilitate the temporary storage of artefacts that may be recorded during the course of the site work. Buoying/fencing of any such areas of discovery will be necessary if discovered and during excavation.

Potential Impact	Summary of Proposed Mitigation
	Machinery traffic during construction will be restricted to avoid any identified archaeological site/s and their environs. Spoil will not be dumped on any of the selected sites or their environs. It is a condition of archaeological licensing that a detailed project report is lodged with the DCHG within 12 months of completion of site works. The report should be to publication standard and should include a full account, suitably illustrated, of all archaeological features, finds and stratigraphy, along with a discussion and specialist reports. Artefacts recovered during the works need to meet the requirements of the National Museum of Ireland.
Chapter 17 LANDSCAPE & VISUAL	
Due to distance and the broad scale of the landscape within which the works are located, the change in landscape and visual resource will be negligible and, therefore, the significance of landscape and visual effects during the construction stage will be minor adverse. No significant visual effects are therefore predicted at the construction stage.	Landscape mitigation measures are those taken to help remedy, reduce or compensate for significant landscape and visual impacts created by the development. No significant landscape or visual impacts are predicted for the 3FM Project during the construction phase. There is therefore no requirement for specific landscape mitigation measures to address significant impacts.
Chapter 18 POPULATION & HUMAN HEALTH	
Embedded mitigation measures	Monitoring of dust, odour and noise during the construction phase will act as precursors to any health impact, thereby enabling a monitoring regime that enables intervention before any manifest adverse health outcome. As part of annual reporting, DPC already monitors numbers of employees and several financial Key Performance Indicators (KPIs) (such as turnover, profit, tax contributions) to measure year-on-year progress. The continued measurement of these will ensure that financial socio-economic benefits of the 3FM Project construction phase are captured.
Chapter 19 WASTE	
Waste materials will be generated during the demolition and site clearance phase of the works	<u>Main Works Contractor</u> • A Main Works Contractor (MWC) will be appointed. DPC and its appointed MWC will ensure that demolition wastes will be collected by an appropriately licensed waste management Contractor and that all management routes comply with the European Union waste hierarchy of prevention, preparing for reuse, recycling, and recovery with disposal being the last and final option and with other legal requirements. All waste materials leaving the site will be transported

Potential Impact	Summary of Proposed Mitigation
	and disposed or recovered through licenced operators and in accordance with national waste legislation. <u>Demolition Survey</u> • The demolition works will be constructed in a phased manor. A Demolition Survey is required prior to any demolition work commencing in order to facilitate and maximise recovery of resources from demolition for beneficial reuse and recycling. The Demolition Survey will set out all high value waste materials, such as metals, that will be removed from buildings and segregated for possible onward reuse or recycling to maximise recovery. As per the best practice guidelines[1] this will be informed by EU Guidelines for the waste audits before demolition and renovation works of buildings (May 2018). A number of asbestos surveys have been undertaken as summarised in Chapter 19 of the EIAR. Any asbestos present in the buildings required to be demolished shall be removed offsite prior to demolition. <u>Segregation & Storage of demolition materials</u> Demolition debris will be separated into five waste streams on-site: • Construction debris (i.e. ceramics, tiles, plasterboard), • Masonry materials (i.e. brick, concrete blocks) • Metals, • Timber, • Universal waste (i.e. fluorescent bulbs, ballast and mercury containing switches). On-site segregation of all hazardous waste materials into appropriate categories will be undertaken: • Waste oils and fuels; • Paints, glues, adhesives and other known hazardous substances. Wastes will be covered where required and stored in stockpiles, dedicated skips or secure containers for hazardous materials. Signage will be required to ensure waste is sorted into the appropriate categories on-site. Appropriate measures to prevent environmental impacts such as run-off, will be implemented as needed. The storage and reuse of demolition or excavation wastes on site may be subject to a number of waste licensing requirements. If these wastes are to be stored on site, prior to potential reuse or recovery

[1] https://www.epa.ie/publications/circular-economy/resources/CDWasteGuidelines.pdf

Potential Impact	Summary of Proposed Mitigation
	during construction, this activity will be subject to a Waste Management Licence Exemption with a limited tonnage of material permitted to be stored on site. Storage will take place in a secure area on-site and the Contractor will monitor the amount of waste stored to ensure that the permitted limits of the Exemption are not exceeded. DPC and its appointed Contractor will consult with the EPA prior to construction to ensure that the appropriate Waste Management Licence or Exemption is in place. Reuse of demolished material on-site In order to divert waste from being reuse/recycled off site or landfilled, possibilities for reuse of inert demolition material as fill on site will be considered, following appropriate testing to ensure materials are suitable for their proposed end purpose. If suitable engineered fill material or suitable CDW arising material is identified in the construction phase/sequencing then this material will be used as infill. Suitable CDW arising material will be used in the following construction activities: • It is proposed to raise the ground level of the Maritime Village site by an average in excess of 1.5m which will require an estimated 30,200m^3 of imported fill material or suitable engineered fill material/suitable CDW arisings. • Turning Circle (north-east corner of Masterplan Area M) 26,500m^3 • Area 0 32,250m^3 • Area L 6,900 m^3 The existing surfacing, concrete and underlying gravel infill at Area K will be removed or reused if suitable. This will be reviewed on an ongoing basis. DPC and its appointed MWC will consult with the EPA prior to construction to ensure that the appropriate licences, permits and exemptions are in place prior to initiation, for example, crushing concrete on site will require a waste facility permit. The existing 100 berth floating marina, and the dedicated rowing pontoons at the Maritime Village site will also be removed together with their anchor block mooring systems and access walkways. Where possible elements will be reused in the proposed new facilities. Under section 3(1) of the Waste Management Act 1996, as amended the requirements do not apply to the following materials, which hence are not considered 'waste'[2]:

[2] Best practice for the preparation of resource & waste management plans for construction & demolition projects EPA 2021

Potential Impact	Summary of Proposed Mitigation
	• Land (in-situ) including unexcavated contaminated soil and buildings permanently connected with land – relates to land and buildings prior to any construction or demolition where material remains untouched. Once it has been excavated or otherwise removed, the material may enter into the control regime set down by the Waste Management Acts. • Uncontaminated soil and other naturally occurring material excavated in the course of construction activities where it is certain that the material will be used for the purposes of construction in its natural state on the site from which it was excavated. In addition, the following provisions within the European Union (Waste Directive) Regulations 2011–2020 allow for the classification of resources out of the waste regime as follows: • Article 27 allows for the notification of a material as a by-product rather than a waste where certain criteria can be demonstrated by the legal person (i.e. further use is certain, no need for further processing, produced as part of a process and further use is lawful). Article 28 sets out the grounds by which a material, which is recovered or recycled from waste, can be deemed to be no longer a waste and complies with a set of end-of-waste criteria (substance/ object to be used for specific purposes, a market or demand exists, fulfils technical requirements and no overall adverse impact to human health or the environment).
There is likely to be an increase in the amount of waste produced during the construction phase of the works.	<u>Duty of Care in relation to correct waste authorisations</u> Contractors working on site during the works will be responsible for the collection, control and disposal of all wastes generated by the works. DPC and its appointed MWC will ensure that waste is handled only by a body authorised under the Waste Management Acts as amended to manage it. This duty implies, at the very least, checking to see that the required authorisation is in place, has not expired and is appropriate for the waste types that are to be handled. DPC and its appointed MWC will ensure that all waste materials leaving the site will be transported via a licensed carrier and disposed or recovered through licenced operators and in accordance with national waste legislation. Monitoring and updating of records will be implemented. <u>On-site waste management</u> Project design will incorporate adequate dedicated space for a Waste Storage Area(s) to cater for the segregation and storage of all various waste streams during construction. This waste storage compound will be fully enclosed within the development and will allow for waste sorting, segregation, handling activities such as bailing of cardboard and plastic and sufficient waste storage. Site compounds are identified in Chapter 5 of this EIAR. Separate compounds will be used for different phases of the works. Each compound is located in or

Potential Impact	Summary of Proposed Mitigation
	immediately adjacent to the relevant works phase, such as to cause minimal interference to general port operations. Wastes will be covered where required and stored in stockpiles, dedicated skips or other suitable receptacles and secure containers for hazardous materials. Signage will be required to ensure waste is sorted into the appropriate categories on-site. Appropriate measures to prevent environmental impacts such as run-off, will be implemented as needed. The waste storage area(s) will be assigned and all construction staff provided with training regarding the waste management procedures on commencement of the project. The Contractor will ensure adequate security measures are put in place. <u>Segregation of Materials</u> Construction waste materials shall be sorted and segregated on-site for recycling into appropriate categories on-site, for example: • Wood/Timber • Metals • Cardboard & paper • Glass • Plastics • Rubble • General waste <u>Reuse of demolished material on site</u> In order to divert waste from landfill, possibilities for reuse of inert demolition material as fill on site will be considered, following appropriate testing to ensure materials are suitable for their proposed end purpose. Currently there is no proposed areas to be infilled using engineered fill material and suitable CDW arising from demolition works within the footprint of the development. However this will be reviewed on an ongoing basis. DPC and its appointed MWC will consult with the EPA prior to construction to ensure that the appropriate licences, permits and exemptions are in place prior to initiation. Under section 3(1) of the Waste Management Act 1996, as amended the requirements do not apply to the following materials, which hence are not considered 'waste'[3]: • Land (in-situ) including unexcavated contaminated soil and buildings permanently connected with land – relates to land and buildings prior to any construction or demolition where material remains untouched. Once it has been excavated or otherwise removed, the material may

[3] Best practice for the preparation of resource & waste management plans for construction & demolition projects EPA 2021

Potential Impact	Summary of Proposed Mitigation
	enter into the control regime set down by the Waste Management Acts. • Uncontaminated soil and other naturally occurring material excavated in the course of construction activities where it is certain that the material will be used for the purposes of construction in its natural state on the site from which it was excavated. In addition the following provisions within the European Union (Waste Directive) Regulations 2011–2020 allow for the classification of resources out of the waste regime as follows: • Article 27 allows for the notification of a material as a by-product rather than a waste where certain criteria can be demonstrated by the legal person (i.e. further use is certain, no need for further processing, produced as part of a process and further use is lawful). Article 28 sets out the grounds by which a material, which is recovered or recycled from waste, can be deemed to be no longer a waste and complies with a set of end-of-waste criteria (substance/ object to be used for specific purposes, a market or demand exists, fulfils technical requirements and no overall adverse impact to human health or the environment). <u>Construction Waste Management Plan (CWMP)</u> Construction waste will be managed as part of the CWMP contained in the CEMP, which will be implemented by the appointed Contractor for the duration of the construction works. As demonstrated in the draft CEMP, the CEMP will contain procedures for the management of waste and related pollution control measures. The CEMP will be a live document and will be subject to revision throughout the course of the construction phase but will contain all measures outlined in the draft CEMP appended to the EIAR. Specific waste management requirements include: • Identify how the waste will be dealt with (i.e. disposal, re-use on/off site etc.). • Building materials should be chosen with an aim to 'design out waste.' • Identify potential end markets e.g. reuse, recycling facilities, waste treatment facilities and disposal sites. • All waste leaving site will be recycled, recovered or reused where possible, with the exception of those waste streams for which appropriate facilities are currently not available. • On-site segregation of non-hazardous waste materials into appropriate categories, where possible, including any excavated soils, concrete, bricks, tiles, ceramics and plasterboard, metals and timber.

Potential Impact	Summary of Proposed Mitigation
	• On-site segregation of all hazardous waste materials into appropriate categories including contaminated soils, waste oil and fuels and paints, glues, adhesives and other known hazardous substances. • Control measures and attention to materials quantity requirements to avoid over-ordering and generation of waste materials. • Agreements with materials suppliers to reduce the amount of packaging or to participate in a packaging take-back Scheme. • Implement a 'just in time' materials delivery systems to avoid materials being stockpiled, which increases the risk of the damage and disposal as waste. • Segregation of waste at source where practical. • All waste materials will be stored in skips or other suitable receptacles in designated areas of the site. The waste storage area(s) will be assigned and all construction staff provided with training regarding the waste management procedures on commencement of the project. • Measures to ensure appropriate staff training and levels of awareness in relation to waste management. • Waste streams will be collected by an appropriately licensed and permitted private waste Contractor, appointed by the Contractor for recycling, recovery or disposal at suitably licensed facilities. • Provide a method to calculate the difference between expected waste quantities prior to commencement of the project and actual waste quantities after the project is complete. • The appointed Contractors for the site preparation, piling, earthworks and construction phases of the works will be contractually obliged to follow the CEMP and all relevant legislation. <u>Project Resource and Waste Management Plan (RWMP)</u> A Project RWMP will be prepared in accordance with 'BEST PRACTICE GUIDELINES for the preparation of resource & waste management plans for construction & demolition projects.' A preliminary draft plan has been incorporated into the CEMP to ensure effective waste management and recycling of waste generated during the works. The Plan will be implemented from the outset of the project and throughout the duration of the project taking into consideration the waste management hierarchy to encourage sustainable development, environmental protection and optimum use of resources. The appointed Contractors for the site preparation, earthworks and construction phases of the works will be contractually obliged to follow the Project RWMP and all relevant legislation.

Potential Impact	Summary of Proposed Mitigation
	Waste Arising from Wash Down Facility Solid waste in the form of sediments will arise from the wheel wash unit settlement tank. The unit will be inspected daily (for example, to check automated features are working and settlement content) and emptied in accordance with manufacturer's instructions. The solid residues will be analysed and the disposal route appropriately selected based on the results of this analysis. A gully emptier tanker will be used to remove settlement tank waste which will be disposed of at an approved waste disposal site. Fuels and hydraulic oils/lubricants Contractors will ensure all plant is inspected and serviced in accordance with its schedule. A bunded disposal area will be provided. Contractors will provide staff training on the waste management strategy. Disposal/recovery under licence.
Monitoring Requirements	All waste types and amounts generated will be recorded and reviewed at regular intervals, to allow for continuous analysis and review of procedures that will be made to reduce waste to landfill, increase the percentage of recycling and reduce waste overall as much as possible. Waste storage will take place in a secure area on-site and the appointed Contractor will monitor the amount of waste stored to ensure that the permitted limits of any exemption are not exceeded. The CEMP will set out measures and procedures to monitor waste flows on site and update records. The appointed Contractor will be required to appoint a Resource Manager (RM) throughout the construction stage of the proposed development. The RM will be trained in how to set up and maintain a record keeping system, how to perform, audit and how to establish targets for waste management on site. They will also be trained in the best method for sorting, segregation and storage of recyclable materials, have information on the materials that can be reused on-site and implement the Project C&D Waste Management Training of staff on site will be coordinated by the RM and as such, a waste training programme will be organised. A basic awareness course will be held for all Contractor site personnel to outline the RWMP and to detail the sorting and segregation of waste at source. This may be incorporated with other training needs (e.g. general site induction, safety training etc.). This basic course will describe the materials to be sorted and segregated, the storage methods and the location of waste storage areas. A subsection on hazardous wastes will be incorporated and the particular dangers of each hazardous waste will be explained. Records will be kept for each waste material which leaves the site, whether for reuse on another site, recovery, recycling or disposal.

Potential Impact	Summary of Proposed Mitigation
	A system will be put in place to record the waste arising on site during demolition and construction phases. The RM will have responsibility to maintain and record the following: • List of up-to-date authorised waste collection permit NWCPO numbers and destination facilities permit/waste licence/PPC numbers being used • Provide when required letter on headed paper signed by relevant competent person from the destination facilities confirming acceptance of the material and tonnages agree specifically referencing the site • Waste Classification undertaken were required (Laboratory testing and Haz Waste Online results) • Waste taken off-site for reuse • Waste taken off-site for recovery • Waste taken off-site for recycling • Waste taken off-site for disposal For each movement of waste off-site a signed waste collection docket will be obtained by the RM from the licensed waste Contractor. This will be carried out for each material type. This system will also be linked with the delivery records. A signed waste acceptance docket will be issued for each movement of waste on-site. The RM will ensure that the waste docket used are specific to the authorised waste collector that collected the waste. If waste movements are not accounted for, the reasons for this should be established in order to see if and why the record keeping system has not been maintained. Each material type will be examined in order to see where the largest percentage waste generation is occurring. The waste management methods for each material type will be reviewed in order to highlight how waste can be minimized. The appointed RM will be responsible for conducting a waste audit at the site during the C&D phase of the development. A review of all records for waste generated and transported off-site, should be undertaken mid-way through the C&D phase. Upon completion of the C&D phase a final report will be prepared summarising the outcomes of waste management processes adopted and the total recycling / reuse / recovery figures for the proposed development.

Mitigation by avoidance has also been used, where possible. A summary of the Closed Periods identified by the mitigation measures are set out below:

Capital Dredging

Mitigation by avoidance includes restricting capital dredging to the winter seasons (October to March) to avoid disturbance of nesting terns. The proposed capital dredging Closed Periods are set out in Figure 21.1.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
All Capital Dredging												
Upstream of Berth 49 includes the period 15th to 31st March												

Figure 21.1 Capital Dredging Closed Periods (denoted by orange coloured cells)

Piling Activity

Riverside impact piling activity is also restricted to avoid disturbance of migrating salmon. The proposed Closed Periods for riverside impact piling are set out in Figure 22.2.

- The period March to May represents the peak smolt run (river to sea)
- The period July to August represents the peak adult salmon return (sea to river).

Vibratory piling is allowable during these periods.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
SPAR bridge												
SPAR Viaduct												
Marina (pontoon piles)												
Area K Berth 45												
Area K Ro-Ro ramp locating piles												
Turning circle and temporary works piling												
Area N outer piles x 5 rigs												
Area N inner piles x 5 rigs												
Oil Terminal Dolphin												

Figure 21.2 Impact Piling Closed Periods (denoted by orange coloured cells)

Impact piling activity within 75m of Dublin Port's tern colonies is also restricted to avoid disturbance. The proposed closed periods for impact piling proximate to the tern colonies are set out in Figure 21.3. These closed periods coincide with the restrictions for salmon impacts mitigation at Area K and Area N.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Impact Piling within 75m of the Tern Colonies												

Figure 21.3 Impact Piling Closed Periods within 75m of Dublin Port's Tern Colonies (denoted by orange coloured cells)

21.1.2 Implementation of Construction Phase Mitigation Measures

DPC intends to appoint a Contractor(s) to undertake each phase of the works. The mitigation measures set out in the EIAR have been incorporated into a Draft Construction Environmental Management Plan (CEMP) for the 3FM Project which forms part of the 3FM Project planning application (under separate cover). The draft CEMP sets out the minimum requirements which will be adhered to during the construction phase of the 3FM Project.

The Draft CEMP will form part of the Contract Documents for the construction stage to ensure that the Contractor undertakes the works required to implement the mitigation measures.

DPC has an established liaison group for the ABR Project and MP2 Project which includes representatives of DPC, the Contractor, Dublin City Council (DCC) and MARA. The group meets at quarterly intervals each year with an agenda and minutes taken of the meetings. It is proposed that this liaison group will also provide environmental oversight of the construction phase of the 3FM Project.

DPC will appoint a suitably qualified person to the role of Environmental Facilities Manager (Environmental Clerk of Works) to monitor the 3FM Project construction works. The Environmental Facilities Manager will provide monthly reports to the members of the liaison group. The Environmental Facilities Manager will work closely with the Contractor's site supervisors to monitor activities and ensure that all relevant environmental legislation is complied with and that the requirements of the CEMP are implemented. The Environmental Facilities Manager will have the authority to review method statements, oversee works and instruct action, as appropriate, including the authority to require the temporary cessation of works, where necessary.

A suite of draft Construction Environmental Management Plans has been prepared for the construction phase of the 3FM Project and are presented in the Draft CEMP and summarized in Table 21.2. These draft Construction Environmental Management Plans will be finalised as required prior to the commencement of construction and will incorporate the mitigation measures outlined in the documentation submitted with the application for permission, and will include any additional requirements pursuant to conditions attached to statutory consents. In addition, regular audits of the CEMP will be undertaken during the construction phase of the works by the Environmental Facilities Manager.

A suite of monitoring programmes has also been prepared for the construction phase of the of the 3FM Project and are presented in the Draft CEMP and summarized in Table 21.3.

Table 21.2 Summary of the Construction Environmental Management Plans

Type of Environmental Management Plan	Ongoing Mitigation Required	Ongoing Mitigation Specific Requirements	Ongoing Monitoring/ Auditing Required	Timing of Ongoing Monitoring	Reporting Requirements	Reporting Procedures	Ongoing Liaison Required	Other Specific Requirements
Construction Traffic Management Plan	Yes	Compliance with DCC's HGV Management Strategy	Yes	During Construction	Quarterly Reports	Report submitted to Planning Authority	Yes	Complaints Procedure
Invasive Alien Species Management Plan	Yes	Precautionary measures to prevent importation and spread	Yes	During Construction	Quarterly Reports	Report submitted to Planning Authority	Yes	Containment / Treatment required if any Invasive Alien Species are found on the site
Construction Waste Management Plan	Yes	Compliance with the Waste Framework directive (2008/98/EC)	Yes	During Construction	Monthly Reports, input to Annual Environmental Report	Report submitted to Planning Authority and EPA	Yes	Complaints Procedure
Resource & Waste Management Plan	Yes	Prepared in line with Best Practice guidelines for the preparation of Resource & Waste Management Plans for construction & demolition projects, EPA 2021.	Yes	During Construction	Monthly Reports, input to Annual Environmental Report	Report submitted to Planning Authority and EPA	Yes	Complaints Procedure
Noise & Vibration Management Plan	Yes	Compliance with NRA Guidelines and BS5228:2009+A1:2014	Yes	Preconstruction and during construction	Monthly Reports, input to Annual Environmental Report	Report submitted to Planning Authority and EPA	Yes	Specific noise limits to be met at nearest noise sensitive receptors, Complaints Procedure

Type of Environmental Management Plan	Ongoing Mitigation Required	Ongoing Mitigation Specific Requirements	Ongoing Monitoring/ Auditing Required	Timing of Ongoing Monitoring	Reporting Requirements	Reporting Procedures	Ongoing Liaison Required	Other Specific Requirements
Dust and Odour Management Plan	Yes	Compliance with EPA and BRE Guidelines Construction of Noise Barriers	Yes	Preconstruction and during construction	Monthly Reports, input to Annual Environmental Report	Report submitted to Planning Authority and EPA	Yes	Complaints Procedure
Marine Mammals Management Plan	Yes	Compliance with NPWS Guidelines	Use of MMOs, installation of SAM system	Preconstruction, during construction and for 2 years after works completion	Monthly Reports, input to Annual Environmental Report	Report submitted to Planning Authority and NPWS	Yes	Close liaison required with NPWS
Birds and Marine Ecology Management Plan	Yes	Adherence to piling and dredging mitigation measures	Specialist surveys required	Preconstruction, during construction and for 2 years after works completion	Monthly Reports, input to Annual Environmental Report	Report submitted to Planning Authority and NPWS	Yes	Implementation of DPC's Black Guillemot and Tern Management Plans.
Archaeology and Cultural Heritage Management Plan	Yes	Compliance with DHLGH Guidelines	Monitoring to be undertaken by conservation engineer, Grade 1 Conservation Architect and project archaeologist.	During Construction	Monthly Reports, input to Annual Environmental Report	Report submitted to Planning Authority and DHLGH	Yes	Appropriate Licences required from DHLGH

Type of Environmental Management Plan	Ongoing Mitigation Required	Ongoing Mitigation Specific Requirements	Ongoing Monitoring/ Auditing Required	Timing of Ongoing Monitoring	Reporting Requirements	Reporting Procedures	Ongoing Liaison Required	Other Specific Requirements
Water Quality Management Plan	Yes	Compliance with EPA Guidelines etc	Installation of real-time water quality monitoring system	Preconstruction and during construction	Monthly Reports, input to Annual Environmental Report	Report submitted to Planning Authority and EPA	Yes	Complaints Procedure
Dredging Management Plan	Yes	Adherence to dredging mitigation measures	Yes	During Construction	Monthly Reports, input to Annual Environmental Report	Report submitted to Planning Authority and EPA	Yes	Complaints Procedure
Pollution Incident Response Plan	Yes	Adherence to guidelines for rapid and efficient response to minimize environmental impact	Monitoring of pollution events required and records of pollution prevention equipment.	During construction	Detailed record of all pollution events and responses, costs involved and environmental impacts.	Report submitted to Planning Authority and EPA	Yes	Specific training, and debriefing post pollution events to establish causes of events, lessons learned and preventive or corrective action required.
Project Carbon Management Plan	Yes	Aligned with the principles of PAS2080:2023	Yes	During construction	Monthly Reports, input to Annual Environmental Report	Report submitted to Planning Authority	Yes	Close liaison required with Contractor

Table 21.3 Summary of Environmental Monitoring Programmes

Monitoring Programme	Monitoring Element	Frequency of Monitoring	Location	Parameters Measured	Surveyors / Support	Sampling Constraints	Action Threshold	Monitoring and Reporting	Report / Frequency
Badger Sett Ecological Exclusion Zone (EEZ)	**Visual checks to ensure the EEZ remains in place and functional**	Monthly during construction	Irishtown Nature Park	EEZ / fencing integrity	1 person	None	N/A	Terrestrial Ecologist	Monthly during monitoring period
BIRD MONITORING	**Census of Black Guillemot Population nesting in Dublin Port**	Annually in period 26 March to 15 May. Two surveys to be carried out on two separate dates.	Quaysides within Dublin Port	Number Black Guillemots on land or sea within 300m of the shore Number of occupied nest sites and associated adults Number of nest boxes occupied	2 / Boat Support	0500 - 0900 BST. Beaufort 4 or less. Calm Sea Conditions	N/A	Bird Specialist	Annually (year ending March) by 31st July each year.
	Census of Common and Arctic Terns nesting in Dublin Port	Annually in period 10 June to 15 July	Permanent Structures and Pontoons in Dublin Port	Number of apparently occupied nests (egg clutches or flush count).	2 / Boat Support	Moderate weather and sea conditions.	N/A	Bird Specialist under licence from NPWS	Annually (year ending March) by 31st July each year.
	Winter Wetland Birds	Monthly from October 1 to March 31 during each year of the project	Intertidal areas within inner Liffey channel including Tolka Estuary	Bird Flocks - species and approx. numbers.	2 to 3 as required	Low tide ± 2 hours. Daylight. Good weather conditions.	N/A	Bird Specialist	Annually (year ending March) by 31st July each year.
	Sand Martins	Annually in period April to August. Two surveys to be carried out on two separate dates.	Pigeon House Precinct and environs	Number of apparently occupied nest sites.	2 / Boat Support	0500 - 0900 BST. Beaufort 4 or less. Calm Sea Conditions	N/A	Bird Specialist	Annually (year ending March) by 31st July each year.

Monitoring Programme	Monitoring Element	Frequency of Monitoring	Location	Parameters Measured	Surveyors / Support	Sampling Constraints	Action Threshold	Monitoring and Reporting	Report / Frequency
MARINE MAMMALS	**Marine Mammal Observation in exclusion zones**	For piling, dredging and demolition operations within the foreshore	Within 500m of dredging / demolition operations. Within 1000m of piling operations. Within the Bull Walls for Harbour Porpoise during piling.	Presence of marine mammals	1 to 3 as required	Suitable vantage point./ on dredging vessels.	Presence of marine mammal in exclusion zone.	Marine Mammal Observer	NPWS MMO Location and Effort Forms
	Continuous Static Acoustic Monitoring (SAM)	Ongoing logging using F-PODS at four stations	4 locations Dublin Bay/Lower Liffey	Echolocation clicks of dolphins and porpoises	F-PODs to be retrieved every 3-4 months	F-PODs to be positioned on seabed using acoustic releases	N/A	Marine Mammal Ecologist	Annually (year ending March) by 31st July each year.
	Continuous Passive Acoustic Monitoring (PAM)	Ongoing logging using hydrophone at one station	North Bank Light, inner Liffey channel	Echolocation clicks of dolphins and porpoises	PAM system to be serviced annually	N/A	Presence/ Absence	Marine Mammal Ecologist	Annually (year ending March) by 31st July each year
	Seal Haul Out Sites Dublin Bay	Monthly	North Bull Island and adjacent areas. Dublin Bay within zones of influence.	Species. Maturity Stage. Behaviour.	Coordinate with NPWS surveys	Low water ± 2 hours.	N/A	Marine Mammal Ecologist	Annually (year ending March) by 31st July each year.
WATER QUALITY	**Water quality in lower Liffey in Dublin Port**	High frequency (15min) real time at four stations	4 locations Inner Liffey channel	Dissolved Oxygen (DO), Turbidity, Temperature, Salinity, pH	Regular servicing and calibration of sondes	N/A	DO &Turbidity thresholds to be agreed with EPA in advance of dredging	Environmental Facilities Manager	Monthly Synoptic and Annually (year ending March) by 31st July each year.

Monitoring Programme	Monitoring Element	Frequency of Monitoring	Location	Parameters Measured	Surveyors / Support	Sampling Constraints	Action Threshold	Monitoring and Reporting	Report / Frequency
ATMOSPHERIC NOISE AND DUST	**Dust Deposition**	Continuous over project duration	3 locations: • Poolbeg Marina; • East Wall • Towards Sandymount	Dust deposition using Bergerhoff Dust Deposition Gauges	Deposition jars to be replaced monthly	N/A	350mg/m^2/d	Environmental Facilities Manager	Monthly Synoptic and Annually (year ending March) by 31st July each year.
	Noise Levels	Continuous for duration of Project	4 locations: • Poolbeg Marina; • Clontarf; • East Wall • Towards Sandymount	Equivalent Continuous Sound Pressure Level (Laeq)	Yearly calibration of noise meters	N/A	65 dBA 65 dBA 70 dBA 65 dBA	Environmental Facilities Manager	Weekly to Contractor/DPC Annual AER
UNDERWATER NOISE	**Underwater Noise Levels**	Validation surveys	4 locations Inner Liffey Channel	dB SEL to monitor TTS -Temporary hearing impact	Boat Support	N/A	140 dB SEL Porpoise, 170 dB SEL Seals 150 dB SEL Fish	Underwater Noise Specialist	Survey required during piling operations within 2 months after commencement
GROUND GAS & GROUNDWATER LEVEL MONITORING	**Gas Monitoring using in-situ telemetry enabled ground gas monitoring device.** **Groundwater level monitoring using in-situ continuous**	Continuous monitoring of ground gas and groundwater level to commence prior to ground improvement works, during works, and for a further 2 weeks following the completion of ground	Area O (at former landfill site)	CH_4 CO_2, O_2, CO, H_2S, LEL, Flow, atmospheric pressure	N/A	N/A	Notable change in ground gas levels as a result of ground improvment works.	Contaminated Land Specialist	Weekly data report and trend interpetation. Final Report following the completion of monitoring programme.

Monitoring Programme	Monitoring Element	Frequency of Monitoring	Location	Parameters Measured	Surveyors / Support	Sampling Constraints	Action Threshold	Monitoring and Reporting	Report / Frequency
	groundwater level loggers.	improvement works.							
ARCHAEOLOGY	**Interaction with GSW and other protected structures. Restoration works. Monitoring for potential new finds**	Continuous for duration of Project	Capital Dredging, Landside works	Ground Disturbance Demolition of Structures Capital Dredging	Boat support during capital dredging	N/A	Notification to National Monument Service of significant finds	Archaeology Specialists	Monthly Reporting

21.1.3 Operational Phase Mitigation Measures

The existing land uses within the footprint of the 3FM Project comprise the manoeuvring and berthing of vessels, the handling of Ro-Ro, Lo-Lo and Bulk cargo; HGV traffic distributing cargo to and from Dublin Port and other activities on relatively short-term leases including site compounds and concrete mixing plant.

The 3FM Project is designed to provide port infrastructure which will improve the efficiency of port operations and increase the throughput of Ro-Ro and Lo-Lo cargo.

The future land uses within the footprint of the 3FM Project will therefore not significantly change and consequently operational mitigation measures are largely based on the following:

- Integration of the new port infrastructure with existing operational plans and procedures;
- Integration with port-wide monitoring programmes to establish environmental trends in order to support future initiatives to enhance the environment or take corrective action, if required;
- Integration of the new port infrastructure with future port-wide initiatives such as the development of an over-arching Climate Change Adaptation Plan and Heritage Plan for the Great South Wall;
- Integration with the strategic objectives of the Dublin Port Masterplan 2040, reviewed 2018.

Table 21.4 summarises the operational phase mitigation measures recommended within the EIAR. All mitigation measures proposed within the NIS have been included in this EIAR

Table 21.4 Operational Phase Mitigation measures recommended within the EIAR

Potential Impact	Summary of Proposed Operational Mitigation
Chapter 6 RISKS OF MAJOR ACCIDENTS & DISASTERS	
Potential for loss of life or injury to Natural Events.	The 3FM Project does not introduce any new risks that could cause or exacerbate a major accident, nor is it considered that the 3FM Project will significantly alter the risks presented to existing COMAH establishments during normal Port operations. The 3FM Project will operate under Dublin Port's existing Emergency Response Plan.
Potential for damage to the environment.	
Potential for damage to the facilities, plant and equipment of DPC, its commercial partners, tenant companies and neighbours.	
Chapter 7 BIODIVERSITY, FLORA & FAUNA	
Japanese Knotweed, a regulated invasive plant species listed in the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011, as amended, has been recorded at locations on the Poolbeg peninsula in, or adjacent to Dublin Port lands. Two other invasive species have been detected, Sea Buckthorn and 3-cornered leek.	DPC has committed to formulating an Invasive Alien Species (IAS) Management Plan for the entire port area. The Plan will outline containment and eradication measures to be implemented if any IAS are identified. The plan will include prevention measures which will range from raising awareness of IAS and the potential for their dispersal, to ensuring best practice in relation to the movement of materials into, within or out of the operations area.

Potential Impact	Summary of Proposed Operational Mitigation
Bats Unsuitable / obtrusive lighting could discourage foraging and/or commuting activity along the coastal path connecting Sean Moore Park and the new Port Park. Similarly, unsuitable / obtrusive lighting used to light the sports pitch within Port Park could discourage foraging and/or commuting along adjacent new treelines or across the wider new wildflower meadow.	New lighting along the upgraded path connecting Sean Moore Park and the new Port Park & Wildflower Meadow will be in accordance with the Institution of Lighting Professionals (ILP) Guidance Notes for the Reduction of Obtrusive Light (ILP, 2021) and Bats and Artificial Lighting in the UK (ILP, 2023). Within the new Port Park, lighting is proposed around the sports pitch. Lighting is designed here to minimise light spill by using LED floodlights that have a very low upward light output ratio and will also be fitted with back reflectors to cut off the low throwback to reduce light pollution to areas adjacent the pitch. LED luminaires will be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability. Column heights will minimise light spill and glare visibility. Luminaires will be mounted horizontally, with no light output above 90° and/or no upward tilt (ILP, 2023).
Potential impact of future maintenance dredging works on marine ecology including fisheries and marine mammals.	DPC need to carry out regular maintenance dredging of the navigation channel, basins and berthing pockets in order to maintain their advertised charted depths and hence provide safe navigation for vessels to and from the port. When the 3FM Project capital dredging campaign is completed, the 3FM Project dredged areas will be incorporated into Dublin Port's maintenance dredging plan which will be subject to a Maritime Area Consent and Dumping at Sea Permit. Maintenance dredging will be subject to the implementation of a comprehensive suite of mitigation measures to minimise impact on marine ecology including fisheries and marine mammals. These measures include: • Loading will be carried out by a back-hoe dredger or trailing suction hopper dredger (TSHD). The TSHD's pumps will be switched off while the drag head is being lifted and returned to the bottom as the dredger turns between successive lines of dredging to minimise the risk of fish entrainment. • Full time monitoring of Marine Mammals within 500m of loading and dumping operations will be undertaken in accordance with the measures contained in the Guidance to Manage the Risk to Marine Mammals from Man-Made Sound Sources in Irish Waters (NPWS 2014).
Potential opportunities for Fisheries Enhancement	DPC are committed to working with Inland Fisheries Ireland and third level academic institutions to explore fisheries enhancement measures within the framework of the 3FM Project area, concentrating in particular in optimising biodiversity and fisheries biomass associated with new harbour structures.

Potential Impact	Summary of Proposed Operational Mitigation
Long-term Monitoring of marine mammals and shipping noise	DPC will continue to operate a Passive Acoustic Monitoring (PAM) system at the North Bank Light to monitor underwater noise trends as a result of shipping and to monitor the usage of the inner Liffey channel by porpoise and dolphin.
Chapter 8 LAND, SOILS, GEOLOGY, HYDROGEOLOGY	
	No specific operational phase mitigation measures with regard to land, soils, geology and hydrogeology are required.
Chapter 9 WATER QUALITY and FLOOD RISK	
Potential impact of future maintenance dredging works on Water Quality	DPC will continue to implement comprehensive mitigation measures during all maintenance dredging campaigns to mitigate against potential impacts to Water Quality. These measures include: • Loading will be carried out by a back-hoe dredger or trailing suction hopper dredger (TSHD). • No over-spilling from the vessel will be permitted while the dredging activity is being carried out within the inner Liffey Channel. • The dredger's hopper will be filled to a maximum of 4,100 cubic metres (including entrained water), while dredging silts within the inner Liffey Channel, to control suspended solids released at the dumping site. • A documented Accident Prevention Procedure will be put in place prior to commencement • A documented Emergency Response Procedure will be put in place prior to commencement • A full record of loading and dumping tracks and record of the material being dumped will be maintained for each trip. • Dumping will be carried out through the vessel's hull. • The dredger will work on one half of the channel at a time within the inner Liffey channel to prevent the formation of a silt curtain across the River Liffey. • When any dredging is scheduled to take place within a 500m radius of power station intakes, the relevant stakeholders will be notified so that precautionary measures can be taken if deemed necessary.
Potential impacts of the general operation of the 3FM Project on Water Quality.	The operational phase of the 3FM Project will be subject to Dublin Port's existing Environmental Management System (EMS) which is accredited to the Port Environmental Review System (PERS) which has gained Dublin Port designation as an 'Ecoport' at European level.

Potential Impact	Summary of Proposed Operational Mitigation
	The EMS will be updated to include all new port infrastructure constructed as part of the 3FM Project, including surface water drainage. The EMS is supported by a comprehensive suite of Standard Operating Procedures (SOP) providing mitigation of all environmental aspects identified and mechanisms to ensure effective implementation. SOPs have been prepared for oil and chemical spill responses, mineral oil handling, waste handling, monitoring and maintenance of surface water interceptors and handling of drain cleaning waste. Controls are in place for transport, handling and storage of hazardous materials, ship cargo, dry bulk material, surface water runoff, fuelling and bunkering of vessels and ship discharges. Site audits promote best practice and ensure compliance with the EMS requirements.
Chapter 10 AIR QUALITY	
Potential impact of increase road traffic on Air Quality & Climate.	Mitigation of road traffic emissions are mainly achieved through EU legislation driven improvements in fuel and engine technology resulting in a gradually reducing emissions per vehicle profile. The collection of EU Directives, known as the Auto Oil Programme, have outlined improved emission criteria which manufacturers are required to achieve from vehicles produced in the past and in future years. DPC has developed an initiative with the haulier companies operating in the port to provide the necessary Compressed Natural Gas (CNG) fuelling infrastructure across the port to facilitate the future trend for HGVs to change fuel from diesel to CNG.
Potential impact on future shipping emissions on Air Quality & Climate.	A number of EU Directives and the requirements of the Marpol Convention regulate the fuels and emissions employed in the shipping industry. These requirements will remain in practice throughout the operation of the 3FM Project and may be replaced with more stringent emission limits. In addition to the international mitigation implemented by Marpol, DPC has proposed port specific mitigation with a view to reducing emissions while vessels are berthed at the port. DPC propose to provide shore to ship power (SSP) at the proposed Ro-Ro Terminal (Area K) and the proposed Lo-Lo Terminal (Area N). This will facilitate powering of the berthed vessels by the national grid which will allow the vessel to turn off their main and auxiliary engines for the duration of berthing. This reduces direct emissions from the ships while in port and at the closest point to the sensitive human receptors in the area.

Potential Impact	Summary of Proposed Operational Mitigation
Chapter 11 CLIMATE	
Potential impacts of Climate Change.	It is proposed to develop a Project Carbon Management Plan (PCMP) for the project. This PCMP will be aligned with the principles of PAS2080:2023 – a global standard for managing whole-life (embodied and operational) carbon in the built environment and infrastructure. The development of the carbon life cycle assessment presented the EIAR is the first phase of the PCMP and this plan will be formally developed at detailed design stage by the design team to facilitate handover to the Contractor for construction stage as a contractual obligation for a cap on the levels of embodied and operational carbon. **Post construction the PCMP will be handed back to DPC to facilitate the operational management of carbon for the project.**
Chapter 12 NOISE & VIBRATION	
There is potential for operational phase noise impacts associated with the 3FM Project at the nearest noise sensitive properties in the absence of mitigation measures.	Two 4m noise barriers are proposed to separate the proposed SPAR and Area K from the nearest noise sensitive properties at Pigeon House Road and the Coastguard Cottages. In addition to this, a low noise road surface is proposed for the SPAR. The port will acquire electrified plant/equipment for the operations of the 3FM Project where these are available. There has been significant improvement on a global level in the area of port plant electrification, including the application of automation and sensors for reducing noise associated with stacking activity. On the basis of the significant improvement in reducing noise from such activity that has taken place in recent years, it would be anticipated that there will be further improvements in reducing noise from port-related plant and vehicles in the years between now and when the proposed 3FM Project will be operational in 2040. Such improvements in port-related plant/vehicles are over and above anything assumed or incorporated into the noise impact assessment for the 3FM Project.
Potential future noise impact from vessel movements during the night-time period	In order to ensure that there is no increase in noise impact from changes to vessel movements during the night-time period, DPC will implement a Noise & Vibration Management Plan in relation to the ongoing management of noise issues associated with changes to port activities. This plan will include the following elements as a minimum: • the provision for noise management to be included as a key consideration for all significant changes made to Port operations by senior management within Dublin Port;

Potential Impact	Summary of Proposed Operational Mitigation
	• the prior assessment of potential noise impacts associated with any alteration to port activities that may be likely to result in a significant noise impact at the nearest noise sensitive properties; • a range of procedures to mitigate noise during the night-time period, including measures to control tonal/impulsive noise sources (e.g. foghorn, tannoy announcements etc.) before 07:00 hours.
Potential future underwater noise impact from vessels entering and leaving the port	Dublin Bay is subject to commercial shipping traffic from Dublin Port, Dun Laoghaire, Howth and leisure traffic from marinas around the bay. DPC will monitor Dublin Port shipping traffic related underwater noise using the PAM system located at North Bank Light. Monitoring will provide information on background (absence of shipping) and ambient (shipping noise included) noise levels and link noise events to specific vessels. This approach ensures that particularly noisy vessels can be identified and appropriate measures outlined in the IMO (2014) guidelines taken to control noise emissions from those vessels.
Chapter 13 MATERIAL ASSETS - COASTAL PROCESSES	
Potential impact of future maintenance dredging works on Coastal Processes	Maintenance dredging is an ongoing requirement in Dublin Port. Maintenance dredging is subject to a Maritime Area Consent (MAC) and Dumping at Sea Permit. These licences prescribe strict environmental protection measures to minimise the potential impacts of maintenance dredging on the environment. No other specific operational phase mitigation measures with regard to coastal processes are required.
Chapter 14 MATERIAL ASSETS - TRAFFIC & TRANSPORTATION	
Mobility Management Plan & Smarter Travel	An outline Mobility Management Plan (oMMP) has been appended to Chapter 14 of the EIAR. The oMMP sets out the type of measures which will progressed by DPC, in liaison with the operator(s), to ensure that the sustainable transport facilities are made available and are utilised by the users of the 3FM Project.

Potential Impact	Summary of Proposed Operational Mitigation
Chapter 15 - MATERIAL ASSETS - SERVICES	
Securing a robust Electricity Supply in preparation of shore to ship power coming on-line.	DPC will secure a robust electricity supply to meet the electrical load requirements in preparation of shore to ship power coming on-line. DPC will work closely with ESB to quantify the electrical load capacity of the overall port lands (North and South of the Liffey) with a view to compiling a masterplan to deliver the 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.
Chapter 16 CULTURAL HERITAGE (including Industrial & Archaeological)	
Potential Impact of future developments on the Great South Wall.	There will be no significant residual impact on the cultural heritage resource, as a result of the Operational Phase of the 3FM Project. Archaeological surveying by competent and experienced maritime archaeologists licensed by DHLGH of Pigeon House harbour walls in the vicinity of the turning circle is recommended at the following intervals: 1. Within 12 months of operation 2. After six years of operation in order to confirm that the engineering design modelling predicting no significant impact is consistent with the actual condition of the walls.
Chapter 17 LANDSCAPE & VISUAL	
Potential impact of future developments on the Landscape	The design evolution of the 3FM Project has been undertaken to enable incorporation of the following built-in design measures: • Integration of constructed elements with existing elements such as existing roads and buildings; • Appropriate colour of fencing and structures to reflect existing the port character; and Directional lighting.

Potential Impact	Summary of Proposed Operational Mitigation
Chapter 18 POPULATION & HUMAN HEALTH	
Dublin Port will contribute a significant Community Gain that will have a positive impact on Population and Human Health.	DPC's Community Gain proposal comprises the following two elements: DPC will provide a maximum contribution of €1,000,000 towards the provision and operation of a City Farm on lands owned by Dublin City Council adjacent to the port – either in Fairview Park or on Alfie Byrne Road. These lands will be of sufficient scale to support a viable City Farm Project. The provision of this new community asset has the potential to positively influence population and health by providing social benefits and contributing to community cohesion.
Chapter 19 WASTE	
Dublin Port Waste Reception and Handling Plan	The current Dublin Port Waste Reception and Handling Plan 2023 underpins all waste related operations at Dublin Port. "*The purpose of this plan is to ensure that the needs of potential users and waste regulators are taken into account when planning and operating port waste reception facilities; to ensure that all mariners are aware of the requirement to transfer ashore their ship waste at every port they visit the location, cost and procedures for using the facilities and in Dublin Port. Also, it is a means of informing the ships masters and their agents/terminal operators regarding the legislative requirements and the consultation arrangements by the port for the future development of adequate facilities within the port.*" Ship waste is classified as the waste delivered by ships calling at ports[4]. The purpose of the Plan is to ensure that: • The needs of potential users and waste regulators are considered when planning and operating port waste reception facilities; • To ensure that all mariners are aware of the requirement to transfer ashore their ship waste at every port they visit; • Outline the location of the costs and procedures for using the waste reception facilities in Dublin Port; • There is a means of informing the ships masters and their agents/terminal operators regarding the legislative requirements;

[4] Dublin Port Company Environmental Report 2023

Potential Impact	Summary of Proposed Operational Mitigation
	• Outline the Port's consultation arrangements for the future development of adequate facilities within the port. Port waste concerns the waste generated by port-based activities. DPC is responsible for the management of a wide range of wastes arising at Dublin Port. Waste from DPC operational activities is collected and managed by a licensed waste Contractor. Paper, cardboard, plastic bottles, aluminium cans and compostable are separated from mixed municipal waste (MMW) and recycled. Timber, metal and waste electrical and electronic equipment (WEEE) are also separated for recycling.
On-Site Waste Management	The 3FM Project design incorporates adequate dedicated space to cater for the segregation and storage of all various waste streams within the terminal building. This bin storage area will allow for waste segregation, handling activities such as bailing of cardboard and plastic and sufficient waste storage. All staff will be provided with training regarding the waste management procedures. Waste from operational activities will collected and managed by a licensed waste Contractor.
Environmental Management System	DPC will continue to implement its Environmental Policy and update its Environmental Management System for the development consistent with best practice. DPC is committed to achieving high standards of environmental management. This is reflected in the company's commitment to its ESPO's EcoPorts Ports Environmental Review System (PERS). It is DPC Environmental Policy to set clear environmental objectives and targets and to regularly monitor progress against them. The following has been set in relation to waste management. **Objective :** Increase DPC's Waste Management Performance **Target :** Maintain DPC's waste recycling rate with a constant aim of 100% recycling Ensure all waste arisings from capital projects monitored and annual statistics are submitted.

21.2 Conclusions

The key conclusions of the EIAR are set out below:

21.2.1 Introduction and Project Screening

This Environmental Impact Assessment Report (EIAR) has been prepared by RPS, on behalf of the applicant, Dublin Port Company (DPC), for the 3FM Project. The 3FM Project is the third and final Strategic Infrastructure Development (SID) project at Dublin Port from the Dublin Port Masterplan 2040, reviewed 2018, for which development consent is sought.

DPC is applying for a 15-year permission to facilitate the construction of the 3FM Project.

Additional consents are required for certain marine works included in the 3FM Project, including a Dumping at Sea (DaS) Permit from the Environmental Protection Agency (EPA). Other consents will also be required for a range of activities including waste management, service connections and archaeological monitoring from the relevant consenting authorities.

The 3FM Project does not require a Marine Area Consent under the Maritime Area Planning Act 2021 as it falls within the time-limited exempting provisions at section 75(4) of the 2021 Act, as inserted by section 277 of the Historic and Archaeological Heritage and Miscellaneous Provisions Act 2023.

This EIAR has been prepared to support the relevant assessments to be carried out by the respective competent authorities on all relevant applications related to development consent.

The primary objective of any EIAR is to identify the baseline environmental context of the proposed project, to identify the effects, if any, which the proposed project, if carried out, would have on the environment and to propose alternative options, where feasible. Where alternative options are not feasible, appropriate mitigation measures, where necessary, are proposed.

In preparing this EIAR, the following legal provisions and guidelines, amongst others, were followed:

- The requirements of EU Directives and Irish law regarding Environmental Impact Assessment (including the European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018);
- European Commission Environmental Impact Assessment of Projects Guidance on the preparation of the Environmental Impact Assessment Report (Directive 2011/92/EU as amended by 2014/52/EU) (European Commission, 2017);
- The Planning and Development Act 2000 (as amended); and
- Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA, 2022).

In addition, specialist disciplines have had regard to other relevant guidelines and legislation where appropriate, as noted in the specific chapters of the EIAR. This EIAR includes all of the information that may reasonably be required to reach a reasoned conclusion on the likely significant effects of the 3FM Project on the environment, including all of the information specified in Annex IV of the EIA Directive, taking into account current knowledge and methods of assessment.

The compilation of the information necessary for the EIAR did not present any significant difficulties. In addition to published datasets, the preparation of the EIAR has drawn on the environmental monitoring programme which is currently in place for the construction of the following SID Projects at Dublin Port:

- Alexandra Basin Redevelopment (ABR) Project, the first SID brought forward to planning from the Dublin Port Masterplan 2040, and which commenced construction in 2016; and
- MP2 Project, the second SID brought forward to planning from the Dublin Port Masterplan 2040, and which commenced construction in 2022.

The site-specific and up-to-date scientific data collected was used in the preparation of the EIAR for the project and serves to illustrate the depth of understanding of the environment in and around Dublin Port, including the inner Liffey channel (Dublin Harbour) and Dublin Bay, and the quality of the data on which that understanding is based.

The preparation of this EIAR was further assisted by the extensive environmental datasets collated during the preparation of the Strategic Environmental Assessment (SEA), for the purposes of the review of the Dublin Port Masterplan during 2017 and 2018.

Additional survey work has been undertaken to provide up-to-date baseline information for the environmental assessments, in addition to the site-specific information from the existing databases from official sources, as detailed within specific chapters of this EIAR.

21.2.2 Need for the 3FM Project

The 3FM Project is intended to provide additional infrastructure for freight required in the unitised modes (Ro-Ro and Lo-Lo). DPC is developing Dublin Port in accordance with the strategy and proposals outlined in the Dublin Port Masterplan 2040. This development has focused, to date, on the north side of the River Liffey and at Dublin Inland Port.

On the north side of Dublin Port:

- The ABR Project is largely completed and works on the final stages are underway.
- The MP2 Project has commenced.
- The project to redevelop the port's internal road system has been largely completed and work is underway to complete a network of cycle and pedestrian routes throughout and on the periphery of the port.

At the 44-hectare Dublin Inland Port:

- Full planning permission has been granted for one site of 22ha, comprising 9 individual plots.
- Two empty container depots have been developed and are in operation to provide capacity for port-related but non-core activities which have been removed from Dublin Port to meet one of the objectives of DPC's Franchise Policy. In addition, three further plots are committed to a haulage operator so as to relocate their operation from Dublin Port.

- Plans for the development of the second 22ha site for the transit storage of trailers and containers are in preparation.

DPC's focus of attention now is to plan for the completion of the projects identified in the Dublin Port Masterplan 2040 by bringing forward the 3FM Project to:

- Provide close to 20% of the capacity that will be needed by 2040 on almost one fifth of Dublin Port's lands located on the Poolbeg Peninsula.
- Complete the development of Dublin Port's overall road network to significantly remove port traffic from public roads in the vicinity of Dublin Port, particularly Tom Clarke Bridge.
- Complete a series of public realm and active travel projects on the Poolbeg Peninsula which mirror similar developments on the north side of the port to meet Masterplan 2040's second objective to integrate Dublin Port with Dublin City.

The 3FM Project is advanced on the basis of a number of key principles that are core to understanding the Project's rationale.

21.2.2.1 Port capacity must remain ahead of demand

To prevent wider constraints in the national economy the capacity of Dublin Port must remain ahead of demand. The Issues Paper on the Review of National Ports Policy 2013 (Department of Transport, October 2023) noted that;

"*Failure to proceed with investment in capacity, infrastructure, equipment and hinterland connectivity poses serious risks to the future success of Ireland's ports and national economy"* (page 18).

The Port Capacity Study (IMDO 2023) suggests that any failure to maintain sufficient port capacity could have a major negative impact on the national economy, starving it of the materials it needs to continue to growth. The Study further expressly states that if planned developments are in place in time Ireland should have sufficient port capacity for all cargo modes.

The 3FM Project is such a planned development and has been recognised in the Dublin Port Masterplan since 2012 and key elements, including the SPAR are specifically referenced in the Project 2040/National Planning Framework.

Long term port demand forecasting is not an absolute science, given how it is inherently linked to forecasting national economic performance and population growth. There are also inevitable uncertainties in projecting the port's throughput capacity far into the future as there will be changes that cannot be accurately projected in the respective demands for Ro-Ro and Lo-Lo capacity. Likewise, the proportion of Ro-Ro units that are containers could change in the years ahead. Dublin Port Company must by necessity plan on the side of caution when making port demand and capacity projections, particularly given the very extended timescales of delivering large port infrastructure projects. The consequence of demand projections for Dublin Port being too bullish is that, at worst, port infrastructure may be delivered a number of years before it is needed. The consequence of taking a much more bearish approach to demand projection could be a national port capacity shortage with significant economic consequences. Any such port capacity shortage could not be remedied quickly, as there is a very

long design/ planning/ permitting/ construction period for delivering major port infrastructure. If granted planning permission and then constructed, the 3FM Project will have taken 20 years from the original commencement of planning and design work to project completion.

21.2.2.2 Assessment of demand and capacity should be soundly based and take account of the highest growth scenario

Given the consequence of under provision of port capacity identified above, it is important that an assessment of port demand and capacity should be soundly based by reference to a range of different approaches and, as a Report by Indecon Consultants indicates, should also take into account of the highest growth scenario which has been reasonably assessed.

Indecon Report

In September 2023, Indecon carried out an analysis of the relationships between Project Volumes and Capacity at Dublin Port and stated that port volumes are likely to continue to expand in line with the projected growth in the Irish Economy in the medium term, as predicted by the Department of Finance.

The Indecon Report noted the overall imperative for Dublin Port to remain agile in responding to the trading needs of the Irish economy and recognised the importance for DPC of planning for a high growth scenario so that capacity is available before demand must be met. The Report notes that there would be very significant economic costs arising if the port is unable to meet customer demand.

On unitised trade, the Report noted that Dublin Port is likely to operate at close to capacity for both Ro-Ro and Lo-Lo, with the position being particularly acute for Lo-Lo with the port operating at peak capacity for the current decade, with enhancements (including 3FM) required to ensure sufficient Lo-Lo capacity at the port for 2040.

The Indecon Report also commented on the loss of land available to DPC for freight handling as a consequence of land being allocated to the State Authorities for Brexit new customs checks required as a result of the United Kingdom's exit from the European Union. This reduction in land availability directly impacts on trade flows, leading to a reduced RoRo Capacity by approximately 140,000 Ro-Ro units compared to the Masterplan volumes.

Port Policy Issues Paper

The Ports Policy Issues Paper references the IMDO Study when analysing port capacity and does note that a failure to proceed with currently proposed port infrastructure projects will pose serious risks to Ireland's national economy.

21.2.2.3 Sustainability at the heart of 3FM

The rationale for the 3FM Project, and in particular the criteria that have informed the nature of the development proposals, takes a keen regard for a number of aspects that have underpinned the design and configuration of the project, which in turn are dictated by sustainability considerations:

- To seek to use brownfield lands to minimise the impact on the natural environment – the 3FM Project involves the use of brownfield lands, rather than development on greenfield areas, which makes use of existing industrial and port lands.

- No large-scale infill – in the Dublin Port Masterplan, DPC gave a commitment not to undertake additional significant infill within the Dublin Harbour area. The 3FM Project respects this commitment and has been designed to minimise the extent of infill required to give effect to the proposals. This is evident in Area N, where the additional berth capacity is provided by way of an open pile structure, which has been selected to minimise the impact on marine life and benthic resources.
- Detached from residential amenity – the core elements of the 3FM Project have been designed in a manner to reduce the impact on local residential communities, whether from the perspective of potential noise, visual amenities or emissions. This can be seen in the revised Project Scope, following extensive engagement and consultation with local communities, which led to Area O being changed from a three high stack Lo -Lo terminal to a much less visually obtrusive Ro-Ro Freight Terminal. Similarly, the design of the SPAR was configured in a way that minimises the potential impact on residents of York Road, and Area K was reconfigured to reduce any adverse impact on residents of Coast Guard Cottages
- Supportive of other sustainability initiatives – the project has also been configured to make a significant contribution to four other important sustainability initiatives:
    - DCC District Heating – the design of the project was configured to make land available within the original project site for DCC to develop a District Heating facility connected to the Dublin Waste to Energy Plant. This facility will form a separate planning application by DCC.
    - Codling Wind Park (CWP) Project – the configuration of the 3FM Project made provision for land owned by DPC to be made available to CWP for the construction of a substation for Offshore Renewable Energy which it is proposed will be brought on shore from a wind farm in the Irish Sea. This substation will form a separate application from CWP and is not part of 3FM.
    - Active Travel – the 3FM Project also makes provision for the development of new Active Travel routes, both within the context of the current application by DPC, but also through the provision of funding to DCC to construct additional routes. This will aid sustainable travel and recreation adjacent to the subject site.
- Public Park and Nature Reserve – the 3FM Project has been configured to accord with relevant zoning objectives to provide a new public park and an extension to the Irishtown Nature Reserve.

The 3FM Project has also been designed and configured to comply with relevant Climate Action and Circular Economy obligations – details of the way the Project addresses both issues will be set out in a separate chapter of the EIAR.

21.2.2.4 Maintain a working port during the construction works

It is a key aspect to the configuration and rationale for the 3FM Project that the proposed works are carried out in a working port which needs to continue to service the national economy throughout the construction process. The construction phasing of the 3FM Project has been designed to ensure that works do not impede the effective and safe operation of the port during the construction period.

21.2.2.5 Timescale to Deliver the 3FM Project

Based on DPC's recent experience with constructing large infrastructure projects in Dublin Port, it is prudent to plan on it taking three years from the date of application for planning permission to the start of construction works.

The target start date for construction would be during 2027.

The 3FM Project is a large project and it will be delivered by way of a series of sub-projects for a number of reasons:

- This is the approach specified in Masterplan 2040.
- The transition of the existing container terminal operations from Area K to the new proposed terminal at Area N and Area L will need to be managed to ensure no loss of overall port throughput capacity. Work on the new Ro-Ro terminal could not proceed until the new Lo-Lo terminal was fully operational.
- The development of the Maritime Village will be developed and constructed so that sailing and rowing activities remain in operation during construction period. The development of the Maritime Village and the southern viaduct section of the Southern Port Access Route (SPAR) will require an element of the existing container terminal operations in Area K having been transferred to the new container terminal at Area N and Area L.
- Parts of the overall project lands will need to be used as construction compounds while works elsewhere are being completed.
- As stated earlier the construction of the 3FM Project will need to take place in a busy working port, without any interruptions to trade flows and with all necessary precautions to ensure maritime safety.

Taking these factors together, and based on a construction start date in 2027, the target completion date for the 3FM Project is 2040. This suggests the need for a 15 year planning permission, similar to the MP2 Project.

The environmental appraisals presented in this EIAR have taken into account the environmental implications of a 15-year permission and conclude that there is no environmental impediment to the granting of a 15-year permission. A summary is presented below:

- The 3FM Project is the third and final Strategic Infrastructure Development (SID) project at Dublin Port from the Dublin Port Masterplan 2040, reviewed 2018. The environmental appraisals have been undertaken within the context of the Strategic Environmental Assessment (SEA) prepared for the Dublin Port Masterplan which is based on an assessment of incremental time periods from 2018 to 2040.
- In particular, the traffic and transportation appraisal considers a combination of port traffic growth and construction traffic volumes over a 15-year period. These combined traffic volumes have been used in the environmental appraisals for noise, air quality and human health.
- The 3FM Project is focussed on the redevelopment of brown-field sites within the existing Dublin Port Estate. There are no terrestrial habitats, flora & fauna of conservation value within the application boundary of the site. Prolonged construction activities over a 15-year period will therefore have no impact on terrestrial biodiversity, flora & fauna as no natural changes are expected within that period of time.

- The 3FM Project has been engineered to ensure that any potential impact on the surrounding Natura 2000 sites is at a de minimis level. The construction period of 15-years has been assessed in the biodiversity, flora & fauna appraisals.

21.2.3 Consultation & Project Scoping

The development proposals advanced in the 3FM Project reflect the significant levels of consultation that have taken place since 2017 on the future of Dublin Port.

Building on the consultation carried out during the process to review the Dublin Port Masterplan 2040 and the Dublin Port Post 2040 Dialogue Papers, DPC and their consultants, RPS, carried out further extensive consultation on the 3FM Project in the course of developing the current proposal.

This included a programme of public consultation undertaken between November 2021 and April 2023 to seek the views of the wider public on the 3FM Project and the proposed community gain initiative to be advanced as part of the project.

DPC reflected on the feedback received during the public consultations and sought to refine the 3FM Project Proposal in light of the concerns, expectations and requirements brought forward during the consultation exercise.

The following update on the 3FM Project was made as a direct response to the public consultation process and engagement with key stakeholders:

- DPC undertook a review of the consideration of alternative layout options which forms a key part of the planning application and assessment process. This resulted in a significant layout change concerning the provision of Lo-Lo storage capacity on the Poolbeg Peninsula.
- It had been originally proposed that a Lo-Lo storage facility would be located in lands directly south of the Dublin Waste to Energy facility, referred to in the Dublin Port Masterplan as Area O.
- Following the consultation process and extensive engagement with relevant stakeholders, it became apparent that another location, Dublin Port Masterplan Area K which was identified for development at a later date within the lifespan of the Masterplan, could be used to provide similar capacity.
- As a consequence, Area O lands will be reconfigured as follows:
    - A portion of lands at the eastern end of Area O will be allocated to the Irishtown Nature Park in accordance with zoning requirements. This land represents an additional 1.1ha to the Nature Park.
    - An additional portion of Area O will be made available to Dublin City Council to facilitate the provision of a District Heating Scheme adjacent to the Waste to Energy plant. This is the preferred location for Dublin City Council for the associated 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.

- To facilitate the movement of the Lo-Lo activities at Area O to another port location, a portion of the Area O lands will be used for a transit Ro-Ro trailer yard to provide storage capacity to maximize the efficiency of the proposed Ro-Ro Terminal at Dublin Port Masterplan Area K. This port use will not involve any stacking of containers or trailers. The Ro-Ro operation will not be visible behind an existing bund and future green buffer zone.
- As a consequence of these changes, an additional area of land to the west of Area O which had formerly been designated for the District Heating Scheme will become a wildflower meadow and be directly adjacent to the new Port Park. This will represent a new public park and recreation area of 2.5ha.
- All of these proposals conform with the appropriate zoning for the Area O lands under the Poolbeg West SDZ.

These changes reflect the extensive consultation process which has taken place on the 3FM Project and demonstrates how DPC has valued and considered the inputs from a range of sources, including public representatives, local community groups and relevant stakeholders.

Detailed scoping has been undertaken in respect to the 3FM Project by engaging in consultations with prescribed and other authorities, bodies and stakeholders and through public consultation, in accordance with the European Commission's 2017 "Environmental Impact Assessment of Projects Guidance on Scoping" and the EPA's "Guidelines on the information to be contained in Environmental Impact Assessment Reports (May 2022).

Through the scoping process which has been carried out in the preparation of this EIAR, the issues which are likely to be important during the environmental impact assessment have been identified. The scoping process has identified the sources or causes of potential environmental effects, the pathways by which the effects can happen, and the sensitive receptors, which are likely to be affected, and has defined the appropriate level of detail for the information to be provided in the EIAR.

All environmental topics have been comprehensively addressed within the EIAR.

21.2.4 Assessment of Alternatives

At strategic level, the Dublin Port Post-2040 Dialogue papers and the Masterplan identified the 3FM Project as a key element to implement, and underpin, the Masterplan's fundamental approach of providing the port's ultimate capacity by 2040 (73.8m tonnes of cargo throughput annually), by maximising the utilisation of Dublin Port's brownfield lands. The assessment process in support of DPC's dialogue papers and the Masterplan identified that the development at this site and in this area of the port is the most sustainable location and layout and therefore the desired approach from a strategic point of view.

The 3FM Project is concluded to be an essential final step in achieving the Port's ambitious throughput objective. The provision of the SPAR, Lo-Lo container terminal, Ro-Ro unaccompanied freight terminal, ship Turning Circle, public amenities and utilities infrastructure would allow optimisation of land-use on the Port's land in the Southern Port. Such facilities need access to berths and must therefore be located accordingly.

At outline design level, the evolution of both the proposed marine and landside structural works, and the associated dredging works, was considered to achieve the 3FM Project's objectives. The 3FM Project design evolution was carried out by RPS, supported by navigational and operational studies and with an integrated approach alongside the RPS planning and environmental teams.

The design team's approach to developing and progressing the scheme design was based on examining layouts of key infrastructure elements that avoided or minimised any adverse environmental impacts while meeting the requirements of the project brief. This design process and evolution was carried out in the context of a do-nothing (Option 0) scenario as a baseline case with stakeholder engagement, specialist planning and environmental inputs, specialist studies and site investigation information used to refine the design layouts.

There is a strong relationship between the infrastructural elements of the 3FM Project required that all these elements were examined considering a wide range of environmental matters along with navigational safety within the port. Design took place in parallel through the design progressions to determine interactions, particularly at boundaries, and also in combination, in order to also determine the needs of the dredging and disposal and piling activities.

- **Option 1** - The initial design was based on the Masterplan, reviewed 2018 and developed via an iterative process. There are potential negative construction phase impacts associated with some environmental topics in the early stages of the project, which are more than the do-nothing option. However, these are generally temporary and/or short-term impacts which can be further mitigated by design and process constraints such as working hours, timing/phasing of operations, method of construction and rate of construction. There are potential positive construction phase benefits due to employment opportunities. Potential negative operational phase impacts were identified in relation to the turning circle, infilling and a new access road which were addressed in later design progressions. Potential minor negative impacts in the operation phase were associated with increased operations. However, notably operation phase impacts associated with congestion issues in the vicinity of the port are reduced in comparison to the do-nothing option. Operationally the positive impacts are that, in contrast to the do-nothing (Option 0), this draft general arrangement (Option 1) achieves the port's ultimate capacity by 2040 (73.8m tonnes of cargo throughput annually), providing noteworthy societal, economic & human health benefits, with associated operation phase environmental benefits.
- **Option 2** - Both the construction and operational phase impacts for Option 2 are lesser than those associated with Option 1 due to key design for the turning circle, access road and transportation (including design that does not compromise potential future LUAS route alignments) and utilities. There are negative construction phase impacts associated with some environmental topics in the early stages of the project which are generally similar to, but lesser than, those for Option 1. However, noteworthy improvements are gained by the avoidance of impacts on cultural heritage and also reduction of the biodiversity, flora & fauna impacts. The remaining negative construction phase impacts are generally reduced to minor, temporary and/or short term and can be further mitigated by design and process constraints (working hours, timing/phasing of operations, method and rate of construction). There remain positive construction phase benefits due to employment opportunities. Minor negative operational phase impacts were identified again associated with increased operations, but in contrast, operation phase impacts associated with congestion

issues in the vicinity of the port are reduced in comparison to the do-nothing option. Operationally Option 2 achieves the port's ultimate capacity by 2040 (73.8m tonnes of cargo throughput annually), offering the associated positive impacts that this affords. Emerging impacts were developed during consultation with key stakeholders and from feedback from the first consultation room which related to infilling (to be addressed on completion of site investigation) and traffic movements and the Maritime Village configuration which also were addressed in later design progressions.

- **Option 3** - The impacts improved compared to those associated with Option 2 due to the key design changes identified during this evolution for evolution of road and active travel route upgrades, Maritime Village and Lo-Lo container terminal design iterations to enhance amenity and reduce environmental impact. There remain negative construction phase impacts associated with some environmental topics in the early stages of the project which are generally similar to Option 2 which are generally minor, temporary and/or short term and can be further mitigated by design and process constraints (working hours, timing/phasing of operations, method and rate of construction). There remain positive construction phase benefits due to employment opportunities. Minor negative operational phase impacts were identified again in relation to Option 3 increased operations, contrasted by reduced operation phase impacts associated with congestion issues. Operationally, Option 3 achieves the port's ultimate capacity by 2040 (73.8m tonnes of cargo throughput annually), offering the associated positive impacts that this affords. Design uncertainty remained due to the outstanding marine site investigation results which influenced the structural form of the Lo-Lo container terminal and the SPAR Road along the shoreline. At Area O a further boundary refinement was also identified for consideration during consultations.

- **Option 4** - The construction and operation impacts improved compared to those associated with Option 3 due to the key design changes identified during this evolution. The key design changes were: a layout alternative using Area L for container storage and Area O as a Ro-Ro Freight Terminal which reduced operational impact with reduced industrial usage and further enhanced biodiversity and visual aspects of the project by further enhancing landscaping treatments and giving a greater area over to the Irishtown Nature Reserve; the selection of open piled design for the Lo-Lo container terminal and SPAR viaduct, which reduced potential negative impacts; and, the inclusion of further mitigation such as providing a noise barrier and low carbon alternative construction methods and materials, restoration of sections of the Great South Wall. The remaining minor negative construction phase impacts associated with some environmental topics in the early stages of the project are generally similar, but lesser than those of Option 3. Improvements are gained by the offsetting of construction impacts on cultural heritage by wall restoration on other stretches. These remaining minor, temporary and/or short-term impacts can be mitigated by design and process constraints contained in the CEMP such as working hours, timing/phasing of operations, method and rate of construction. There remain potential positive construction phase benefits due to employment opportunities. Potential minor negative operational phase impacts associated with increased operations contrasted to reduced operation phase impacts associated with congestion issues. Operationally Option 4 achieves the port's ultimate capacity by 2040 (73.8m tonnes of cargo throughput annually), potentially offering the associated positive impacts that this affords.

- The environmental assessments developed a suite of avoidance, prevention, reduction, or offsetting mitigations, to be accommodated within the final outline design which reduced potential negative impacts during construction and operational phases to minor potential impacts. The minor negative construction impacts are addressed by mitigation measures. The minor negative operation phase impacts on aquatic ecology and climate are mitigated by ongoing monitoring and substitution of materials respectively. The climate impacts are reduced in comparison to port demand increase without the infrastructural investment as represented in the do-nothing option. Option 4 has also developed potential positive impacts due to construction phase employment and those in the operational phase associated with the following environmental topics; biodiversity, flora & fauna and visual & landscape and also improve noise, land, soils, geology & hydrogeology and water quality.

- **Dredging & Disposal/Re-use Works** - A number of alternative dredging and disposal options were examined including: do-nothing, beneficial re-use, disposal on land, incineration and disposal at sea. The option identified for suitable (Class 1) materials was a combination of disposal at sea and re-use with computational modelling undertaken to determine appropriate method, rate, timing and location of these activities. The disposal of the Class 2 element of dredged sediment from the Maritime Village / Marina will, in order of preference, be:
    - Filled to Berth 52/53 under a revised IE licence subject to availability of receptor capacity;
    - Recovered at a soil recovery or soil treatment facility in Ireland subject to testing of the sediments in line with the selected facility licence at the time of the works;
    - Recovered at a soil treatment facility in Great Britain or northern Europe; or
    - Disposed of at a licenced landfill facility in Ireland.

  No noteworthy environmental impacts of the design choices were identified.

- **Piling Works** – there are a number of elements of the 3FM Project that require piled foundations. Alternatives were examined including: do-nothing; alternative materials and associated alternative technologies, with different associated construction forms (such as concrete piles and gravity walls). The further alternatives assessment selected Tubular Steel Piles (open jetty structures and crane rails), with Steel Sheet Piles and Steel Combi-Walls (infilled jetties and quay walls) for the marine structures. A combination of vibrodriving and impact driving methods was selected. Landside structures and buildings utilise conventional driven and bored pile foundations. A number of potential environmental impacts of these choices are less favourable than the do-nothing scenario, however these may be mitigated with good practice, which is demonstrated by the ongoing ABR Project piling works. The positive impacts of this aspect of the Project upon the prosperity of the population (regionally and nationally, as well as socially and economically) were the reason for choosing to pursue this design.

The key design evolutions, which were supported by environmental considerations under the assessment of alternatives for the 3FM Project elements, are set out below:

1. **Southern Port Access Route (SPAR)** a new opening bridge across the River Liffey was developed along with new and upgraded roads and junctions that considered a range of operational, construction and environmental factors. The route will facilitate HGVs, active travel users (pedestrians, cyclists, wheelers etc), emergency (blue light) vehicle services and public transport users moving to and from the South Port

Estate and Poolbeg Peninsula. The SPAR will allow the 3FM Project to be fully rail enabled through the rapid shunting of freight by electric vehicles from the South Port Estate, across the Liffey, to rail intermodal facilities in the vicinity of the North Port Estate. The SPAR will have a direct connection to the Dublin Tunnel via the North Port Estate road system. The proposed bridge is elevated above design flood levels, aesthetically considered, and importantly links the North and South Port Estates affording capacity for port growth. The SPAR section along the shoreline adjacent to the east link toll plaza changed in form from an embankment to a viaduct offering reduced construction time and environmental benefits due to minimisation of infill and permanent loss of habitat. Road vertical alignments also considered environmental factors, visual considerations meant a section was reduced in elevation to retain existing views of the seascape, and noise mitigations and low carbon alternative construction methods and materials were introduced into the final design iteration. A refined series of access junctions also considered movements within the port. Alternative designs considered active travel provision and potential future light rail configurations again to improve the amenity of the 3FM Project. Consideration of the crossing of the Great South Wall led to the proposals to restore stretches elsewhere within the Port owned lands and to develop a conservation management plan and vision for the Great South Wall through the 3FM Project.

2. **Lo-Lo container terminal** the new facility provides additional port capacity and evolved in terms of layout and structural form to address construction and environmental considerations. The layout of Area N which provides 650m of deep water berthage accommodated bird roosting and feeding constraints and cultural heritage concerns. The selected open piled structural form for the proposed Terminal also minimised infilling avoiding permanent loss of habitat and impacts on coastal processes and water quality. In addition, the relocation of this facility (away from its former location in Area K) affords an improved environment to residents in the vicinity of Area K whilst not impacting receptors at Area N or Area L. The layout of the transit container storage yard (initially at Area O and then relocated to Area L) created opportunities to complete the Masterplan by reducing current industrial usage in Area L and therefore created environmental improvement opportunities at Area O whilst avoiding potential noise and visual impacts to receptors in that vicinity.

3. **Ro-Ro freight terminal** the new facility provides additional port capacity, its evolution provides for reinforcement and reuse of existing quay walls with an operational layout which accommodated boundaries modified to the west (increasing the Maritime Village) and the east (accommodating existing services). Alternative site access and freight/container configurations reduced traffic movements across the line of the Great South Wall and located container stack operations remote from receptors. A transit Ro-Ro freight terminal located in Area O, minimised settlement and methane gas release risk form this former municipal site and also created environmental improvement opportunities in accommodating DCC's district heating scheme, augmenting Irishtown Nature Reserve (avoiding initial potential impacts by avoiding a new access road), open space including Port Park, a coastal park and a wildflower meadow and also provided landscaping and screening opportunities.

4. **Ship turning circle** this changed location to avoid impact to the Great South Wall and also accommodated the port's navigation movements, roosting bird populations and structural form to accommodate the offshore wind sector. The consideration of the turning circle also resulted in the development of a Tern Colony Management Plan and provision of an additional Tern colony. It is important to note that this element

facilities the safe and efficient manoeuvring of the shipping to the North Port Estate as well as the proposed 3FM Project development.

5. **Maritime Village** is an environmental gain intrinsic to the 3FM Project, it was developed, in consultation with stakeholders, to accommodate local rowing, sailing, and boat clubs and will provide an enhanced public realm and facilities on the waterside. It will also accommodate the relocation of Port Harbour Operations from the North Port Estate. The number of berths and water facilities have been increased for future use and the land based facilities enhanced to form a focal point of community gain. The initial concept for the Maritime Village considered environmental constraints including the location of the Great South Wall and the concept was developed to create a family of separate buildings for sailing, rowing, local boat owners, community and maritime training facilities. The overall facilities were architecturally designed incorporating high quality material finishes, public realm features and landscaping.
6. **Community Gain, i**ntegrating Dublin Port with Dublin City and its people is a core objective of the Masterplan for Dublin Port, these elements combine to form an environmental gain afforded as part of the 3FM Project. Development of proposed new public amenities on the Poolbeg Peninsula will provide **community gain** and contribute towards integrating the port with the city. These include:

   Enhanced **recreational amenity** through:

   - 7.0km of new or upgraded Active Travel Path (cycle, pedestrian, wheelers etc.) and 4.9km of new or upgraded footway across the North Port, SPAR and Poolbeg Peninsula, which will link with the 1.4km Liffey Tolka Greenway in the North Port, and from there to the 4.0km Tolka Estuary Greenway currently under construction by Dublin Port. The design of the Active Travel Path considered planning criteria and movement policies as well as environmental constraints and opportunities to enhance the project for users and stakeholders. The routes included stop points and a character area, with designed surface and edge treatments and lighting and hard and soft landscaping. DPC will provide Dublin City Council with a €5million contribution for future upgrading of the existing coastal path along the southern perimeter of the Poolbeg Peninsula.
   - Development of a sailing, rowing and maritime training campus (Maritime Village) adjacent to the existing Stella Maris Rowing, Poolbeg Yacht and Boat Club in conjunction with local yacht and boating clubs and local boat owners, including a public slipway and facilities for maritime skills training.
   - Provision of Open Space with a Port architecturally design and landscaped to include parkland, sport pitch and pavilion features and Wildflower Meadow (2.5ha) and Coastal Park (1.6ha).
   - Provision of 1.1ha extension to Irishtown Nature Park.

   Enhanced **public realm** through:

   - Development of a new public plaza as a key part of the Maritime Village.
   - Extensive boundary softening works adjacent to the development sites forming part of the 3FM Project.

   Community support through:

   - Establishment of a new €2 million Community Benefit Fund for Education, Heritage & Maritime Training Skills projects within the Poolbeg area. The initial capital for the Fund will be administered by DPC in consultation with local stakeholders.

Heritage & Biodiversity enhancements through:

- Commissioning a new Public Access Feasibility Study regarding the Great South Wall so as to identify improved public interpretation, accessibility, facilities and conservation possibilities,
- Provision of up to €1 million funding to implement the study recommendations.
- Provision of an additional permanent marine structure (dolphin) to expand the available habitat and range of the Dublin Port Tern Colonies.

During the design evolution these changes resulted in an improving trend with each alternative reducing potential negative impacts due to layout and design changes and also the inclusion of mitigation measures developed by the environmental impact assessment process. These changes and mitigations also enhanced potential positive environmental benefits for each alternative, noting that the most noteworthy of these are linked to the positive impacts that the 3FM Project affords in terms of material assets, population & human health, air quality and improved flood risk management.

Option 4 is considered the best environmental option due to its delivery of the most positive potential benefits combined with the least minor negative potential impacts. Assessment of the design progressions demonstrates a number of environmental benefits and no additional potential impacts with this final alternative.

Potential construction phase impacts for Option 4 are associated with biodiversity, flora & fauna, water quality & flood risk, air quality, climate, noise & vibration, material assets and cultural heritage. However, improvements are gained by the offsetting of construction impacts on cultural heritage by wall restoration on other stretches and biodiversity, flora & fauna due to redesign of the Lo-Lo container terminal and SPAR viaduct. The remaining potential negative construction phase impacts are all minor, temporary and/or short term and can be mitigated by design and process constraints contained in the CEMP such as working hours, timing/phasing of operations, method of construction and rate of construction. There remain potential positive construction phase benefits due to employment opportunities for population & human health.

Potential minor negative operational phase impacts were identified again in relation to Option 4 biodiversity, flora & fauna and climate associated with the increased operations. Again, notably operation phase impacts associated with congestion issues in the vicinity of the port in terms of noise & vibration, climate, air quality are reduced in comparison to the do-nothing option. Operationally draft general arrangement (Option 4) achieves the port's ultimate capacity by 2040 (73.8m tonnes of cargo throughput annually), potentially offering the associated positive impacts that this affords, in particular the inclusion of mitigation measures improve operational phase impacts for biodiversity, flora & fauna and visual & landscape and also improve noise, land, soils, geology & hydrogeology, air quality and water quality.

The key environmental differences delivered by the design evolution are:

Biodiversity, Flora & Fauna

- increased benefit via the provision of additional lands to the Irishtown Nature reserve, additional open spaces and a wildflower meadow plus the inclusion of landscaped areas.
- reduction in potential impacts due to the monitoring regime putting in place for marine mammals throughout the construction period.

- reduction in potential impacts due to the selection of open piled design on the SPAR viaduct and Area N also with reduction of potential impact on bird roosting and feeding areas due to layout changes at Wharf N.
- reduction in potential impacts due to the relocation of the turning circle to Area M (avoiding relocation of the tern colony and also reducing dredging and infill footprints and associated marine habitat and food source impacts) and development of an additional Tern Colony site.
- reduction of potential impact on the SPA for Brent geese (due to repositioning of access arrangements), this layout change also increased the opportunity to introduce perimeter landscaping with planted strips increasing biodiversity.

Noise

- reduced potential impact by relocating existing container facilities to Areas N and L and providing noise mitigation at Area K.

Material Assets

- positive operation phase impact associated with the use of the SPAR and to the public road network associated with improved distribution of port related traffic on the road network and improved active travel of the Poolbeg Peninsula and the 3FM Project has been designed so that it does not compromise potential future LUAS route alignments. COMAH assessment has also resulted in avoidance of areas where the public would be at risk from existing facilities in refining these transportation assets.
- accommodation for future utilities within the Masterplan area.

Cultural Heritage

- reduced potential impact on the heritage value of the area by moving the turning circle to Area M, avoiding the risk of ships turning and causing erosion at the Great South Wall, reinforced by the development of a conservation management plan and vision for the Great South Wall through the 3FM Project, keeping the line of the wall clear of permanent structures and restoring sections of the wall in Dublin Port Company ownership, and also the removal of the sludge jetty improving the seascape.

Landscape & Visual

- positive operation phase impacts associated with design of enhanced screening for the greenways and public realm amenity areas which ensure that views of industrial port activity are screened from public view and also the removal of the sludge jetty improving the seascape.
- development of the active travel route with stop points and sections along the waterside, and in particular, the Maritime Village which includes community spaces and amenities.

Population & Human Health

- positive operation phase impacts associated with the extension/upgrade of the Southern Greenway and increased social amenity areas including a larger Maritime Village, park areas and the active travel routes.

Lands, Soil, Geology & Hydrogeology

- reuse of former industrial areas reduce potential pollution pathways and using the former municipal site for single height freight/container storage reducing the risk of settlement and methane gas release.

There are no impacts at construction or operational phases for waste. For air quality and climate there are improvements over the do-nothing option and also for water quality & floods whilst there are potential short term impacts during construction which can be mitigated (as has been demonstrated during previous Dublin Port construction projects) there is a gain in providing new infrastructure to accommodate increased flood levels in future climate change scenarios again compared to the do-nothing scenario.

Whilst some areas have been offered to alternative uses in the greater public interest, the Masterplan throughput has been achieved by intensification of the use on remaining lands therefore not reducing the project's societal benefits. It should also be noted that all do-something options offer benefits in terms of relocation of the Lo-Lo activities away from residents, improved road infrastructure avoiding HGV congestion and the addition of amenity facilities (the Maritime Village, Port Park and the active travel corridors).

Option 4 is therefore the preferred option as it is considered the best environmental option due to its delivery of the most positive potential benefits combined with the least minor negative potential impacts. This is the option that the 3FM Project EIAR has been developed to support.

21.2.5 Project Description

The 3FM Project at Dublin Port has been designed in accordance with the Dublin Port Masterplan 2040. The proposed project focuses on the DPC-owned lands of the south port area on the Poolbeg Peninsula. Figure 3 in the Masterplan (reproduced in Figure 1-1) identifies the land uses and development projects on port lands which will allow the port to achieve its ultimate capacity of 73.8m tonnes of cargo throughput per annum by 2040.

The 3FM Project has evolved from the concept drawings of the Masterplan, driven by DPC's understanding of the key environmental constraints formulated by a decade of environmental monitoring, collaborative working with NGOs and Universities, and early consultation with key stakeholders.

The 3FM Project has six key elements:

1. A new public road and bridge called the **Southern Port Access Route (SPAR)** to link the North and South Port Estates.

   The route will include a new bridge over the River Liffey. It will be located immediately east of Tom Clarke Bridge and north of the R131. The route will facilitate Heavy Goods Vehicles (HGVs), active travel users (pedestrians, cyclists, wheelers etc), emergency (blue light) vehicle services and public transport users moving to and from the South Port and Poolbeg Peninsula. The SPAR will allow the 3FM Project to be fully rail enabled through rapid shunting of freight by electric vehicles from the South Port Estate, across the Liffey, to rail intermodal facilities in the vicinity of the North Port Estate. The SPAR will have a direct connection to the Dublin Tunnel via the North Port Estate road system.

2. 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 container terminal will consist of two main components:

   a. 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 length, primarily from Continental Europe.

   b. Transit container storage yard located on waterside land currently used for bulk cargo handling (Dublin Port Masterplan Area L).

3. 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 freight terminal will consist of two main components:

   a. Terminal 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).

   b. Terminal 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.

4. Provision of a **325m diameter ship turning circle** in the river channel north of Pigeon House Harbour, dredged to a depth of -10.0m CD.

   The ship turning circle will enable safe navigation and efficient manoeuvring of vessels up to 240m in length.

5. Maritime Village

Development of a new **Maritime Village** at Pigeon House Road and Berth 41.

This village will accommodate local rowing, sailing, maritime training, local boat owners and boat clubs and will provide a significantly enhanced public realm and facilities on the waterside. It will also accommodate the relocation of Port Harbour Operations from the North Port Estate.

6. Community Gain

Integrating Dublin Port with Dublin City and its people is a core objective of the Masterplan for Dublin Port. Development of proposed new public amenities on the Poolbeg Peninsula as part of the 3FM Project will provide **community gain** and contribute towards integrating the port with the city. These include:

Enhanced **recreational** amenity through:

- **7km of new or upgraded Active Travel Path** (cycle, pedestrian, wheelers etc.) **and 4.9km of new or upgraded footway** across the North Port Estate, SPAR and Poolbeg Peninsula, which will link with the 1.4km Liffey Tolka Greenway in the North Port Estate, and from there to the 4.0km Tolka Estuary Greenway currently under construction by Dublin Port. DPC will also provide Dublin City Council with a €5 million contribution for future upgrading of the existing coastal path along the southern perimeter of the Poolbeg Peninsula.
- Development of a sailing, rowing and maritime campus (Maritime Village) adjacent to the existing Poolbeg Yacht and Boat Club in conjunction with local yacht and boating clubs, including a public slipway and facilities for maritime skills training.
- Provision of Recreational Space
    - **Port Park and Wildflower Meadow** (2.5ha)
    - **Coastal Park** (1.6ha)
- Provision of 1.1ha extension to Irishtown Nature Park.

Enhanced **public realm** through:

- Development of a new public plaza as a key part of the Maritime Village.
- Extensive boundary softening works adjacent to the development sites forming part of the 3FM Project.

Community support through:

- Establishment of a new €2 million Community Benefit Fund for Education, Heritage & Maritime Training Skills projects within the Poolbeg area. The initial capital for the Fund will be administered by DPC in consultation with local stakeholders.

Heritage & Biodiversity enhancements through:

- Commissioning a new Public Access Feasibility Study regarding the Great South Wall so as to identify improved public interpretation, accessibility, facilities and conservation possibilities,
- Provision of up to €1 million funding to implement the study recommendations.
- Provision of an additional permanent marine structure (dolphin) to expand the available habitat and range of the Dublin Port Tern Colonies.
- Provision of Interpretative Markers to delineate the alignment of the Great South Wall (GSW)

A General Arrangement Drawing illustrating the main elements of the 3FM Project is presented in Figure 1-2.

Other significant ancillary works include:

- Improvements to the existing road network, linking and providing access to the port terminals, including new signal-controlled junctions and a new roundabout on Pigeon House Road;

- Improved pedestrian access from Irishtown to the proposed Maritime Village; and
- Demolition of the existing Poolbeg Oil Jetty and Sludge Jetty.

A detailed description of each element of the 3FM Project is presented in Chapter 5 of the EIAR and on the Planning Drawings.

The estimated capital cost of the 3FM Project is €1.1 billion (2024 costs).

Without the 3FM Project, Dublin Port will reach its capacity limit much earlier than 2040, perhaps as early as 2030. If this were to happen, there is a risk of a national port capacity shortage.

Post-2040, additional capacity at other new or existing east coast ports will be required so that, as Dublin Port approaches its ultimate capacity, excess volumes which Dublin Port cannot handle can be accommodated elsewhere.

21.2.6 Risk of Major Accidents & Disasters

The assessment of the risk of major accidents and disasters concludes that, from a COMAH perspective, the potential direct and indirect risks arising from the 3FM Project satisfy the Health and Safety Authority's COMAH land use planning guidance. It is also concluded that other, non-COMAH direct and indirect major accident and disaster risks arising from the 3FM Project are not significantly different from the current risks.

DPC 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.

21.2.7 Biodiversity, Flora & Fauna

The assessment of Biodiversity, Flora & Fauna identifies, describes and assesses in an appropriate manner, the direct and indirect significant effects of the proposed development on biodiversity. It contains a description of the terrestrial, marine and avian biodiversity features and designated sites (other than European sites) within and surrounding the site of proposed development, followed by an assessment of the potential and likely significant effects of the proposed development alone and cumulatively with other consented projects on terrestrial, marine and avian biodiversity features and designated sites.

In accordance with the requirements of the EIA Directive 2014/52/EU, particular attention has been given to species and habitats protected under Council Directives 92/43/EEC and 2009/147/EC, Habitats Directive Annex habitats and species and Birds Directive species. A Natura Impact Statement (NIS) has been prepared on behalf of the applicant to document Habitats Directive stage 1 and stage 2 appraisals (under separate cover).

The assessment of terrestrial biodiversity features concludes that there are no significant environmental impacts predicted upon terrestrial biodiversity features as a result of the construction and operation of the proposed 3FM Project. Invasive Alien Plant Species have however been recorded at locations on the Poolbeg peninsula in,

or adjacent to Dublin Port lands, notably Japanese Knotweed, a regulated invasive plant species listed in the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011, as amended. A precautionary approach will be undertaken to prevent the importation and spread of Invasive Alien Species by adhering to the prevention, containment and treatment measures set out in the Invasive Alien Plant Species Management Plan (see Draft Construction Environmental Management Plan (CEMP). Mitigation measures will be put in place during the construction phase to ensure no disturbance to the artificial badger sett at Irishtown Nature Park by establishing an Ecological Exclusion Zone. Lighting at Pork Park and Coastal Park will be designed to enable the continued foraging and commuting of bats during the operational phase by using LED lights where possible.

The assessment of benthic biodiversity and fisheries features concludes that the infrastructural changes associated with the 3FM Project are significant and complex and will give rise to a range of positive and negative impacts. Much of the adverse change will be offset by more positive changes, namely the introduction of new hard surfaces which are likely in the main to be rapidly colonised by both estuarine and marine flora and fauna. Temporary habitat disturbance from the dredging activities is not expected to result in any long-term impact, with recovery occurring rapidly on cessation of dredging activities. Loss of sub-tidal habitats associated with the installation of piles in particular are deemed minor due to the large amount of similar habitat present in Dublin Port. On the other hand, however, the introduction of extensive areas of shade by the SPAR Viaduct and the wharf at Area N will have negative effects on the habitats affected. However, all these changes need to be viewed in the context of the Lower Liffey Estuary as a busy port and a busy recreational boating and angling area, whose natural intertidal habitats have been dramatically altered and largely degraded down the decades. And, despite the proposed changes, the importance of the Lower Liffey as a locally important nursery ground for estuarine/marine residents and migrants will remain substantially intact and fully functional and its role as a conduit for inwardly and outwardly migrating anadromous and catadromous species for the wider River Liffey catchment will remain fully intact.

The assessment of marine mammal features concludes that significant environmental impacts are predicted upon individuals, but not populations, of marine mammals as a result of piling, dredging and demolition works during the construction of the proposed 3FM Project and in the absence of mitigation. Mitigation measures have been proposed to minimise the risk of injury or disturbance to marine mammals in the area of operations in line with National Parks and Wildlife Service (NPWS) Guidelines (2014): Effective implementation of the mitigation measures will ensure there is no significant residual environmental impact upon marine mammal features.

The assessment of avian features concludes that there is a low risk of any significant environmental effects upon breeding and non-breeding avifauna as a result of disturbance and displacement and in the absence of mitigation. Potential impacts are assessed to be slight/temporary to imperceptible without mitigation. A range of mitigation is proposed where necessary and there is no significant residual environmental impact upon avian features with mitigation in place.

The assessment of designated sites (other than European sites) concludes that no further or additional likely significant effects are predicted upon the Irishtown Nature Park, any proposed NHA site, Ramsar site or the Dublin Bay Biosphere. With the application of the prescribed mitigation measures, there is no significant residual impacts predicted upon any designated site as a result of the construction and operation of 3FM Project.

21.2.8 Land, Soils, Geology & Hydrogeology

The assessment of land, soils, geology and hydrogeology was based on a desktop study of publicly available information such as geological maps, historical borehole logs and maps, a site walkover survey and an intrusive ground investigation.

With regards to land, all of the construction and operational phase land take is contained within the 3FM Project planning permission boundary. The environmental appraisals presented in the EIAR have taken into account the environmental implications of the land resource. There are no additional mitigation measures required as a result of the environmental appraisal of land to that already set out within the EIAR.

The investigation identified that the site is underlain by made ground, sands, gravels, clay and mudstone and limestone bedrock. The EIAR has concluded that there is no loss of high fertility soils as a result of the construction and operational phase of the 3FM Project, and as a result the impact of the project on soils is considered to be neutral. The 3FM Project proposes the inclusion of soft landscaping in lieu of current hard standing made ground. As such, the importation of virgin topsoil will be an enhancement to soil resources.

Hydrogeology is the study of groundwater, including its origin, occurrence, movement and quality. The site falls within an area of low groundwater vulnerability. Groundwater was encountered within the made ground deposits and within the underlying sand and gravel deposits.

The conceptual site model developed in the assessment has identified a relevant pollutant linkage for the site with regards to ground gas within Area O and future users within buildings in this area, which can be mitigated through the implementation of ground gas protection measures. It is also considered that any potential build-up of gases due to ground improvement techniques can be managed using venting techniques, preventing any negative impact on on-site and off-site buildings and infrastructure. Real-time continuous monitoring of ground gases before, during and after the construction phase will be used to determine any significant change in the ground gas regime. The presence of asbestos in soils is a relevant pollutant linkage for construction workers and the general public during construction, however, it is considered this can be mitigated through the appropriate use of PPE / RPE and appropriate dust suppression techniques. Furthermore, the inclusion of a clean cover barrier system within Port Park & Wildflower Meadow will remove any exposure pathway to future site users associated with disturbance of asbestos in soils.

The proposed development will not have any substantial, negative impacts on the land, soils, geology and hydrogeology of the area.

Sediment chemistry sampling and analysis of marine sediments to be dredged were provided to the Marine Institute who examined the results in detail in combination with other relevant data held by the Marine Institute.

It was concluded that the following dredged sediments can be classified as Class 1 (Uncontaminated: no biological effects likely), subject to the formal approval of the Marine Institute, and are therefore suitable for disposal at sea in the absence of a more sustainable alternative.

- Ro-Ro Terminal (Area K) – Localised Scour Protection to 220 kV cables;
- Turning Circle; and

- Lo-Lo Terminal (Area N) Berthing Pocket and an area towards the eastern end of the Wharf to enable construction using marine plant.

It was also concluded that the top 1.0m of material at the Maritime Village contained widespread levels of Class 2 material making it unsuitable for disposal at sea, equating to 70,000m^3 or 6% of the total volume required to be dredged. The underlying sediments can be classified as Class 1 (Uncontaminated: no biological effects likely), subject to the formal approval of the Marine Institute, and are therefore suitable for disposal at sea in the absence of a more sustainable alternative.

It is proposed to dispose of the Class 1 dredged material (1,189,000 m^3) at the licenced disposal site at the entrance to Dublin Bay located to the west of the Burford Bank, The loading and dumping of the dredged material will be subject to a separate Dumping at Sea Permit from the Environmental Protection Agency (EPA).

The options for disposal of the Class 2 dredged material (70,000 m^3) from the Maritime Village are, in order of preference:

1. Filled to Berth 52/53 under a revised IE licence subject to availability of receptor capacity;
2. Recovered at a soil recovery or soil treatment facility in Ireland subject to testing of the sediments in line with the selected facility licence at the time of the works;
3. Recovered at a soil treatment facility in Great Britain or northern Europe;
4. Disposed of at a licenced landfill facility in Ireland.

21.2.9 Water Quality & Flood Risk Assessment

Baseline water quality within the receiving environment was established through review of national monitoring data used to establish water quality status in the context of the EU Water Framework Directive (WFD) and supporting environmental standards. Recent extensive high-frequency monitoring data collected over a period of six years during Dublin Port Company's ABR and MP2 Projects was also reviewed.

Using baseline water quality data and site specific water quality model simulation outputs, an assessment of the 3FM Project was conducted to determine the likelihood of significant impacts on water quality using the criteria for rating significance and magnitude as set out in the National Roads Authority (NRA) publication "*Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes*" (NRA, 2008), and appropriate mitigation measures to reduce impacts were proposed where necessary.

In circumstances where the appropriate mitigations measures are fully implemented during the construction and operational phases, the impact of the 3FM Project on water quality in the project zone of influence will be imperceptible. An assessment of potential cumulative impacts has also been made. The 3FM Project is therefore not expected to significantly impact water quality, either alone or in combination with other projects, in the receiving waters.

It can therefore be concluded that the 3FM Project works are compliant with the requirements and environmental objectives of the EU Water Framework Directive and the other relevant water quality objectives for the water

bodies in which the 3FM Project is sited including the 'Liffey Estuary Lower' transitional water body, the 'Dublin Bay' coastal water body, the 'Dodder' river water body and the Tolka river water body.

The flood risk to the 3FM application area has been assessed and the predominant source of flood risk emanates from tidal flooding from the River Liffey.

Under the Planning System and Flood Risk Management Planning Guidelines, the 3FM Project site consists of areas located within Flood Zones A, B and C. The 3FM Project has a range of uses with varying degrees of vulnerability as classified under the Guidelines. A Justification Test was required for the Southern Port Access Route (SPAR) road and bridge. All of the other uses within the 3FM Project site can be considered as appropriate for the identified flood zones, and therefore a Justification Test is not required. While the combination of risk and vulnerability is such that these elements of the development are generally acceptable the risk remains, and it may change during the lifetime of the development.

Using the present day 0.5% AEP level from the Irish Coastal Wave and Water Level Modelling Study (ICWWS) with climate change and freeboard allowances, the recommended development level for the 3FM Project is 4.45m OD. Where possible levels for the proposed development were set above this recommended development level.

The Southern Port Access Route (SPAR) will be constructed to link the northern lands to the southern lands via an opening bridge, crossing the River Liffey to the east of the Tom Clarke Bridge, then along the south bank of the River Liffey using a viaduct structure and into the southern lands, linking the proposed and existing infrastructure. The proposed soffit level for the bridge at the pier housing the lifting machinery is 4.45m OD. This level exceeds the 0.5% AEP flood level, including allowances for climate change and freeboard, and therefore minimises the risk of the machinery becoming flooded. It is not practical to keep the entire bridge above this level whilst minimising the perceived difference to the Tom Clarke Bridge and ensuring effective connections to adjacent routes. Therefore, the bearings on other piers are designed to be above the 2% AEP flood level. This will mean that the probability of the bearings getting wet will be low. For reasons relating to visual impact, it is not possible to raise the proposed SPAR viaduct to the recommended development level. The road centreline level on the viaduct is proposed to be at 3.25m OD which is just above the 0.5% AEP level of 3.15m OD, with road channel levels at 3.15m OD. There will be a concrete vehicle restraint system (VRS) either side of the road that will act as flood protection measure for the road. The VRS will be at a height of 3.95m OD, which provides an allowance for climate change of 0.5m and a freeboard of 0.3m. This would in theory keep the road open during extreme tidal events. The footpaths and cycle ways either side of the road will not be protected from flooding, however it is anticipated that these would not be used if an extreme tidal event occurred. Modelling of the bridge and viaduct piers has been undertaken and this has shown that there is no impact on coastal flood risk.

As with any development within a coastal floodplain there is always a residual risk linked with a more extreme event, greater than the design event, occurring. The mitigation measures will provide a level of protection to reduce the impact from an extreme event as far as reasonably possible. The overall residual risk is therefore considered to be low.

The 3FM Project is compliant with The Planning System and Flood Risk Management Planning Guidelines.

21.2.10 Air Quality

The current state of the environment in terms of baseline air quality has been determined from the data from the EPA monitoring Zone A (Dublin) network to determine compliance with relevant ambient air legislation. In addition to the EPA monitoring, DPC carry out a series of ambient air quality monitoring tests within the environs of the port. This monitoring is employed in this assessment to demonstrate the spatial variation in the port and in the wider Dublin area in conjunction with the data from the EPA network.

Results of the baseline monitoring indicates that recent levels in the Greater Dublin Area are well below the statutory limits for the protection of human health and also below the WHO guidelines for the protection of human health. It is noted that monitoring undertaken by DPC within the Port footprint show levels that are higher than the Greater Dublin Area average and, in some cases, levels exceed both the statutory limits and the WHO guidelines.

There are sensitive receptors (houses, commercial operations) located in the area and these receptors vary in distance from the proposed project. There is a potential that receptors may experience a change in air quality and the extent of these changes in air quality is identified in the air quality assessment. The nearest sensitive residential receptors to the south of the proposed project are the residential dwellings on York Road, Pigeon House Road, Ringsend Park and Pembroke Cottages circa 400m to the south of the 3FM Project application boundary.

The proposed construction operation will involve the movement of materials and reconfiguration of existing roadways, buildings and lands to create an additional three hectares of usable terminal. Additional infill material may be sourced offsite and transported via the newly configured access to the Port. The majority of dredged material (circa 94%) will be barged to the dump site and will not travel by road. As the construction traffic volumes predicted with the 3FM Project are not considered significant relative to existing volumes, the resultant air quality impact from construction traffic is negligible.

The main potential odour from the construction stage relates to the potential for fugitive odours from the dredging operation. Despite the low risk of encountering odours, a series of odour mitigation measures have been presented to minimise the impact of this operation and to prevent any nuisance in the unlikely event that odours are encountered. The residual odour impact of the prosed the dredging operations is considered negligible.

The operational impacts of increased traffic emissions arising from the additional traffic on local roads, due to the development, have been assessed. It has been demonstrated that the proposed project will not cause any exceedances of the air quality objectives in locations where they are not already exceeded. Overall, the operational air quality impacts, following the application of the proposed mitigation are judged to be ‘not significant’.

The results of the modelling indicate that with the development, the predicted NO_2, PM_{10} and $PM_{2.5}$ concentrations at existing receptors are below the relevant long and short-term AQS objectives. When the magnitude of change in annual-mean NO_2, PM_{10} and $PM_{2.5}$ concentrations is considered in the context of the absolute predictions, the air quality impacts of the development on existing receptors are categorised as ‘negligible’. Taking into account the geographical extent of the impacts predicted in this study, the overall impact of the development on the surrounding area as a whole is considered to be ‘negligible’, using the descriptors

adopted for this assessment. The AQS objectives for NO_2, PM_{10} and $PM_{2.5}$ are likely to be met at the facades of the sensitive receptors.

On that basis, future and existing receptors should be exposed to acceptable air quality. Using professional judgement, the resulting air quality effect is considered to be 'not significant' overall.

Shipping emissions associated with the proposed project have been quantified based on the projected increases in shipping numbers at the port in 2040 both as a result of the 3FM Project and cumulatively for the Masterplan. Shipping emissions are predicted to generate a long term and permanent slight adverse impact for climate and air quality.

21.2.11 Climate

This chapter of the EIAR assesses the potential climate impacts arising from the 3FM Project and the consistency of the project with the provisions of the Climate Action and Low Carbon Development Acts 2015 to 2021, the Climate Action Plan 2024 (CAP24), and all applicable domestic and European Union legislative and regulatory requirements.

Annex IV to Directive 2014/52/EU includes direct reference to climate and climate change with the emphasis placed on two distinct aspects of the climate change issue:

- Climate change mitigation: this considers the impact the project will have on climate change, through greenhouse gas emissions primarily; and
- Climate change adaptation: this considers the vulnerability of the project to future changes in the climate, and its capacity to adapt to the impacts of climate change, which may be uncertain.

This assessment identifies and presents an assessment of the likely significant effects of the 3FM Project (hereafter the 'proposed development') on climate (mitigation) and also the vulnerability of the project to climatic factors (adaptation).

The construction phase climate assessment was carried out to identify sources and quantify total GHG emissions generated from the construction activities associated with the proposed development. A series choices of low carbon steel and concrete materials will help mitigate this impact and fully comply with the targets of CAP24. As such. the GHG emissions associated with the proposed construction of the development will result in a direct permanent minor adverse impact.

GHG emissions from energy use at the port are assessed through a review of the energy demand to support the proposed changes to operations at the site to determine the potential for significant impact. With the planned and ongoing decarbonisation of the grid the climate impact of this energy demand will decrease in future years. These impacts are considered as a direct permanent minor adverse impact for climate.

A prediction of the local impact of traffic-derived emissions during the operation phase was carried out and the results of the analysis of the proposed development indicates that traffic emissions will increase in future years as a result of the increased throughput to the port. The impacts to climate from road transport generated emissions is considered an indirect moderate adverse in the long term.

Shipping emissions associated with the proposed development have been quantified based on the projected increases in shipping numbers at the port as a result of the 3FM Project. Shipping emissions are predicted to increase and will result in an indirect long term moderate adverse impact for climate.

The climate vulnerability of the proposed development has been suitably mitigated through the planned construction works and final design to ensure no significant adverse climate adaptation risk.

Dublin Port Company is required, under section 15 of the Climate Action and Low Carbon Development Act 2015, as amended to perform its functions in a manner consistent with the following:

- The most recent approved climate action plan;
- The most recent approved national long term climate action strategy;
- The most recent approved national adaptation framework and approved sectoral adaptation plans;
- The furtherance of the national climate objective; and
- The objective of mitigating greenhouse gas emissions and adapting to the effects of climate change in the State.

This climate policy base is summarised in Appendix 11-1 and presents a summary of the relevant policy objectives and actions and provides an overview of the consistency of the proposed development to these policies.

In short, the analysis shows that in designing the proposed development, the Dublin Port Company has been consistent, in so far as practicable, with the requirements of section 15 of the Climate Action and Low Carbon Development Act 2015, as amended. For impacts under the direct control of DPC such as the construction works, the onsite energy use or the climate resilience, the impacts have been suitably mitigated and designed in line with national policy.

For policies relating to the construction phase, the proposed development is fully aligned with the requirements, while the energy efficiency measures, active travel, modal shift and electric vehicle enhancements in the operation phase will all contribute to the national targets and measures for these elements in the policy base.

While there are significant indirect impacts to climate identified as a result of road traffic and shipping, the planned legislative mitigation measures at international, EU and national levels will reduce these impacts, but such matters are outside the control of DPC.

In summary, DPC have devised the proposed development to be consistent, in so far as practicable, with the relevant climate policy base as required by section 15 of the Climate Action and Low Carbon Development Act 2015, as amended, including the most recently adopted Climate Action Plan adopted by government on 20th December 2023.

21.2.12 Noise & Vibration

21.2.12.1 Terrestrial Noise & Vibration

A detailed baseline noise monitoring survey was completed at a representative number of properties to determine the noise environment in the vicinity of the proposed redevelopment. This baseline noise monitoring survey was used as a basis for determining the likely noise impact associated with the 3FM Project.

The Noise and Vibration Assessment was completed with reference to a range of relevant Irish and international noise and vibration guidance documents.

Worst-case construction noise levels from the proposed redevelopment will be well below the standard noise threshold limits outlined in the relevant noise guidance documents at the majority of the nearest noise sensitive properties. There is potential for construction phase noise impacts at the nearest properties on Pigeon House Road and the Coastguard Cottages, therefore noise mitigation measures are included in the EIAR to ensure that construction noise impacts in this area are maintained below the appropriate noise threshold limits.

There will be no significant noise impacts associated with traffic flow changes as a result of the construction or operational phases of the 3FM Project. The traffic flow increases associated with the 3FM Project will result in neutral/minor change to traffic noise levels.

There will be construction phase activities associated with the 3FM Project that have the potential to generate vibration impacts, most prominently the piling works required as part of the construction phase. Vibration monitoring will be undertaken throughout the construction phase where vibration-generating construction activities are taking place in close proximity to sensitive properties and sites of cultural heritage.

During the operational phase, the inclusion of new 4m high noise barriers and the use of a low noise road surface on the proposed SPAR will ensure that there will be no significant operational phase noise impact from the SPAR or Area K activities at the nearest noise sensitive properties on Pigeon House Road and the Coastguard Cottages. A range of additional measures will also be implemented to reduce operational phase noise associated with the 3FM Project, including plant/vehicle electrification and the application of the latest technology in areas such as automation and plant/equipment sensors.

21.2.12.2 Underwater Noise

Site specific underwater noise levels have been established in Dublin Harbour whilst piling and dredging operations have been taking place.

The results of these monitoring programmes have been used to validate an underwater noise propagation model to predict the potential underwater noise impacts of the 3FM Project. The propagation and sound exposure levels were calculated in order to determine the likely range for injury and disturbance using well established modelling and injury criteria.

The model was used to establish a series of Risk Range Maps resulting from the construction works which have the potential to give rise to underwater noise, primarily from piling, dredging and demolition works. The Risk Range Maps show the potential risk to a range of species including porpoise, seals and migratory fish in terms

of likely significant temporary hearing impact (TTS) and permanent hearing injury (PTS) in the absence of mitigation.

This information has enabled the marine ecologists to establish a set of mitigation measures to prevent injury to marine mammals and fish. The mitigation measures are set out in Chapter 7 Biodiversity, Flora & Fauna. They include a series of avoidance mitigation measures using closed periods for piling, dredging and demolition works. They also include adherence to NPWS (2014) guidelines.

Given the potential impact on porpoise, no piling will take place if a porpoise is present within the inner Liffey channel. The presence / absence of porpoise will be determined by Marine Mammal Observers, supported by Passive Acoustic Monitoring (PAM).

The site is noise sensitive due to the proximity of marine species including fish in the Liffey channel.

The outer part of Dublin Bay is a popular recreational diving location, with scenic dives at Scotsman's Bay, Sandycove, Muglins Rock, Dalkey Island and Irelands Eye. The closest of these sites (Scotsman's Bay) is located circa 6.0km from the end of the Great South Wall, and more than 8.0km from the nearest piling activity. No recognised dive sites will be impacted by underwater noise from the 3FM Project.

It is proposed that underwater noise levels will be monitored two months after commencement of piling activities at two locations upriver and two locations downstream of the works when works are being carried out in the navigation channel. This will provide additional verification data of the predicted underwater noise levels.

Monitoring underwater noise during the operational phase will be undertaken. The Dublin Bay area is subject to commercial shipping traffic from Dublin Port, Dun Laoghaire Port, Howth Port and leisure and commercial traffic from numerous marinas around the bay. In order to monitor Dublin Port shipping traffic related noise it is proposed to maintain the PAM system located at the North Bank Light linked to a vessel identification system. Monitoring will provide information on background (absence of shipping) and ambient (shipping noise included) noise levels along with linking noise events to specific vessels. This approach ensures that particularly noisy vessels can be identified and appropriate measures outlined in the IMO (2014) guidelines are taken to control noise emissions from those vessels.

21.2.13 Material Assets – Coastal Processes

The assessment of coastal processes was based on an extensive numerical modelling programme using RPS' in-house suite of MIKE coastal process modelling software developed by the Danish Hydraulic Institute (DHI). Baseline models were calibrated and verified against a range of project specific hydrographic data and subsequently used to assess the construction and operational impacts of the 3FM Project.

The assessment concluded that dredging operations required for the 3FM Project will not result in any significant impact to either water quality in terms of suspend sediments, or the nearby environmentally designated areas in terms of sediment deposition with mitigation measures in place.

In respect to the power station intakes and Ringsend WwTW outfall, any increase in the suspended sediment concentrations was generally very small by comparison with background levels in the Liffey Estuary. The dredging operations are therefore unlikely to have any effect on the quality of intake waters in terms of suspended solids content. However, as customary, DPC will continue to notify the power station operators in

advance of each dredging campaign. This will allow operators to temporarily stop abstracting water from the Liffey for a short duration in the event that dredging is required within the immediate vicinity of their intake works.

The assessment of disposal of dredge spoil arising from the 3FM Project at the licenced offshore disposal site located to the west of the Burford Bank at the approaches to Dublin Bay concluded that the disposal operations will not result in any significant increases to the background level of suspended sediments and will not, therefore, impact the existing water quality in the greater Dublin Bay area.

The tidal regime is predicted to remain substantially unchanged post 3FM Project. The risk of impact to the existing tidal regime is therefore determined to be negligible and no mitigation is required.

The assessment of potential changes to the inshore wave climate found that the maximum change in wave heights in Dublin Port during storm events did not exceed ±0.20 m. These changes were confined primarily to the Maritime Village and Area N. There was no discernible change in the wave climate due to the 3FM Project in relevant proximate areas such as Clontarf, Fairview and Ballybough bordering the Tolka Estuary. These changes to the wave climate are not considered significant and will not impact operations within the port.

Furthermore, the change in risk of potential coastal flooding due to the 3FM Project at neighbouring sites is considered to be negligible and no mitigation is required.

Given that there are no significant changes to key coastal processes that govern sediment transport, i.e., tides, waves and water levels, it can be concluded that the 3FM Project will result no discernible change to the existing sediment transport regime in Dublin Port and the in the greater Dublin Bay area.

The 3FM Project is not expected to act in combination with other nearby developments, including the CWP substation project and Dublin City Council active travel bridge across the River Liffey, or to result in any significant impacts to baseline coastal process conditions. In circumstances where the mitigation measures are fully implemented during the construction and operational phases, the impact of the 3FM Project on the coastal processes within Dublin Port and Dublin Bay will consist of small scale, low magnitude changes in the tidal regime and wave climate. On the basis that the appropriate mitigations measures are fully implemented during the construction and operational phases, the impact of the 3FM Project on coastal processes will be imperceptible.

21.2.14 Material Assets – Traffic & Transportation

The Traffic and Transportation Assessment (TTA) has demonstrated the planning gain that will be provided by the 3FM Project:

- The SPAR (Southern Port Access Route) removes up to 95% of HGVs from the Tom Clarke bridge and up to 50% of HGVs from the East wall Road per day. The provision of the SPAR reduces the overall daily traffic on the Tom Clarke by 30% and by 20% on East Wall Road (Units PCUs). In addition to providing capacity benefits to the external road network, there are additional benefits associated with noise, vibration & air quality and reduction in the wear & tear of the adopted carriageway.
- The reductions are consistent with the original findings of the Strategic Transportation Study carried out for the Strategic Environmental Assessment in 2018 when the SPAR concept was first introduced for the revision to the Dublin Port Masterplan. The SPAR is relatively lightly trafficked and is free-flowing,

contributing to the air quality / emissions in the local environs and has been future proofed to accommodate a Luas extension.

- The road and junction amendments being proposed by 3FM Project on the Poolbeg Peninsula have sufficient capacity to comfortably accommodate traffic generated by Dublin Port and the other users on the Peninsula.
- There are a suite of road and junction improvement measures proposed on the Northern Estate that ensure the traffic generated by the fulfilment of the entire Dublin Port Masterplan 2040, Revised 2018 can be accommodated within the Port's internal road network, even for the most robust assessment which considers that the existing traffic daily profile is maintained in future years. Importantly, the road works ensure that the traffic queue does not extend on Promenade Road to block the Dublin Tunnel (M50).
- The Dublin Port Tunnel will have sufficient capacity at 2040 when 3FM Project is complete and operational.
- The 3FM Project active travel proposals are significant and provide planning gain to port users and the public. They have been carefully designed to take cognizance of the surrounding existing, committed and potential surrounding schemes, and provide connectivity between the public realm areas, the Port's operational plots and the external active travel network. Inter-modal connectivity between public transport and end users using active travel is demonstrated, and the NTA BusConnects Ringsend scheme provides enhanced services to the area.
- The 3FM Project include 7km of new or upgraded Active Travel Path (cycle, pedestrian, wheelers etc.) and 4.9km of new or upgraded footway across the North Port, SPAR and Poolbeg Peninsula, which will link with the 1.4km Liffey Tolka Greenway in the North Port, and from there to the 4.0km Tolka Estuary Greenway currently under construction by Dublin Port. DPC will also provide Dublin City Council with a €5 million contribution for future upgrading of the existing coastal path along the southern perimeter of the Poolbeg Peninsula.
- An outline Mobility Management Plan (oMMP) has been prepared which sets out the type of measures which will be adopted by DPC, in liaison with the operators, to ensure that the sustainable transport facilities are made available and are utilised by the users of the 3FM Project. The modal breakdown for the proposed Lo-Lo and Ro-Ro Terminals within the 3FM Project assumes a modal split of 60% for private car use in 2040, a modal shift compared to the surveyed levels at the existing Lo-Lo Terminal operated by MTL of 77% private car use in 2022.

21.2.15 Material Assets – Services

The assessment of Services comprises an appraisal of the potential 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.

Mitigation through engineering design and consultation with the key stakeholders has enabled the 3FM Project to avoid any significant impact on existing and proposed utilities. 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) are summarised below:

21.2.15.1 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.

21.2.15.2 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.

21.2.15.3 Electricity Supply

Further to discussions between DPC and ESB it is clear that current electricity supply to the port is able to meet the capacity requirements of the Dublin Port Estate. However short term issues have been identified in ESB Power Networks ability to cater for project demands in the area, not just for Dublin Port but for all other local customers. This shortfall is currently being addressed between DPC and ESB by quantifying the electrical load capacity of the overall port lands (North and South of the Liffey) 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.

21.2.16 Cultural Heritage (Including Industrial & Archaeological)

The EIAR has identified, recorded and assessed the cultural heritage assets and potential impacts associated with the 3FM project, and benefits from a robust conservation strategy (*Conservation Strategy 2024*), which is a pre-planning document that identifies designated and non-designated assets and their significance together with policies for conservation preservation and activation. It also suggests an overriding concept of the Maritime City consisting of the different Heritage Urban Landscapes, which applies to the Port Estate as a whole.

Operating to Masterplan 2040, the port is expected to expand to 73.8 million tonnes *per annum* on a constricted 262ha site, making Dublin Port the most intense port in Europe in terms of tonnes/ha.

The heritage team (The Archaeological Diving Company [ADCO}, Shaffrey Architects (Architectural and Urban Conservation), MOLA Architecture and Southgate Associates Conservation engineers), working with DPC's heritage team have sought to optimise development plans in relation to cultural heritage through the following measures:

- Minimising the direct impacts of the 3FM Project in relation to heritage through a series of workshops while developing the Conservation Strategy for the port in general.
- Where interventions are inevitable, development has been required to follow policies of minimum intervention, legibility, and reversibility wherever possible.
- Impacts on buried structures have been mitigated insofar as is reasonably practical within the confines of the brief, with policies of exposing, recording, monitoring and mitigation by careful consideration of measures prior to, during and post-construction, with a policy of rigorous recording and storage in the Port Archives.
- Opportunities have been sought to enhance and interpret Heritage by measures for landscape characterisation together with robust proposals for treatment of hard landscape surfaces, conservation and restoration of the GSW parapets with view corridors and waymarking proposals along the GSW.
- Opportunities for public engagement are optimised by offering three check areas for public interpretation.
- Constraints around Pigeon House Precinct have been carefully considered and the impact of Area N on the use of the harbour. Although no significant direct impacts are identified on the upstanding structures, there is a potentially negative impact on the archaeology of the buried fort. No proposals are forthcoming for the precinct area that is outside the ownership of DPC.
- The 3FM Project provides a new landmark and destination on the peninsula and the south city – a Maritime Village, forming a new accessible edge to the river on lands that will be within the control of DPC. The Maritime Village presents a visible and attractive amenity to the city, while reinforcing the concept and spirit of place, or *Genius Loci*, identified in the conservation strategy. The Maritime Village improves the mooring facilities for all boating actives in the community, and preserves local seafaring traditions, contributing to the culture and communality of the Ringsend area.
- Active travel routes across the entire port will significantly enhance the pedestrian, cycling and recreational capacity and experience of the City, while strengthening Port /City integration.

- Preservation of options for the long-term opening of Pigeon House Precinct and the GSW to the Public have been taken into account within the confines of the brief.
- Archaeological monitoring of ground and seabed disturbance activities will take place across the 3FM Project area, ensuring that a robust record is maintained and that any new archaeological observations are resolved fully.

21.2.17 Landscape & Visual

A Landscape and Visual Impact Assessment (LVIA) of the 3FM Project at Dublin Port during both the construction and operational stages has been completed.

The 3FM Project is located within a landscape character area identified as Harbour Based Industrial Landscape. This landscape character area has been identified as having a low sensitivity to change. The magnitude of landscape resource change will be medium, and the significance of landscape impact will be minor adverse and not significant. The 3FM Project consists of proposals that reflect the existing character of its surroundings resulting in low change in landscape resource.

The Zone of Theoretical Visibility (ZTV) has been established for the 3FM Project to allow any potential areas of significant visual impact to be identified. Actual visual impacts from within the ZTV have been predicted by site survey and assessment during the construction and operational phase on potential views from sensitive visual receptors including residential properties.

There are large areas of Dublin and the adjacent settled coastline that will not have views of the 3FM Project due to intervening buildings and vegetation and it is only in close proximity to the site and at the coastline that there will be potential direct views from locations that include Ringsend to the southwest, Sandymount to the south and the Clontarf to Howth coast road to the north. The existing port facilities including ships and cranes and traffic are all features of the existing views from such locations, and it will be difficult to discern the new features from existing features from within the wider ZTV. For residential properties with potential views in the direction of the 3FM Project at Ringsend to the southwest, Sandymount to the south and the Clontarf to Howth coast road to the north the predicted significance of visual effect will vary from moderate to minor adverse and not significant.

A total of 13 viewpoints have been assessed and no viewpoints have been predicted to have significant visual impacts.

No significant cumulative landscape and visual effects have been predicted. Construction stage activities involve an increase in construction traffic for all cumulative projects. HGV traffic is frequent feature of this marine industrial landscape, and the existing Dublin city road network consists of very busy roads with low potential for significant cumulative visual impacts as a result. The operational stage activities as part of the 3FM Project are sufficiently separated from any permitted or planned projects in the area surrounding the port to avoid potential cumulative effects while permitted or planned developments within the port area or so similar in character that they are difficult to discern from the existing busy port context.

As no significant landscape or visual impacts have been predicted there is no requirement for specific landscape mitigation or monitoring measures.

In conclusion the broader landscape character area and visual context around Dublin Port area has the capacity to absorb a development of this scale.

21.2.18 Population & Human Health

An assessment has been made of the changes in environmental and socio-economic conditions from the construction and operation of the 3FM Project, and the associated population and human health impacts that would occur as a result.

Mitigation and monitoring measures adopted as part of the construction and operation of the 3FM Project focus on precursors to health and wellbeing outcomes, thereby providing an opportunity for intervention to prevent any adverse impacts. Monitoring of environmental factors which may influence health and wellbeing is also proposed in order to ensure relevant thresholds which are set to be protective of the environment and human health are being met throughout construction and operation.

While the construction phase is long-term in nature, any changes in environmental determinants would be temporary, intermittent and transient in nature. Following the implementation of such measures during the construction phase, changes in air quality and noise would not result in any significant adverse population and health impacts. Similarly, due to the location of Dublin Port in proximity to the national road network and requirement to adhere to the Dublin City HGV Management Strategy, the impact on the external road network and associated potential for population and health effects would not be significant.

The long-term construction phase has the potential to result in benefits to population and health from changes in socio-economic determinants. An annual average of 92 construction jobs would be required to deliver the project, with a peak of 203 construction jobs required in Year 13 of construction (2038). It is worth noting that there is potential for cumulative population and health benefits via means of job retention for port construction workers as the MP2 Project is due to finish being constructed in 2032 and the construction employment for the 3FM Project generally ramps up from 2032 (Year 7) to 2038 (Year 13).

During the operation phase, changes in air quality would be positive at every modelled receptor, resulting in population and health benefits at the local level; while some of the improvements in air quality would be large, as the population benefitting from this change would be small and therefore the benefit is not considered to be significant.

Changes in noise exposure during operation is also shown to be largely positive, where there would be a reduction in noise at most receptors. Of the receptors experiencing an increase in noise, the overall level of noise remains within limits which are set to be protective of the environment and human health.

Socio-economic benefits associated with the operational 3FM Project would be generated through employment, GVA, tax and community gain. The increase in throughput associated with the 3FM Project would deliver 2,027 direct and indirect jobs in Dublin and into some of the surrounding Counties, which is considered to be significant from a population and health perspective. GVA and tax would see a comparable increase.

In terms of community gain, integrating Dublin Port with Dublin City and its people is a core objective of the Masterplan. The 3FM Project seeks to deliver an active travel path, maritime village, new open space, extension

of Irishtown Nature Park and public realm enhancements in addition to setting up a Community Benefit Fund for Education, Heritage & Maritime Training Skills projects within the Poolbeg area.

21.2.19 Waste

The 3FM Project will generate construction related waste and once operational the extended capacity at the port will facilitate an increased number of berthing opportunities and the likelihood of increased waste arising associated with the additional port capacity during the operational phase.

A carefully planned approach to waste management and adherence to the CEMP and RWMP during demolition phase will ensure that any waste produced during this phase will be recycled or recovered where possible. Minimal amounts of waste will need to be disposed of in landfill.

In addition, a number of measures have been introduced nationally to prevent materials from becoming waste from construction and demolition with the following applicable to waste arisings from 3FM project.

- National By-Product criteria[5] for Road Planings as asphalt pavement material, in both milled and slab form, accepted at Reclaimed Asphalt Pavement plants.
- Two end-of-waste operators (Integrated Materials Solution and Starrus Eco Holdings Limited, Panda) have been consented to recycle aggregates into product (Decision on Article 28 (Aggregate))[6]

Any non-hazardous or hazardous soils arising from excavation from the 3FM Project that based on Waste Classification and WAC testing that are not suitable for recovery/disposal at facilities in Ireland may need to be exported abroad for final treatment.

Suitable CDW arising material will also be used in the following construction activities :

- Raising the ground level of the Maritime Village site by an average in excess of 1.5m which will require an estimated 30,200 m^3 of imported fill material or suitable engineered fill material/suitable CDW arisings.
- Turning Circle 26,500 m^3
- Area O 32,250 m^3
- Area L 6,900 m^3

The existing surfacing, concrete and underlying gravel infill at Area K will be removed or reused if suitable.

Therefore, the waste effects on the environmental and on landfill void space capacity are deemed to be Moderate with residual effect outcome being not significant. Minimal amounts of waste will need to be disposed of in landfill due to the mitigation measures being put in place.

A carefully planned approach to waste management and adherence to the CEMP and RWMP during construction phase will ensure that waste is minimised, and any waste produced during this phase will be recycled or recovered where possible. Minimal amounts of waste will need to be disposed of in landfill.

[5] https://www.epa.ie/publications/licensing--permitting/waste/consultation-paper--regulation-277-national-by-product-criteria-for-greenfield-soil--stone-used-in-developments.php

[6] https://www.epa.ie/publications/licensing--permitting/waste/consultation-paper-regulation-277-national-by-product-criteria-for-road-planings-used-in-rap-plants.php

Therefore, the effect of the construction phase in relation to waste management is deemed as neutral or slight with residual effect outcome being not significant.

While there may be a minor increase in waste due to anticipated increased freight, there will be no discernible effects to waste management once operational due to recycling and reuse policies, procedures and the implementation of the Waste Reception and Handling Plan. There is recycling capacity within the existing waste management infrastructure to manage waste arising from the operational phase of the development works. Minimal amounts of waste will need to be disposed of in landfill. The effect of the operational phase in relation to waste management, therefore, is deemed as neutral or slight with residual effect outcome being not significant.

21.2.20 Cumulative Effects & Environmental Interactions

The potential cumulative effects of consented schemes nearby the 3FM Project were assessed. Relevant projects were selected and the Project team defined significance thresholds and criteria for assessment. These were based on professional judgement, alongside relevant standards and guidelines, to determine whether in-combination effects gives rise to additional levels of significance.

The ABR Project and MP2 Project were considered significant in terms of cumulative impact, as these projects involve potentially overlapping construction activities of a similar nature taking place across the navigation channel from the 3FM Project. The ABR Project was selected with regard to the completion of dredging of and material recovery from the Alexandra Basin West after commencement of construction of the 3FM Project. The MP2 Project was selected due to the potential overlapping for construction activities of some of its later phases of marine infrastructure after the commencement of the 3FM Project.

The key environmental topics with potential cumulative effects with the 3FM Project were: Biodiversity; Water Quality (supported by Coastal Processes); Noise; and Waste. Construction phase mitigation measures were identified to prevent the potential interaction, and thus mitigate the potential for, cumulative effects on all of these environmental topics.

The potential cumulative effects resulting from dredging and disposal operations required inclusion of additional mitigation measures to separate operations in terms of time. This means that the dredging element of the 3FM Project will not overlap with ABR capital dredging and/or DPC maintenance dredging campaigns, thus reducing potential impacts to water quality, biodiversity/habitat deterioration and underwater noise. The ABR Project, completion of dredging at Alexandra Basin West, will require dredged material to be brought ashore for treatment and recovered as a fill material at the Berth 52/53 basin. Under the 3FM Project, an estimated 70,000m^3 of Dredge Material from Poolbeg Marina will require recovery/disposal. It is proposed that this material is also treated and recovered as a fill material at the Berth 52/53 basin under a revised IE licence, subject to availability of receptor capacity. The license revision process, and its in built controls, will therefore ensure that the two projects will not result in cumulative impact thus reducing potential impact to Waste.

Similarly, the piling operations for the 3FM Project will be separated in time from the MP2 Project piling operations, as a specific cumulative impact mitigation, in order to prevent potential impacts to underwater noise and biodiversity/marine mammals.

DPC has commissioned and published the Conservation Strategy 2024 for the entire Port estate as a pre-planning document to 3FM Project. This involves a strong commitment to Heritage values across all of Dublin Port's projects, which deliver a coherent heritage strategy across all the phases of Masterplan 2040. As such the ABR Project and the MP2 Project also involved the advice of the Heritage team and add a positive contribution to the interpretation of Heritage on the overall site. The Liffey-Tolka Project also offers a significant contribution to Port-City integration. Consequently, these projects connect to provide a heritage landscape with an overall positive social and cultural cumulative impact.

The other selected projects were assessed across all environmental topics and no significant cumulative impacts (positive or negative) were identified on the basis that the 3FM Project mitigations were applied. Therefore, no further cumulative impact mitigations were required.

The potential interactions between environmental aspects arising from within the 3FM Project were assessed. Each technical environmental chapter within the EIAR identifies and analyses the potential for other environmental interactions. These chapters also detail environmental baseline information and identify the significant potential and residual construction and operational effects/impacts of the discrete 3FM Project. The cumulative assessment identified many potential inter-relationships and interactions. Additional mitigation measures were included to minimise and/or off-set the potential for significant effects resulting from such interactions.

For example, an interaction link exists between Water Quality and Human Beings. Dredging operations has the potential to impact on water quality at water intakes and outfalls. Four power plants within the Dublin Port area abstract water from the Liffey. The water is abstracted as part of the electricity generation process and/or for cooling water components. High levels of suspended solids in cooling water has the potential to impact upon the plants' cooling systems and may result in an increase in operation and maintenance costs. A review of dredging simulation results showed that that the increased levels of suspended sediment concentrations at the power station intakes are generally very small by comparison with background levels in the Liffey Estuary. It is therefore unlikely to have a significant effect on the quality of intake waters at power stations in terms of suspended solids content. Precautionary mitigation measures have been included as an additional safeguard. If dredging is scheduled to take place within a 500m radius of the intakes, the relevant stakeholders are notified so that additional measures can be taken if deemed necessary.

All potential cumulative effects and environmental interactions of the 3FM Project's construction and operational stages are included in Chapter 20. All mitigation measures for the 3FM Project resulting from the individual assessments, and the cumulative effects and environmental assessment are listed in detail in Chapter 21 and the Project Construction Environmental Management Plan (CEMP). The mitigation measures as listed in the environmental chapters will be employed during construction and/or operation. The overall impact to the environment, even considered in combination, is therefore considered negligible.

21.2.21 Concluding Remarks

Overall, the authors of the EIAR believe that the 3FM Project complies with the principles of proper planning and sustainable development, and that the EIAR has objectively demonstrated that the proposed project does not adversely affect the environment in any of its facets, including the integrity of Natura 2000 sites.