MP2 PROJECT

Volume 3

ENVIRONMENTAL IMPACT ASSESSMENT REPORT APPENDICES (PART 3)

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VOLUME 3 (PART 3) – CONTENTS

Appendix 19 – Summary of Mitigation Measures & Conclusions

APPENDIX 19 SUMMARY OF MITIGATION MEASURES & CONCLUSIONS

Environmental Management Plans

A suite of draft Construction Environmental Management Plans (CEMP) have been prepared for the construction phase of the MP2 Project and are presented in Appendix 19-1 to 19-11.

An outline Mobility Management Plan is presented in Appendix 19-12.

Appendix 19-1 Draft Traffic Management Plan

This draft Construction Traffic Management Plan (dCTMP) outlines minimum requirements for safe management of pedestrian traffic and vehicular movements to, from and within the MP2 Project site during construction. The traffic management plan will ensure uninterrupted access to essential DPC facilities, and will also ensure compliance with obligations set out in the following legislation:

- Guidelines For Working On Roads Guide To The Safety, Health And Welfare At Work (Construction) (Amendment) (No. 2) Regulations 2008 (S.I. No. 423 Of 2008)
- S.I. No. 366 of 2008 of the Road Traffic (Construction And Use Of Vehicles) (Amendment) Regulations 2008
- Safety, Health and Welfare at Work (Construction) (Amendment) Regulations 2008 (S.I. No. 130 of 2008).

When finalising this dCTMP a design specific risk assessment will be carried out by a Chartered Engineer with extensive experience in the design of traffic management system and works within a port environment.

Existing environment

Dublin Port operates on a 24 hour, 7 days per week basis, 365 days per year. The MP2 Project site is an area of the port that is extremely busy in particular between the hours of 05:00 & 23:00. The main access to the site is along Tolka Quay Road and Alexandra Road which incorporate public transport, cargo rail, car traffic and a high percentage of HGV traffic at peak times. The rail link on Alexandra Road operates approximately 10 times per day. Alexandra Road is also a main route on the DPC emergency evacuation plan

Dublin Port operates at security level 1 as per International Ship and Port Facility Security (ISPS) Code and national statutory requirements. The MP2 Project site is adjacent to a number of Seveso sites.

The dCTMP should be read in conjunction with the other Construction Management Plans. Implementation of this plan will require engagement with relevant stakeholders and operators in the Port during the MP2 Project construction phases. Project construction stages will be assessed to identify possible constraints and allow mitigation to be identified.

Resources

Sufficient resources will be allocated to deliver the traffic management plan. These will include a Traffic Manager Design Engineer, Traffic Manager Coordinator, Gate Man to control site access and egress, and Traffic Management Operatives as required.

Plant required will include self-contained wheel wash facility, lifting gate access barriers, road-sweeper, and signage as necessary.

Standards

The Construction Traffic Management Plan will ensure compliance with the following reference documents:

- Dublin City Council's HGV Management Strategy;
- HSA Code of Practice for Health and safety in Dock Work
- HSA Hazard in Port and Dock Operations Information Sheet
- Guidance for the Control and Management of Traffic at Road Works, 2010
- Chapter 8 of the Traffic Signs Manual issued by the Department of Transport in December 2008

CTMP Key Requirements

A project specific construction phase traffic management plan will be compiled by the Traffic Manager Design Engineer in accordance with the standards set out above and all additional requirements under conditions imposed by An Bord Pleanála (ABP) should the Board decide to grant development consent for the MP2 Project.

A Traffic Management Coordinator will oversee and maintain all traffic management on the site. Traffic access and layout will be detailed in technical drawings that take into consideration the coordination of works activities with the ongoing port operations including sailing schedules. The layout will be based on a detailed risk assessment prepared by the Traffic Manager Design Engineer in accordance with Chapter 8 of the Traffic Signs Manual. The traffic management plan drawings will show the key site access points and storage areas, visitor and operative access routes and parking areas, welfare, workshops and storage areas.

The traffic management and access layout plan will be kept under constant review. The Traffic Management Coordinator and site management will collate feedback from all stakeholders in the port and externally from Dublin City Council, Traffic Infrastructure Ireland and Dublin Port Tunnel as part of the review process. A Construction Traffic Management Strategy for the Dublin Port Tunnel will be provided for the duration of the works which will include details in relation to the timing and routing of construction traffic to and from the construction sites and associated directional signage;

The Traffic Management Coordinator will liaise closely with Port Operations and relevant stakeholders to ensure that the CTMP remains current and reflects the evolving needs of the project and the Port. The CTMP will be included in regular toolbox talks to ensure personnel are kept up to date with any changes.

All drivers will receive a site induction on the traffic management plan. All drivers will receive a toolbox talk on the use of the Dublin Port Tunnel and the requirement to cover loads. All drivers will receive a toolbox talk on cleaning of trucks as they leave the site.

The CTMP will consider scheduling management of construction traffic regarding availability of access routes and peak traffic volumes. This will include measures for the staggering of various shift start and finish times to take account of the main ship arrival and departure times, movement of all construction plant, particularly large plant and wide loads requiring specialised transport. Large deliveries will be subject to a task specific risk assessment and method statement. Lift plans will be prepared for key lifting operations as per Safety,

Health and Welfare at Work (General Application) Regulations 2007. Coordination of all such activities will take place with stakeholders through the Traffic Management Coordinator and site management.

All efforts will be made to limit the number of vehicle movements associated with the MP2 Project to and from the port. Where economically viable and more environmentally sustainable than transport by land, materials for the project will be delivered by sea to minimise truck movements on and off site and to ensure the port activities are not hindered.

As part of the project enabling works, secure fencing will be erected to clearly separate the construction works and general port activities, allowing that port access to the site will be required. This fencing will be reviewed at commencement and supplemented where necessary. The site boundary will be adequately maintained through safety audits. Specific details of fencing will be provided in the final CTMP.

In order to prevent nuisance and possible safety issues a self-contained wheel wash facility will be provided at the site exit. All loads to and from the site will be appropriately covered. Trailers will also be inspected prior to use to ensure trailer boards create a good quality seal. Trailers will not be overloaded. Site access roads will be kept clean and road sweeps will ensure dirt or debris arising from the site are promptly removed as necessary.

The car park and access ways to site welfare and works areas will be clearly delineated, sign posted and lit. All cars and passengers will be required to sign in and out at gate security. Gate security will also monitor the use of the parking areas.

Strategic contingencies will be prepared to deal with any unscheduled closures of the Dublin Port Tunnel or congestion or disruption of local road networks. Strategic options will be reviewed on a case by case basis taking into consideration the likely duration of any closures and the current construction programme.

The CTMP will prevent the introduction or dispersal of invasive alien species in accordance with the MP2 Project Construction Invasive Alien Species Management Plan. All imports to the site will be from an approved supplier's database and sourced from quality controlled environments that are consistently screened for the presence of invasives. All plant arriving to the site will be washed off site prior to entering the site. The site security attendant will check all plant at the gate and turn away unwashed plant. All plant exiting the site will be wheel washed and debris free.

Should invasive species be identified within the site the mitigation listed in the invasive species management plan will be enacted. This will include such measures as physical separation of the area, treatment by chemical treatment or excavation as appropriate.

The CTMP will take cognisance of other construction activities that may be active within the Port Estate in relation to the rolling out of the Dublin Port Masterplan 2040, revised 2018.

Appendix 19-2 Draft Invasive Species Management Plan

Introduction

This Invasive Alien Species Management Plan (IASMP) sets out measures that will be implemented during the construction phase of the MP2 Project to control the introduction or dispersal of invasive alien species (IAS), including early detection so that effective management may be applied.

IAS are taken to mean all species and the vectors implicated in their dispersal, as set out in the Third Schedule (Non-native species subject to restrictions under Regulations 49 and 50) to S.I. No. 477/2011 - The European Communities (Birds and Natural Habitats) Regulations 2011.

DPC is very aware of the fundamental importance of biodiversity in maintaining robust and sustainable ecosystems. In recent years the widespread occurrence and continual dispersal of invasive alien species poses a growing threat to native flora and fauna and the ecosystems that support them. Species of concern are listed in the Third Schedule of the Birds and Natural Habitats Regulations 2011 (Non-native species subject to restrictions under Regulations 49 and 50) which prohibits their introduction and dispersal.

The importance of the threat posed by Invasive Alien Species (IAS) is reflected in a suite of international, European and national policy and legislation. These include:-

- Convention on Biological Diversity
- EU Biodiversity Strategy to 2020
- Regulation of the European Parliament and of the Council on the prevention and management of the introduction and spread of invasive alien species
- Actions for Biodiversity 2011-2016, Ireland’s 2nd National Biodiversity Plan
- European Communities (Birds and Natural Habitats) Regulations 2011, as amended

IAS can negatively impact on native species, can transform habitats and threaten whole ecosystems causing serious problems to the environment and the economy. They can be extremely difficult and costly to control and eradicate. In some instances the latter may be impossible and adverse effects are irreversible. Early detection of IAS and preventing new introductions are effective management strategies.

Negative impacts of IAS on biodiversity can occur through a range of mechanisms such as competition, herbivory, predation, alteration of habitats and food webs, introduction of parasites and pathogens and through the dilution of native gene pools. On the island of Ireland the most prominent negative impact appears to be direct competition with native biota, whilst alteration to habitats and the influence of parasites and pathogens are also important. A range of specific habitat types, and a variety of native species are currently under threat, including freshwater rivers and lakes; coastal floodplains, saltmarsh and sand dunes; tidal mudflats and sandflats.

The total number of alien animal and plant species on the island of Ireland has been estimated at over 1,200. Not all of these are 'invasive' or have an impact i.e. given to vigorous dispersal and displacement of natives.

A group of 163 of the worst IAS threatening biodiversity in Europe has been compiled and the island of Ireland has over 40 of this group.

Key Irish legislation with provision for control of invasive species is the Wildlife Acts and the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477/2011), both of which prohibit the spreading of invasive species. Specifically, Regulation 49.(2) of S.I No. 477/2011 makes it an offence to plant, disperse, allow or cause to disperse, spread or otherwise cause to grow in any place specified plants listed in the Third Schedule save in accordance with a licence. Regulation 49(3) allows proof that the accused took all reasonable steps and exercised all due diligence to avoid committing the offence as a defence.

The schedule also refers to vector materials that may occasion the dispersal of IAS. For the MP2 Project particular relevance is attached to 'soil or spoil taken from places infested with Japanese knotweed (*Fallopia japonica*), giant knotweed (*Fallopia sachalinensis*) or their hybrid Bohemian knotweed (*Fallopia xbohemica*)'.

The species and vectors for their dispersal as set out in the Third Schedule to S.I. No. 477/2011 are listed in Table 1 and Table 2 along with an assessment of the risk posed for introduction or dispersal through the MP2 Project.

Three distinct types of measures are envisaged, which follow an internationally agreed hierarchical approach to combating IAS (European Union Regulation (EU) NO 1143/2014 of the European Parliament and of the Council of 22 October 2014 on the prevention and management of the introduction and spread of invasive alien species). These include:

- **Prevention**: a number of robust measures aimed at preventing the intentional or unintentional introduction of IAS of Union concern into the MP2 Project Site.
- **Early detection and rapid eradication**: a surveillance system will be put in place to detect the presence of IAS of concern as early as possible to allow rapid eradication measures to be implemented where possible to prevent them from establishing.
- **Management**: some IAS may already be established. In this case concerted management action will be taken to prevent them from spreading any further and to minimize the harm they may cause.

The measures identified in this Invasive Alien Species Management Plan will be implemented for the duration of the proposed construction works.

An initial Invasive Alien Species (IAS) Risk Assessment of the MP2 Project Site has been completed to inform the Invasive Alien Species Management Plan. This will also link into the Construction Waste Management Plan and Construction Traffic Management Plan to prevent the introduction or spread of IAS.

IAS Management in Dublin Port

This management strategy is informed by best practice guidance, advice on mitigation methods, and aids to identification provided in a range of sources including:

- National Roads Authority (2010). Guidelines on The Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads Revision 1, December 2010
- Invasive Species Ireland Project (2009). Field Guide to Invasive Species in Ireland. 2nd Edition.

- Invasive Species Ireland website: http://invasivespeciesireland.com
- GB Non-Native Species Secretariat website: www.nonnativespecies.org

Initial IAS Risk Assessment

The implementation of biosecurity measures in relation to IAS must be based on a risk based approach. To inform this approach an initial IAS risk assessment has been undertaken to identify those IAS that are likely to be relevant and present risks of introduction or dispersal during the MP2 Project. This initial risk assessment will facilitate implementation of appropriate mitigation measures, including preparation of guides to aid species identification for use by contractors.

Not all non-native or alien species are invasive. Some species may only be invasive in certain contexts. This risk assessment considers all species, and the vectors implicated in their dispersal, as set out in the Third Schedule (Non-native species subject to restrictions under Regulations 49 and 50) to The Birds and Natural Habitats Regulations (S.I. No. 477/2011). The assessment also considers individual IAS as set out in the Draft Invasive Species Action Plan for Dublin City 2016 - 2020 prepared by Dublin City Council, and the invasive non-native species listed in *Ireland's invasive and non-native species – trends in introductions* (O'Flynn, C., Kelly, J. and Lysaght, L. (2014) National Biodiversity Data Centre Series No. 2. Ireland).

The risk assessment includes:-

- an appraisal of the key IAS that are most likely to pose a threat based on
  - habitat availability at the construction site
  - known occurrence of IAS in the likely region of influence
  - available pathways for dispersal to and within the construction site
  - extent of risk presented by an individual IAS (considering potential economic, operational, and environmental impacts, and presence of resident vulnerable or threatened native species)
- a visual survey of the construction site for the presence IAS
- mapping and photographic record of any IAS detected
- compilation of visual identification aids for shortlisted key IAS

Method

The National Biodiversity Data Centre (NBDC) IAS dataset has been used to support a preliminary assessment of invasive species issues when considering the MP2 Project. All invasive species records at the MP2 site and in proximity to the site were extracted to compile a list of IAS in an area of 48 km2 centred on the MP2 site.

Surveys of the MP2 site were carried out in May 2018 and April 2019. All areas of the site were visited and searches were undertaken for invasive species. The suitability of habitats throughout the MP2 site for invasive species was also assessed using expert judgement in combination with results of habitat surveys previously undertaken at the site in 2018 as part of the MP2 EIA.

The risk assessment is based on the presence or absence of species at the MP2 site, the distribution of the species in the surrounding region, and the availability of suitable habitats at the MP2 site. Consideration is also given to available pathways for dispersal and the impact/invasiveness of the species in question.

Site Characteristics

The MP2 site lies at the eastern extreme of the Dublin Port Estate on the northern side of the Liffey channel. It is comprised largely of artificial surfaces (BL3[1]), sea walls, piers and jetties (CC1) some areas of which support patches of ruderal plant communities recolonising bare ground (ED3).

A narrow coastal fringe along the eastern and northern margins of the site has some small planted areas of ornamental/non-native shrubs (WS3) and mixed broadleaved/conifer woodland (WD2).

Narrow strips of amenity grassland (GA2) occur along the road network and are regularly mown. All of these plant communities are comprised of both native and introduced non-native species.

No freshwater habitats exist within the curtilage of the site.

IAS Occurrence On-Site

No regulated invasive plant species listed in the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011, as amended, were identified on site during the surveys in May 2018 or April 2019.

The following non-regulated 'medium impact species' listed in O'Flynn, C.et al (2014) were recorded on site:

- butterfly bush *Buddleja davidii*
- narrow leaved ragwort *Senecio inaequidens*
- sycamore *Acer pseudoplatanus*
- traveller's-joy *Clematis vitalba*

A search of NBDC records for the MP2 site and all adjacent 2x2km grid squares (a total area of 48km^2) shows the presence of 28 non-native invasive species. Thirteen of these are regulated invasive species listed in the Third Schedule to S.I. No. 477/2011, of which three are mammals and ten are plants. Of the three mammals, regulation only applies to the Brown Rat in the case of off-shore islands and is therefore not relevant to this site.

Risk Assessment

The risk assessment undertaken here relates to the MP2 site only. An assessment of the overall risk of future introduction or dispersal associated with all species in the Third Schedule is provided in Table 1 and Table 2. Overall risk is based on a combination of species presence on the MP2 site, occurrence locally i.e. recorded in the surrounding 48km^2, and habitat availability at the construction site. Consideration is also given to available pathways for dispersal and the impact/invasiveness of the species in question. Where an IAS risk

[1] Habitat categories are as in Fossitt, 2000, A Guide to the Habitats of Ireland. The Heritage Council.

assessment has been published, the overall potential impact is considered and may result in downgrading risk as computed (e.g. Three-cornered Leek and Spanish Bluebell). Also where MP2 project activities do not provide likely pathways for introduction or dispersal the risk has been reduced (mammals including the mink and grey squirrel). Finally, where species are not considered highly invasive in this geographical region (e.g. Giant Rhubarb species), the risk has also been reduced.

Due to their presence in the surrounding region, the availability of dispersal pathways, and suitable habitat at the construction site, three species of flowering plants are considered to pose a high risk of introduction and future dispersal. These include Japanese Knotweed, Giant Hogweed, and Himalayan/Indian Balsam. Note that while these species are identified as the most likely to disperse to the construction site, they do not all have the same impact potential or pose the same degree of management difficulties.

A further four plant species are ranked as medium risk. These include the Cord Grasses, Sea-buckthorn, Spanish Bluebell and Three-cornered Leek. Both of the latter 2 species are garden escapes (horticultural pathways) with relatively less impact.

Two mammals have been assigned medium risk, the American Mink and the Grey Squirrel. These species have been recorded in the surrounding area and are considered 'high impact' invasive species. However, they are highly mobile species and it is considered unlikely that operations of the MP2 project will provide any additional significant pathways for introduction or dispersal.

Soil contaminated with knotweed material (in particular stem fragments, or rhizomes) is also identified as a high risk vector for these invasive species.

Table 1 Risk Assessment for Third Schedule IAS in relation to MP2 site

Common name	Scientific name	IAS Present on MP2 Site	IAS Occurs Locally (48km^2)	Suitable habitat present	Overall Risk
Note: Overall risk is presented as high (red), medium (amber) or low (green).					
American skunk-cabbage	*Lysichiton americanus*	x	x	-	
A red alga	*Grateloupia doryphora*	x	x	-	
Brazilian giant-rhubarb	*Gunnera manicata*	x	x	-	
Broad-leaved rush	*Juncus planifolius*	x	x	x	
Canadian Waterweed	*Elodea canadensis*	x	y	x	
Cape pondweed	*Aponogeton distachyos*	x	x	-	
Cord-grasses	*Spartina* (all species and hybrids)	x	y	x/y	
Curly waterweed	*Lagarosiphon major*	x	x	-	
Dwarf eel-grass	*Zostera japonica*	x	x	-	
Fanwort	*Cabomba caroliniana*	x	x	-	
Floating pennywort	*Hydrocotyle ranunculoides*	x	x	-	
Fringed water-lily	*Nymphoides peltata*	x	x	-	
Giant hogweed	*Heracleum mantegazzianum*	x	y	y	
Giant knotweed	*Fallopia sachalinensis*	x	x	-	
Giant-rhubarb	*Gunnera tinctoria*	x	x	-	
Giant salvinia	*Salvinia molesta*	x	x	-	

Common name	Scientific name	IAS Present on MP2 Site	IAS Occurs Locally (48km^2)	Suitable habitat present	Overall Risk
Note: Overall risk is presented as high (red), medium (amber) or low (green).					
Himalayan/Indian balsam	*Impatiens glandulifera*	x	y	y	
Himalayan knotweed	*Persicaria wallichii*	x	x	-	
Hottentot-fig	*Carpobrotus edulis*	x	x	-	
Japanese knotweed	*Fallopia japonica*	x	y	y	
Large-flowered waterweed	*Egeria densa*	x	x	-	
Mile-a-minute weed	*Persicaria perfoliata*	x	x	-	
New Zealand pigmyweed	*Crassula helmsii*	x	x	-	
Nuttall's Waterweed	*Elodea nutalli*	x	y	x	
Parrots feather	*Myriophyllum aquaticum*	x	x	-	
Rhododendron	*Rhododendron ponticum*	x	x	-	
Salmonberry	*Rubus spectabilis*	x	x	-	
Sea-buckthorn	*Hippophae rhamnoides*	x	y	x/y	
Spanish bluebell	*Hyacinthoides hispanica*	x	y	y	
Three-cornered leek	*Allium triquetrum*	x	y	y	
Wakame	*Undaria pinnatifida*	x	x	-	
Water chestnut	*Trapa natans*	x	x	-	
Water fern	*Azolla filiculoides*	x	y	x	
Water lettuce	*Pistia stratiotes*	x	x	-	
Water-primrose	*Ludwigia* (all species)	x	x	-	
Wireweed	*Sargassum muticum*	x	x	-	
A colonial sea squirt	*Didemnum spp.*	x	x	-	
A colonial sea squirt	*Perophora japonica*	x	x	-	
All freshwater crayfish species except the white-clawed crayfish	*All freshwater crayfish species except Austropotamobius pallipes*	x	x	-	
American bullfrog	*Rana catesbeiana*	x	x	-	
American mink	*Neovison vison*	x	y	y	
American oyster drill	*Urosalpinx cinerea*	x	x	-	
Asian oyster drill	*Ceratostoma inornatum*	x	x	-	
Asian rapa whelk	*Rapana venosa*	x	x	-	
Asian river clam	*Corbicula fluminea*	x	x	-	
Bay barnacle	*Balanus improvisus*	x	x	-	
Black rat	*Rattus rattus**	N/A			
Brown hare	*Lepus europaeus*	x	x	-	
Brown rat	*Rattus norvegicus**	N/A			
Canada goose	*Branta canadensis*	x	x	-	
Carp	*Cyprinus carpio*	x	x	-	
Chinese mitten crab	*Eriocheir sinensis*	x	x	-	
Chinese water deer	*Hydropotes inermis*	x	x	-	
Chub	*Leuciscus cephalus*	x	x	-	
Common toad	*Bufo bufo*	x	x	-	
Coypu	*Myocastor coypus*	x	x	-	

Common name	Scientific name	IAS Present on MP2 Site	IAS Occurs Locally (48km^2)	Suitable habitat present	Overall Risk
Note: Overall risk is presented as high (red), medium (amber) or low (green).					
Dace	*Leuciscus leuciscus*	x	x	-	
Freshwater shrimp	*Dikerogammarus villosus*	x	x	-	
Fox	*Vulpes vulpes**	N/A			
Grey squirrel	*Sciurus carolinensis*	x	y	y	
Greylag goose	*Anser anser*	x	x	-	
Harlequin Ladybird	*Harmonia axyridis*	x	x	-	
Hedgehog	*Erinaceus europaeus**	N/A			
Irish stoat	*Mustela erminea hibernicus**	N/A			
Japanese skeleton shrimp	*Caprella mutica*	x	x	-	
Muntjac deer	*Muntiacus reevesi*	x	x	-	
Muskrat	*Ondatra zibethicus*	x	x	-	
Quagga Mussel	*Dreissena rostriformis*	x	x	-	
Roach	*Rutilus rutilus*	x	y	-	
Roe deer	*Capreolus capreolus*	x	x	-	
Ruddy duck	*Oxyura jamaicensis*	x	x	-	
Siberian chipmunk	*Tamias sibiricus*	x	x	-	
Slipper limpet	*Crepidula fornicata*	x	x	-	
Stalked sea squirt	*Styela clava*	x	x	-	
Tawny owl	*Strix aluco*	x	x	-	
Wild boar	*Sus scrofa*	x	x	-	
Zebra mussel	*Dreissena polymorpha*	x	x	-	
Fallow deer	*Dama dama*	x	x	-	
Sika deer	*Cervus nippon*	x	x	-	

Table 2 Vectors for IAS dispersion considered at MP2 Site

Vector material	Species referred to	IAS Present on MP2 Site	IAS Occurs Locally (48km^2)	Suitable habitat present	Overall Risk
Note: Overall risk is presented as high (red), medium (amber) or low (green).					
Blue mussel (*Mytilus edulis)* seed for aquaculture taken from places (including places outside the State) where there are established populations of the slipper limpet *(Crepidula fornicata)* or from places within 50 km. of such places	Mussel *(Mytilus edulis)* *Slipper limpet (Crepidula fornicata)*	N/A			
Soil or spoil taken from places infested with Japanese knotweed*(Fallopia japonica)*, giant knotweed*(Fallopia sachalinensis)* or their hybrid Bohemian knotweed (*Fallopia* x*bohemica*)	Japanese knotweed *(Fallopia japonica)* *Giant knotweed (Fallopia sachalinensis)* *Bohemian knotweed(Fallopia x bohemica)*	x	y	y	

Mitigation Measures

Biosecurity measures are a series of precautionary steps designed to reduce the risk of dispersal / introduction of IAS. The management approach taken will prioritise prevention of IAS introduction to, or dispersal from Dublin Port. Mitigation measures will be implemented if required to contain, eradicate or control as appropriate any IAS found to be present in the areas of project operations.

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 into, within or out of the operations area. Measures which will be implemented 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 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 to identification for the most likely species to be encountered based on the initial IAS risk assessment
- Notification of any suspected new occurrences of IAS to the Environmental Facilities Manager

Early detection and rapid eradication

A surveillance system will be put in place to detect the presence of IAS of concern as early as possible to allow rapid eradication measures to be implemented where possible to prevent them from establishing. The Environmental Facilities Manager will undertake regular inspections of the site to detect any new IAS occurrences or colonies. Measures which will be implemented will include:

- Ongoing monitoring of the MP2 Project site for IAS and updating the Initial IAS Assessment as necessary
- mapping of distribution of existing and new IAS colonies and occurrences throughout the MP2 Project site
- confirmation of identification of any IAS and collation of relevant best practice management and eradication methods
- cordoning off of IAS infested area to limit movement of people / machinery in the area and relevant buffer zones, and appropriate signage
- Implementation of recommended control/eradication measures by qualified and experienced personnel
- monitoring of treated area to determine effectiveness of measures or need for further actions
- Handling and disposal of treated material appropriately to prevent further spread.

Management - Containment / Treatment

If any established IAS is identified on the construction site, the management plan will aim to 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, and appropriate signage

- Confirmation of the identification of the species concerned, and collation of relevant best practice management and eradication 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.

The Environmental Facilities Manager will be responsible for ensuring that appropriate mitigation is in place as part of the Construction Environmental Management Plan during the implementation of the MP2 Project.

Appendix 19-3 Draft Construction Waste Management Plan

Introduction

This draft Construction Waste Management Plan (CWMP) provides an assessment of the potential impacts arising from the generation of waste materials during demolition and construction of the MP2 Project and measures for ensuring that all construction and demolition wastes associated with the MP2 Project are managed and controlled to prevent the risk of environmental pollution or ecological damage.

The draft CWMP will be finalised in the event that development consent is obtained, in order to incorporate additional requirements pursuant to conditions attached to statutory consents, and methods and plant in use by the appointed Contractor.

Objectives of the CWMP

In line with the objectives of the Waste Framework directive (WFD) (2008/98/EC) of 19 November 2008, this document prescribes a proactive approach to the management of construction and demolition waste during the MP2 Project and promotes sustainable development, environmental protection and optimum use of resources. The CWMP is based on the fundamental waste management prioritisation principles i.e. prevent, reduce, reuse, recycle. The following definitions are given in the WFD:

- Prevention – means measures taken before a substance, material or product has become waste, that reduce:

  (a) The quantity of waste, including through the re-use of products or the extension of the life span of products;

  (b) The adverse impacts of the generated waste on the environment and human health; or

  (c) The content of harmful substances in materials and products.

- Preparing for re-use – means checking, cleaning or repairing recovery operations, by which products or components of products that have become waste are prepared so that they can be re-used without any other pre-processing.

- Recycling - means any recovery operation by which waste materials are reprocessed into products, materials or substances whether for the original or other purposes. It includes the reprocessing of organic material but does not include energy recovery and the reprocessing into materials that are to be used as fuels or for backfilling operations.

- Other recovery e.g. energy recovery - means any operation the principal result of which is waste serving a useful purpose by replacing other materials which would otherwise have been used to fulfil a particular function, or waste being prepared to fulfil that function, in the plant or in the wider economy. Annex II (to the WFD) sets out a non-exhaustive list of recovery operations.

- Disposal - means any operation which is not recovery even where the operation has as a secondary consequence the reclamation of substances or energy. Annex I sets out a non-exhaustive list of disposal operations.

This waste management hierarchy will be applied wherever possible as part of this waste management process.

The objectives of this CWMP are as follows:

- Compliance with requirements for waste management during all works.
- Minimisation of the risk of environmental pollution or ecological damage during the works.
- Application of best environmental practices in relation to waste management on site.

Definition of Waste

Waste is defined as 'any substance or object the holder discards, intends to discard or is required to discard' under the Waste Framework Directive (European Directive 2006/12/EC as amended by Directive 2008/98/EC). Materials become wastes when deemed surplus to the needs of a development project and are about to be discarded. Once a substance has become waste it will remain waste until it has been fully recovered and no longer poses a potential risk to the environment or human health. From that moment onwards, the material ceases to be waste.

This applies to waste used as aggregate or construction material in civil engineering applications and to excess top soils and sub-soils which need to be moved off-site.

Waste recovery can be achieved when such waste is incorporated into a road, building or other infrastructure works, or in the case of inert waste, after processing if such a process is conducted following the criteria specified in the relevant quality protocols[2]. All wastes must be handled by permitted collectors and brought to authorised facilities.

All wastes are either inert, non-hazardous or hazardous. Laboratory testing of representative samples is required to characterise waste materials. The waste acceptance criteria test is established and reliable, the results providing certainty of treatment. The ultimate classification of material dictates the destination facility where waste materials can be sent.

Anticipated Waste Arisings

The proposed works will generate construction and demolition (C&D) waste through removal of existing buildings and roads to create an additional three hectares of terminal area and construction of additional berthing facilities. Detailed estimates of all predicted waste generation will be produced before commencement of the construction phase. These estimates will indicate the type and the predicted quantities

[2] Quality Protocols have been developed by Waste and Resources Action Programme (WRAP) and the Environment Agency (EA) to encourage the recovery of waste materials while at the same time increasing confidence in quality of products made from waste.

of wastes classified by EWC Code. The waste generation document will be a live document and updated throughout the project.

Demolition Works

C&D waste will arise from the following demolition works to be undertaken as part of the MP2 project:

- Terminal 2 Building
- Terminal 2 Check in
- Terminal 5 Building
- Terminal 5 Check In
- Terminal 5 Sheds (3 no.)
- Terminal 5 Substations (2no.)
- Terminal 1 Car Check-In
- Port Operations Centre building is to be demolished along with ancillary structures
- The Pier Head, located at the terminus of Breakwater Road, which currently supports the Port Operations Centre, is to be demolished. This includes part of the 19th Century Eastern Breakwater which demarcated the end of Dublin Port in the Victorian era. The masonry units making up the facing of the Pier Head will be carefully removed and salvaged for relocation elsewhere on site for heritage gain projects and amenity value
- Southern end of the Eastern Oil Jetty
- Internal roads and fences.

Construction Works

Waste may arise from the following construction works to be undertaken as part of the MP2 Project:

- Infilling of the basin at Oil Berth 4 with engineered fill material and suitable CDW arising from the proposed demolition works within the footprint of the MP2 Project development area. The void between the existing Oil Berth 3 and the proposed new sheet pile wall will also be filled with engineered fill material. The quantity of fill material required is estimated to be approximately 145,000 m^3.
- Backfilling of bridging structure in Berth 50A with engineered fill material and/or construction and demolition waste.
- General waste generated from the various construction works.

MWC Roles & Responsibilities

A Main Works Contractor (MWC) Environmental Co-ordinator/Waste Manager will be appointed to ensure commitment, operational efficiency and accountability during the construction and demolition phase with regard to waste management, including the procedures that will be followed for ensuring implementation of the CWMP through the onsite management structure but also across all members of the construction team.

Records Keeping

The Environmental Co-ordinator/Waste Manager will obtain and maintain hard copies of:

- all waste collection permits, waste facility permits, waste licences, industrial emission licences and certificates of registration for all facilities to be used throughout the project.
- all waste classification tests carried out on materials, where applicable
- sign-off all Waste Transfer Forms for empty/full skips
- maintain a Waste Tracking Register for all hazardous and non-hazardous waste movements off-site
- 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.

Records will be kept for all waste material that leaves the site, whether for reuse on another site, recovery, recycling or disposal. A system will be put in place to record the construction waste arising on site. The MWC Environmental Co-ordinator/Waste Manager or delegate will record the following:

- 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 MWC Environmental Co-ordinator//Waste Manager from the 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.

Monitoring

The appointed MWC Environmental Co-ordinator/Waste Manager will be responsible for conducting waste audits and checks during the C&D phase of the development and monitoring CWMP implementation including:

- regular waste audits to ensure full adherence to this waste management plan and agreed procedures
- confirming that each waste facility being used during the project is operating in accordance with its licence or permit conditions and is managing waste in accordance with the agreed method set out at the start of the project
- ensuring that all non-hazardous waste materials being placed in skips/other receptacles are being fully de-labelled
- Requesting skip/bin exchanges from the non-hazardous waste Contractor and acting as spotter when the collection vehicle is on site.

A review of all records for the waste generated and transported off-site, will be undertaken mid-way through the C&D phase.

Storage/Reuse of Demolition/Excavation Wastes

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 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 MWC Environmental Co-ordinator/Waste Manager 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.

Under certain circumstances and in order that uncontaminated excavated soil and stone is beneficially used on-site, DPC and its MWC may decide in accordance with the conditions of article 27 of the European Communities (Waste Directive) Regulations 2011, S.I. No. 126 of 2011 that such material is a by-product and not a waste and will notify the Environmental Protection Agency for a determination.

Corrective Actions

If waste movements are not accounted for, the reasons for this will 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 of waste generation is occurring. The waste management methods for each material type will be reviewed in order to highlight how the targets can be achieved.

Reporting

Upon completion of the C&D phase a final report will be prepared summarising the outcomes of the waste management processes adopted and the total recycling / reuse / recovery figures for the development. To that end a method to calculate the difference between expected waste quantities prior to commencement of the project and actual waste quantities after project completion will be provided.

Training

The MWC Environmental Co-ordinator/Waste Manager will be given responsibility and authority to select a waste team if required i.e. members of the site crew that will aid them in the organisation, operation and recording the waste management system implemented on-site.

The MWC Environmental Co-ordinator/Waste Manager will have overall responsibility to oversee records and provide feedback to DPC on everyday waste management on the site. Authority will be given to MWC Environmental Co-ordinator/Waste Manager to delegate responsibility to sub-Contractors where necessary and to co-ordinate with suppliers, service providers and sub-Contractors to prioritise waste prevention and salvage.

The MWC Environmental Co-ordinator/Waste Manager 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. The

Environmental Co-ordinator/Waste Manager will also be trained in the best method for segregation and storage of recyclable materials, have information on the materials that can be reused on-site and implement the CWMP.

Training of staff on site is the responsibility of the MWC Environmental Co-ordinator/Waste Manager and as such, a waste training programme will be organised. A basic awareness course will be held for all crew to outline the CWMP and to detail the 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 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.

The Environmental Co-ordinator/Waste Manager will provide daily support to the site crews on waste segregation, storage and decontamination, and provide weekly input at toolbox talks on waste related subjects.

Environmental Mitigation Measures

Construction waste will be managed in line with the requirements of this CWMP which will be implemented by the appointed Contractor for the duration of the construction works. The CWMP identifies how waste will be dealt with (i.e. disposal, re-use on/off site etc.). The Contractor will also choose building materials to 'design out waste' to the maximum extent possible. This will include agreements with materials suppliers to reduce the amount of packaging or to participate in a packaging take-back scheme. The Contractor will implement 'just in time' materials delivery systems where possible to avoid materials being stockpiled, which increases the risk of the damage and disposal as waste.

Table 3 below summarises the potential impacts identified and the mitigation measures required, where necessary.

Table 3 Proposed Mitigation Measures

Potential Impact (Waste Management)	Summary of Proposed Mitigation (Waste Management)
Demolition Phase ▪ Waste materials will be generated as a results of the demolition of the following existing buildings in various states of repair: - Terminal 2 Building - Terminal 2 Check in - Terminal 5 Building - Terminal 5 Check In - Terminal 5 Sheds (3 no.) - Terminal 5 Substations (2no.) - Terminal 1 Car Check-In - Port Operations Centre building is to be demolished along with ancillary structures - The Pier Head, located at the terminus of Breakwater Road, which currently	▪ A MWC will be appointed. Contractors working on site during the works will have a duty of care and be responsible for the collection, control and disposal of all wastes generated by the works. DPC and their 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. The Contractor will ensure that all proposed waste management routes comply with the European waste hierarchy of prevention, preparing for reuse, recycling, and recovery with disposal being the last and final option. Monitoring and updating of records will be implemented under Duty of Care requirements. ▪ A Demolition Survey is required prior to any demolition work undertaken. The Demolition Survey will set out all high value waste materials, such as metals, that will be removed from buildings and

Potential Impact (Waste Management)	Summary of Proposed Mitigation (Waste Management)
supports the Port Operations Centre, is to be demolished. This includes part of the 19th Century Eastern Breakwater which demarcated the end of Dublin Port in the Victorian era. The masonry units making up the facing of the Pier Head will be carefully removed and salvaged for relocation elsewhere on site for heritage gain projects and amenity value - Southern end of the Eastern Oil Jetty - Internal roads and fences. ▪ The estimated quantities of C&D waste from demolition works are as follows: - Buildings (7,900m^3) - Concrete & inert (4,740 m^3) - Made ground (28,000m^3) - Masonry (7,000m^3) - Concrete (5,000m^3) ▪ Poor management of demolition waste could lead to the potential for quantities of materials to be deposited in landfill sites rather than reused or recycled.	segregated for possible onward reuse or recycling to maximise recovery. ▪ 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. It is proposed the following areas will be infilled using engineered fill material and suitable CDW arising from demolition works within the footprint of the development: - Basin of Oil Berth 4 - Void between the existing Oil Berth 3 and the proposed new sheet pile wall - Bridging structure in Berth 50A ▪ C&D waste may be subject to treatment at the site prior to recovery in Oil Berth 4. Mobile plant may be installed to crush and screen suitable CDW. A permit for the recovery operation will be required. ▪ Storage of demolition or excavation wastes onsite for reuse 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 any Exemption are not exceeded. ▪ Masonry units (estimated 7,000m^3) from the 19th Century Eastern Breakwater are of industrial heritage importance and will be carefully removed and salvaged for relocation elsewhere on site for future heritage gain projects. ▪ Correct segregation, storage, handling and transport of all waste will be required to ensure there are no adverse effects on human health and that litter is not generated. ▪ 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: - Waste oils and fuels; - Paints, glues, adhesives and other known hazardous substances ▪ The storage and reuse of demolition or excavation wastes on site may be subject to a number of waste licensing requirements. DPC and their appointed MWC will consult with the EPA prior to construction

Potential Impact (Waste Management)	Summary of Proposed Mitigation (Waste Management)
	to ensure that the appropriate licences, permits and exemptions are in place prior to initiation.
▪ Demolition waste can also contain hazardous substances such as Asbestos Containing Materials (ACMs) that are present in buildings when demolished or renovated.	▪ The Demolition Survey will include intrusive surveying with sampling which will identify the exact extent and location of any ACMs in the building. Removal offsite of any ACMs from the buildings to be demolished will be required prior to demolition. ▪ The Safety, Health and Welfare at Work (Exposure to Asbestos) Regulations 2006 as amended (S.I. No. 386 of 2006) and The Safety, Health and Welfare at Work (Construction) Regulations 2013 (S.I. No. 291 of 2013) provides the legislative backdrop to all aspects of asbestos control in construction. Any actions related to ACMs must be in accordance with these regulations.
Construction Phase ▪ There is the potential for quantities of materials to be deposited in landfill sites rather than reused or recycled. ▪ Waste materials will arise from site management practices during the construction phase, for example, excess materials and packaging, over-ordering materials, off-cuts, damaged materials and poor storage during the construction phase. ▪ Waste materials generated as a result of excavations, typically consisting of materials, for example, soil, made ground and existing foundations removed as a function of design or from excavations for new construction. Depending upon the previous use of the site, this may, or may not be contaminated. ▪ Fuels and hydraulic oils/lubricants that will be used during the construction phase are classed as hazardous. There will be fuel stores on site for machinery and construction vehicles along with oils and lubricants. Should any spillages, waste or surplus liquids be disposed of incorrectly it could cause serious harm to the surrounding environment.	▪ Contractors working on site during the works will have a duty of care and be responsible for the collection, control and disposal of all wastes generated by the works. DPC and their appointed MMC 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. The Contractor will ensure that all proposed waste management routes comply with the European waste hierarchy of prevention, preparing for reuse, recycling, and recovery with disposal being the last and final option. Monitoring and updating of records will be implemented under Duty of Care requirements. ▪ Every effort will be made in the management of the site to minimise the oversupply of construction materials. ▪ Correct segregation, storage, handling and transport of all waste will be required to ensure there are no adverse effects on human health and that litter is not generated. ▪ Construction waste materials shall be segregated on-site for recycling into the following categories: - Timber - Metal - Cardboard & paper - Glass - Rubble - General waste ▪ Waste gypsum can be recycled therefore a skip will be provided for the separate collection of waste plasterboard and collected as necessary. ▪ Cardboard packaging will be flattened and placed in a covered skip to prevent it getting wet prior to collection by a waste Contractor.

Potential Impact (Waste Management)	Summary of Proposed Mitigation (Waste Management)
	▪ Plastic will be segregated at source and kept as clean as possible and stored in a dedicated skip prior to collection by a waste Contractor. ▪ Project design will incorporate adequate dedicated space to cater for the segregation and storage of all various waste streams during construction. The waste storage compound will be fully enclosed within the development and will allow for waste segregation and handling activities. ▪ 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. Adequate security measures will be put in place. ▪ A bunded disposal area will be provided for all waste fuels and hydraulic oils/lubricants.
▪ The use of non-permitted waste Contractors or unlicensed facilities could give rise to inappropriate management of waste and result in environmental impacts/pollution.	▪ Contractors working on site during the works will have a duty of care and be responsible for the collection, control and disposal of all wastes generated by the works. DPC and their 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 under Duty of Care requirements.
▪ 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 regularly (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.
▪ If asbestos materials are not correctly identified, segregated and appropriately managed, there may be incorrect handling of the material which could have negative impacts on workers as well as environments both onsite and offsite.	▪ The Safety, Health and Welfare at Work (Exposure to Asbestos) Regulations 2006 as amended (S.I. No. 386 of 2006) and The Safety, Health and Welfare at Work (Construction) Regulations 2013 (S.I. No. 291 of 2013) provides the legislative backdrop to all aspects of asbestos control in construction. Any actions related to ACMs must be in accordance with these regulations.
▪ Waste will be arising from the construction compound.	▪ Recyclable waste such as paper, cardboard packaging and canteen waste will be segregated on site in covered skips for recycling.

Potential Impact (Waste Management)	Summary of Proposed Mitigation (Waste Management)
	▪ Regular housekeeping of the temporary canteen, office and construction compound will be carried out by a permitted waste Contractor.
▪ Sewage from the temporary site toilets will be emptied under contract for disposal at an appropriate facility.	▪ Any temporary W/C utilities used on site during the construction phase will be maintained by an approved and permitted Contractor.

Guidance

The requirements for best practice and adherence to the following relevant Irish policies, strategies, legislation, and guidelines, or recognised international guidelines where Irish guidelines are not available will be required:

National and Regional Policies and Strategies

- Changing Our Ways; A Policy Statement on Waste Management, Department of Environment, Heritage and Local Government, 1998;
- Preventing and Recycling Waste – Delivering Change, Department of Environment, Heritage and Local Government, 2002;
- Taking Stock and Moving Forward, Department of Environment, Heritage and Local Government, 2004;
- National Strategy on Biodegradable Waste, Department of Environment, Heritage and Local Government, 2006;
- A Resource Opportunity – Waste Management Policy in Ireland, Department of the Environment, Community and Local Government (DECLG), 2012;
- National Hazardous Waste Management Plan 2014 – 2020, EPA, 2014;
- The Eastern-Midlands Region Waste Management Plan 2015-2021, Twelve Local Authorities including Dublin City Council., 2015

National and European Legislation

- Waste Framework Directive (2008/98/EC).
- Waste Management Act 1996 (as amended);
- Waste Management (Facility Permit and Registration) Regulations, S.I No. 821 of 2007 (as amended);
- Waste Management (Collection Permit) Regulations (as amended) 2008 (S.I. No 87 of 2008);
- Waste Management (Packaging) Regulations 2003 (as amended) (S.I. No. 61 of 2003);
- Waste Management (Planning) Regulations 1997 (S.I. 137 of 1997);
- Waste Management (Hazardous Waste) Regulations 1998 (S.I. 163 of 1998);
- Waste Management (Landfill Levy) Regulations 2011 (S.I. No. 434 of 2011) as amended 2012 (S.I. No. 221 of 2012);
- European Communities (Waste Electrical Electronic Equipment) Regulations 2011;
- Waste Management (Food Waste) Regulations 2009 (S.I. No. 508 of 2009);

- Local Government Act 1994 (and Amendments) and Regulations (S.I. No. 8 of 1994);
- Litter Pollution Act 1997 (S.I. No. 12 of 1997);
- Protection of the Environment Act 2003 (No. 27 of 2003);
- Industrial Emissions Directive (2010/75/EU);
- European Communities (Waste Directive) Regulations, 2011;

Specifically in relation to the waste management requirements at Port facilities

- EU Directive 2000/59/EC on port reception facilities for ship generated wastes and cargo residues
- S.I. No. 117 of 2003: European Communities (Port Reception Facilities for Ship-Generated Waste and Cargo Residues) Regulations 2003
- Directive 2002/84/EC amending the Directives on maritime safety and the prevention of pollution from ships
- S.I. No. 659 of 2003: European Communities (Port Reception Facilities for Ship-Generated Waste and Cargo Residues) (Amendment) Regulations 2003
- Commission Directive 2007/71/EC of 13 December 2007 amending Annex II of Directive 2000/59/EC of the European Parliament and the Council on port reception facilities for ship-generated waste and cargo residues
- S.I. No. 376 of 2009: European Communities (Port Reception Facilities for Ship-Generated Waste and Cargo Residues) (Amendment) Regulations 2009
- Commission Directive (EU) 2015/2087 amending Annex II to Directive 2000/59/EC on port reception facilities for ship-generated waste and cargo residues
- S.I. No. 550 of 2016: European Communities (Port Reception Facilities for Ship-Generated Waste and Cargo Residues) (Amendment) Regulations 2016
- Directive 2005/35/EC on ship-source pollution and on the introduction of penalties for infringements
- Directive 2009/123/EC amending Directive 2005/35/EC on ship-source pollution and on the introduction of penalties for infringements
- S.I. No. 542 of 2010: European Communities (Ship-Source Pollution) Regulations 2010
- MARPOL 73/78, International Convention for the Prevention of Pollution from Ships, 1973 as modified by the Protocol of 1978
- A guide to good practice – IMO Consolidated Guidance for port Reception Facility Providers and Users.

Appendix 19-4 Draft Noise Management Plan

Introduction

This draft Noise Management Plan (NMP) details the environmental monitoring and noise mitigation measures that will be implemented during the works to minimise the effects of the site operations on environmental receptors. The draft NMP will be finalised in the event that development consent is obtained, in order to incorporate additional requirements pursuant to conditions attached to statutory consents, and methods and plant in use by the appointed Contractor.

This NMP will be fully in accordance with the following documents;

- MP2 Project EIAR Chapter 11.1 Terrestrial Noise & Vibration and mitigation measures therein;
- British Standard BS5228:2009+A1:2014 Noise & vibration control on construction and open sites;
- NRA Guidelines for the Treatment of Noise and Vibration in National Road Schemes (2004);
- NRA Good Practice Guidance for the Treatment of Noise during the Planning of National Road Schemes (2014)

The purpose and aims of the NMP are to:

- Establish noise guidance criteria to be used;
- Detailed outline of monitoring programme to be adopted including information on instrumentation, monitoring locations, monitoring procedure/methodology;
- Detailed outline of all proposed mitigation measures to control and minimise noise from all phases and areas of construction activity;
- Outline of management procedures for ensuring that the appropriate mitigation measures are appropriately managed;
- Outline of procedures for liaising with the public and Dublin City Council.

The proposals for noise monitoring and noise mitigation measures included in this document relate to the entire duration of construction works associated with the MP2 Project.

The draft Noise Management Plan will be finalised when Contractors are appointed, and liaison with Dublin City Council has taken place with regard to approval of the updated NMP. The updated NMP will detail the specific roles and responsibilities of personnel related to the implementation of the NMP.

Mitigation Measures

Mitigation measures will include the requirements for best practice and adherence to the following relevant Irish policies, strategies, legislation, and guidelines, or recognised international guidelines where Irish guidelines are not available:

(a) The construction noise and vibration levels arising from the proposed development shall not exceed Noise and Vibration Threshold Limits in NRA Guidelines (2004) and BS5229:2009, set out in Table 4.

(b) The following mitigation measures, presented in the EIAR (Chapter 11), shall be adhered to, in compliance with British Standard BS5228:2009+A1:2014 – Noise and vibration control on construction and open sites.

- 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 should 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. Where possible, in potentially sensitive areas, acoustic barriers of enclosures will be utilised around noisy plant and equipment.
- 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 & Safety Authority.

A complaints procedure shall be operated by DPC throughout the construction phase and the Contractor will be instructed to make all efforts to address any noise issues at the nearest noise sensitive properties.

DPC will engage in a neighbour notification exercise prior to the commencement of the construction phase. The extent of residents to be notified of construction activities will be determined by a noise modelling exercise which will determine what residents are likely to hear the construction phase activities.

Table 4 Noise Threshold Limits at Nearest Sensitive Receptors for Construction Activities

	Threshold Limits [dB(A)]		
	Category A	**Category B**	**Category C**
Night-time (23:00 - 07:00)	45	50	55
Evening and Weekends (19:00 - 23:00 Weekdays, 13:00-23:00 Saturdays, 07:00-23:00 Sundays)	55	60	65
Weekday daytime (07:00-19:00) and Saturdays (07:00-13:00)	65	70	75

Noise Monitoring Programme

Noise surveys will be conducted 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.

All data will be collected and analysed on a weekly basis and the analysed data will be fed back to DPC and the Contractors on a weekly basis 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 this CEMP. This will also include any liaison requirement with Dublin City Council 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, Dublin City Council and the residents will be conducted with the appropriate level of urgency. This will 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.

Reporting

Interim synoptic reports will be produced on a regular basis, usually calendar months, and submitted to Dublin City Council 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.

Equipment

The number and location of noise meters will be agreed with Dublin City Council. 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 the MP2 Project subject to approval as above. A second monitoring station is proposed at Clontarf, representative of nearest sensitive noise receptors to the north of the MP2 Project site.

The noise meters used will conform to the description of a Type 1 precision digital sound level meters as described in the relevant noise guidance documentation. All equipment will be calibrated at regular intervals.

Appendix 19-5 Draft Dust & Odour Management Plan

Dust Minimisation Plan

Dust emissions from the proposed works have the potential to impact on neighbouring areas in the absence of mitigation. This section outlines the mitigation measures that will be employed to reduce the dust impact on sensitive receptors. These measures are the minimum required and will form the basis of a detailed Dust Management Plan to be prepared by the Contractor when appointed.

The Dust Minimisation Plan is based upon the industry guidelines in the Building Research Establishment document entitled 'Control of Dust from Construction and Demolition Activities' (BRE 2003). In order to ensure that any dust nuisance is minimised, a series of mitigation measures have been listed below, which will be implemented in the event that development consent is granted:

- Any construction compound will be located as far as practicable from sensitive receptors such as residential dwellings but also at a sufficient distance from ecological receptors such as the Tolka estuary.
- 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 site 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.
- Site traffic will be restricted to 20km/hr to minimise dust re-suspension

The level of mitigation (water misting, use of bowsers, etc.) will be dictated by the monitoring results and the levels of rainfall experienced in a given period. This will prevent the excessive use of water for dust suppression on site when not required to minimise secondary drainage impacts.

As part of a broader audit of the works under the CEMP, the application of the above measures will be assessed and recorded. Where required, corrective actions will be identified and presented to the Contractor to fully implement the above measures to minimise dust.

Independent Consultants will monitor dust deposition levels each month for the duration of construction. The monitoring procedure employed will be the German Standard Method VDI 2119 (Measurement of Dustfall, Determination of Dustfall using Bergerhoff Instrument (Standard Method) German Institute). The dust deposition rate will be measured by positioning a series of Bergerhoff Dust Deposit Gauges at strategic locations at key receptor points which will be tested on a monthly basis. The selection of sampling point locations will be completed after consideration of the requirements of VDI 2119 with respect to the location of the samplers relative to buildings and other obstructions, height above ground and sample collection and analysis procedures. The locations will be proposed to Dublin City Council for approval and will be based on the potential risk to sensitive receptors in the area.

The results of the monitoring will be compared against the guideline of 350mg/m2/day. This is the standard German TA Luft guideline which is widely applied in Ireland to determine dust nuisance.

This guideline will be used as a trigger to determine dust nuisance. Where any monthly dust level exceeds the trigger value the Environmental Facilities Manager will carry out an investigation to determine the cause. Recent operations within the site, possible external dust sources and meteorological data will be considered to determine the potential cause of any exceedance. Where the works are identified as the cause the Contractor will be obliged to increase mitigation, modify the proposed works or provide alternative means of dust minimisation measures. All exceedances of the trigger value and subsequent investigations will be recorded and available for review.

Monthly dust monitoring using the methods above has been carried out at Poolbeg Marina Pigeon House Road, the location of the nearest sensitive receptors to the MP2 Project site, since July 2016 as part of the ABR Project. The mean dust deposition level over this 32 month period is 121mg/m2/d. This is well below the nuisance dust level of 350mg/m2/d and establishes a background level for dust deposition in this area. The nearest sensitive noise receptors to the north of the MP2 Project site are in Clontarf, and slightly more distant from the MP2 Project site.

Odour Management Plan

This Odour Management Plan (OMP) has been prepared in accordance with the following guidance documents:

- Odour Management Plans for Waste Handling Facilities (Environment Agency, 2011)
- Odour Management Guidance" (Environment Agency, 2011).
- Odour Impact Assessment Guidance for EPA Licensed Sites" (EPA Guidance Note AG5, 2010).

The OMP has been designed to:-

- Employ appropriate methods, including monitoring and contingencies, to control and minimise odour pollution;
- Prevent unacceptable odour pollution at all times; and
- Reduce the risk of odour releasing incidents or accidents by anticipating them and planning accordingly.

Odour Risk

The risk of odour from the proposed work has been assessed based on the standard source-pathway-receptor model. Each area is outlined in the following section to provide an assessment of overall risk.

Source

The potential sources of odour during the construction works relate to the dredging operation where decayed organic material has the potential to release sulphurous compounds (such as hydrogen sulphide) or where solvent contamination is uncovered.

Hydrogen sulphide (H2S) is partially water soluble so a portion of any H2S released during dredging will dissolve in the water to form sulphuric acid at trace concentrations which will rapidly dilute and disperse in the water column. Previous dredging operations in the same area have released no hydrogen sulphide to the atmosphere.

Very low levels of organic solvents have been recorded in the dredge material in some areas of the channel equating to less than 0.02% of the total material. Volumes of any solvent vapour released during dredging are therefore likely to be extremely low and will quickly condense into the liquid phase and either dissolve in the water (e.g. water soluble solvents such as alcohols) or form a residue on the water surface if not water soluble (such as aromatics).

Pathway

In the event that any odours become airborne the odours will dilute and disperse in the air. The direction of dispersion and extent of dilution is largely dictated by the wind speed and direction. Higher winds will lead to greater dilution than lower winds, and calm days (such as temperature inversion) will restrict dilution/dispersion and increase odour risk. Wind direction in the Dublin area is predominately westerly-south westerly (circa 60% of the year) which will direct odours away from the nearest residential areas which are to the south and west. Northerly and north easterly winds in the direction of these residential areas are very infrequent (circa 10%) as are calms (2.2% of the time).

Receptor

The nearest sensitive residential receptors to the proposed dredging operation are the residential dwellings on York Road, Pigeon House Road, Ringsend Park and Pembroke Cottages. Further north there are a number of residential areas along Clontarf Road which lie over 1.5km to the north of the proposed dredging operations.

The nearest commercial receptors to the proposed development include the various operations along Alexandra Road predominantly to the northwest of the site. In addition the 3Arena Theatre and the Gibson Hotel are the closest operations to the west of the site. To the south of the site there are a number of office developments on York Road and Thorncastle Road.

Ecological receptors can be affected by deposition of air pollutants such as nitrogen oxides and sulphur dioxide. The nearest sensitive ecological sites to the proposed development are the Grand Canal pNHA (Site Code 2104), the Royal Canal pNHA (Site Code 2103) and South Dublin Bay and River Tolka Estuary SPA (Site Code 4024). Ecological receptors are less sensitive to odours than human receptors.

Monitoring and Audit

Odour audits of the MP2 Project construction operations will be undertaken by a suitably qualified expert as required in response to complaints or as directed by regulatory authorities. Any such audits will consider the odour sources listed above coupled with the identification of any new sources and will follow the procedures presented in the EPA “Odour Impact Assessment Guidance for EPA Licensed Sites” (Guidance Note AG5, 2010).

The results of monitoring events and audits will be communicated to the construction manager so that any changes required to working practices or additional abatement measures to mitigate odour risk may be implemented.

Complaint Investigation

As part of the plan, DPC will put in place a system to efficiently manage, record and respond to odour complaints. The relevant information to be recorded includes:

- Date and time of complaint
- Name of complainant
- Location of complainant
- Duration of odour
- Where and when odour was detected
- How strong the odour was/is (Intensity on a scale of 0 to 5 where 0 is not perceptible, 1 is very weak, 2 is weak, 3 is distinct, 4 is strong and 5 is very strong)?
- What did the odour smell like - A number of random descriptors should be proposed by the facility representative or offered by the resident (saying that the odour smells bad is not sufficient).
- Details of the responses made to the complainant.
- Details of the meteorological conditions existing at the time, in particular wind speed. Meteorological data is available on: http://www.met.ie/latest/reports.asp

Where possible, the location of the complainant will be visited immediately to verify the nature of the odour. Where the source is confirmed to relate to the works, the construction manager will be contacted immediately to cease or modify the operation causing the odour until suitable mitigation measures are devised.

Appendix 19-6 Draft Marine Mammal Management Plan

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) Guidelines (2014):

- A trained and experienced Marine Mammal Observer (MMO) will be put in place during piling, dredging and demolition works within the foreshore 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 sea conditions are WMO Sea State 4 (≈Beaufort Force 4 conditions) or less. The Beaufort scale, which is used in Met Office marine forecasts, is an empirical measure for describing wind intensity based on observed sea conditions.
- 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 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 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.
- Any approach by marine mammals into the immediate (<50m) works area will be reported to the National Parks and Wildlife Service.

The MMO will keep a record of the monitoring using a ‘MMO form location and effort (coastal works)’ available from the National Parks and Wildlife Service (NPWS) and submit to the NPWS on completion of the works.

In line with best international practice a combination of visual and acoustic mitigation techniques will be used to ensure there are no significant impacts on all Annex II species, including harbour porpoise, grey seal and harbour seal. Static Acoustic Monitoring (SAM) through the deployment of CPODs 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.

The deployment of a SAM system will complement and extend the extensive database currently being collected as part of the ABR Project environmental monitoring programme.

Static Acoustic Monitoring (SAM)

In order to validate the long term effectiveness of mitigation measures for harbour porpoises a static acoustic monitoring programme (SAM) will be established using C-PODS. The C-POD is a fully automated, static acoustic monitoring system which can detect porpoises, dolphins and other toothed whales by recognising the trains of echolocation clicks these species make in order to detect their prey, orientate themselves and interact with one another. These units are accompanied by click train recognition software which produces fully automated, accurate data on the behaviour and identification of cetacean species (see www.chelonia.co.uk).

Once deployed at sea, C-PODs operate in a passive mode and are constantly listening for tonal clicks within a frequency range of 20kHz to 160kHz. When a tonal click is detected, the C-POD records the time of occurrence, centre frequency, intensity, duration, bandwidth and frequency of the click. Internally, the C-POD is equipped with a Secure Digital (SD) flash card, and all data are stored on this card. Dedicated software, CPOD.exe, provided by the manufacturer, is used to process the data from the SD card when connected to a PC via a card-reader. This allows for the extraction of data files under pre-determined parameters as set by the user. Additionally, the C-POD also records temperature over its deployment duration. It must be noted that the C-POD does not record actual sound files, only information about the tonal clicks it detects.

Static acoustic monitoring is independent of weather conditions once deployed and thus ensures high quality data is collected but only at a small spatial scale, typically around 800m radius for dolphins and 250m for porpoise (O'Brien et al. 2013). They can be deployed on a mooring for 4-6 months before recovery and downloading of data. Data will be recovered and analysed three times a year. This data will be analysed as detection positive minutes (DPM) to generate an acoustic index of activity. This technique provides large datasets to enable changes in activity to be identified at high resolutions.

O'Brien et al. (2013) recommended a minimum of four units should be deployed in small inshore study areas to ensure that statistically robust data can be collected. The number of C-PODs required should reflect the parameters to be tested (e.g. fine scale diel or larger scales such as seasonal trends). Using an even number design for replication purposes can allow for parameters such as inshore and offshore trends to be explored in larger areas. The more units that can be deployed in an area, the more an informed evaluation of a site and successful monitoring indices will be generated.

A total of ten units have been purchased on behalf of the ABR Project to enable individual units to be swapped on the moorings and downloaded and maintained ashore between deployments. These units will also be used for the MP2 Project environmental monitoring programme. In line with best practice, a field calibration trial was carried out in the Shannon Estuary during one month from May to June 2016 in order to test the use of the C-PODs for diel/tidal traffic, and to assess any differences in sensitivity. Field calibrations are necessary when introducing new units to an existing study, and calibrations are carried out at the beginning and end of project.

Four SAM stations will be used for the environmental monitoring programme. These stations will be monitored pre-construction, during construction and for a minimum of two years post-construction. This monitoring will determine whether displacement of harbour porpoises has occurred and whether activity returns to pre-construction levels when construction is completed. This monitoring will provide information to determine if the requirements of the Habitats Directive have been met i.e. to avoid significant disturbance from preferred

habitats, and inform future similar developments. This is in line with best international practice. C-PODs will be recovered every four months and analysed for Detection Positive Minutes (DPMs) providing high quality data on seasonal, diel and tidal occurrence. Data will be compared across sites, before during and after construction following the BACI type design similar to Carstensen et al. (2006). This will provide opportunities for adaptive project management through regular feedback to environmental managers and Contractors.

Seal Survey

Monthly monitoring of seal haul out sites at the North Bull Island has been carried out as part of the ABR Project since May 2016. These surveys have established typical seal numbers and seasonal occupancy of the site. Monitoring of seal haul out sites is ongoing and will be continued during the MP2 Project and after construction for a minimum of two years in line with international best practice. The haul out site at Bull Island will be surveyed two hours either side of low water from the same vantage points following the recommended technique by London et al. (2012). Known and suspected haul out sites will be surveyed during low water to record species, maturity stage (relative size), behaviour and vigilance.

In addition to these formal monthly surveys, counts of seals at their haul out site will be carried out regularly as time allows (see Figure 1). In addition, if any new haul out sites are discovered or reported, regular counts will be carried out to explore the numbers and use of these sites.

Figure 1 Examples of different neck patterns of individuals on Bull Island

There are no known haul out sites for seals in the immediate proximity of the proposed works but a small group of resident harbour and grey seals haul out on the North Bull Island around 6km to the northeast, on Lambay Island 15km to the north and Dalkey Island 12km to the south. These sites are considered far enough away from the construction activity to have no negative effect, especially as sensitivity of seals to disturbance is less when hauled out.

The waters surrounding haul out sites are a critical habitat for feeding and/or for navigation to more offshore foraging areas. Seals often haul out on man-made structures and tolerate considerable human activity, which may lead to chronic exposure to man-made noise. In areas with repeated exposure, mammals may become habituated with a decline in avoidance responses and thus become less sensitive to noise and disturbance (Richardson et al. 1995). Besides the local seals from the Howth peninsula, it is likely that Bull Island is also visited by seals from nearby Skerries, Lambay Island, Ireland's Eye, Dalkey islands and possibly further afield. The MP2 Project poses little risk of impact or disturbance to these animals, and is unlikely to cause detectable impacts on seals at the population level.

Reporting

Comprehensive reporting will be on an annual basis. Short reports on specific aspects will be prepared for circulation as required, and to inform the implementation programme as necessary.

Appendix 19-7 Draft Birds and Marine Ecology Management Plan

Birds

The following precautionary measures will be undertaken to minimise the risk of injury or disturbance to birds in the area of operations:

- Black Guillemots – provision of nest-boxes and other artificial next sites will be provided prior to construction.
- Breeding Terns – the capital dredging scheme will be confined to the winter months (October – March) when the terns have migrated from the site.
- Non-breeding waterbirds:
  - Construction of Berth 53 will temporarily cease during periods of greatest low spring tides to avoid disturbance at exposed feeding grounds within the Tolka Estuary.
  - Gates will be used at the site of the Greenway to control the movement of people during periods of greatest low spring tides, again, to avoid disturbance at feeding grounds within the Tolka Estuary.

Monitoring

DPC is committed to continuing a programme to monitor the movement of Black Guillemots, Common Tern and Arctic Tern in Dublin Port throughout the construction phase of the MP2 Project and for a period of two years after the completion of such works. The results of this monitoring programme will be submitted to Dublin City Council at 12-monthly intervals to maintain a public record.

DPC will also continue to undertake a programme to monitor winter wetland birds in the adjacent European Site at the South Dublin Bay and River Tolka Estuary Special Protection Area. 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 Dublin City Council at 12-monthly intervals to maintain a public record.

Black Guillemot Monitoring Programme

Location: Black Guillemots are seabirds that nest in crevices within the quays and other structures of Dublin Port between Poolbeg and Butt Bridge on the River Liffey.

Methods: The population of Black Guillemots nesting within Dublin Port will be monitored on an annual basis. This will be carried out following the methods of Mitchell et al. (2004)[3]. Two surveyors will carry out the census between 26th March and 15th May and between 05:00 and 09:00 (BST), in winds no stronger than Beaufort

[3] Mitchell, P.I., Newton, S.F., Ratcliffe, N. and Dunn, T.E. 2004. *Seabird Populations of Britain and Ireland*. Poyser. London.

force 4 and in calm sea conditions. The census will be conducted from a boat by two surveyors who will visit and survey all quaysides within the port on two separate dates in this period. The count unit will be the number of adult Black Guillemots visible on land or on the sea within 300m of the shore. Any Apparently Occupied Sites (AOS) will be mapped and Black Guillemots associated with such sites will be recorded separately.

Common Tern and Arctic Tern Monitoring Programme

Location: Common Terns and Arctic Terns are seabirds that nest on permanent structures and floating pontoons within Dublin Port.

Methods: The population of Common Terns and Arctic Terns nesting within Dublin Port will be monitored on an annual basis. The monitoring will be limited to a census of Apparently Occupied Nests (AON) on each of these structures following the methods of Mitchell et al. (2004). Two surveyors will carry out walked transects through each subsite of the colony recording the number of egg clutches of each species present (one clutch of eggs is treated as one Apparently Occupied Nest). Access to each of the subsites will be by boat.

Where access to a subsite is restricted for safety or other reasons, an estimate will be made of number of terns in the air over the colony during flushing (flush count). The number of birds counted by this method is divided by 1.5 in order to convert it to AONs. The survey will be timed to coincide with the peak of incubation activity when the maximum number of nests and incubating adults are present for AON counts and when adult attendance for flush counts is most stable. The survey will be carried out by two surveyors on two separate dates in the period 10th June to 15th July, in moderate weather and sea conditions. Surveys will not be undertaken during rainfall to avoid the chilling of eggs.

Winter Wetland Bird Monitoring Programme

Location: The area to be monitored is the South Dublin Bay and River Tolka Estuary SPA. This includes all intertidal areas between Dun Laoghaire West Pier and the Bull Wall.

Methods: A series of six low tide surveys will be carried out at approximately monthly intervals between 1st October and 31st March each year. Survey dates will be selected when low tide occurs in daylight and in good weather conditions. Surveys will be carried out within two hours either side of low tide to ensure that all birds foraging in the census area are present in the intertidal area. The surveys will be undertaken by a team of five experienced observers using binoculars and telescopes with each observer positioned in a suitable vantage point on shore. In each case, bird flocks (giving species codes and estimated numbers present) will be mapped on large scale drawings for later analysis.

Reporting

An annual report on the results of the Bird Monitoring Programme will be prepared and submitted to the Planning Authority not later than 31st July each year. This will cover the results of the monitoring programme for the previous year (i.e. from April to March).

Marine Ecology

The following key mitigation measures apply to the Capital Dredging Scheme 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.
- 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.
- The 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.
- A trailer 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.

The following key mitigation measures apply to piling activities to minimise the impact of the proposed works on fisheries

- No piling will take place along the riverside of the Liffey channel during the three months of the year when smolts are likely to run in their highest numbers (i.e. March to May inclusive). This recognises the smaller size of smolts compared to returning adults and lamprey. It also takes account of the fact that smolts have a swim bladder which likely makes them more susceptible than lamprey to pressure trauma due to piling noise.

Benthic Surveys

It is proposed to continue the benthic surveys in the vicinity of the dump site at the entrance to Dublin Bay which are currently being undertaken as part of the ABR Project environmental monitoring programme. It is proposed to undertake a survey prior to commencement of the dredging operations and at 6 months and 12 months post completion of the dredging operations.

Benthic Grab & Video Survey

It is proposed to collect up to 30 drop down video samples at locations within and around the dumpsite. Information gathered from this survey will be used to select infaunal sediment stations, and will be used to provide a snapshot of the seabed prior to sediment disposal at the dumpsite, as well as monitor recovery at the site following disposal. An outline on potential sampling locations is presented in Figure 2. These are subject to change following the video survey. However, it should be noted that the number of samples will remain consistent.

In addition, it is proposed to collect subtidal infaunal sediment samples at 12 locations, 4 within the dumpsite and 8 located outside the dumpsite.

This will allow for a detailed assessment to be made on the communities present in the area whilst maximising the spatial spread in areas of potential impact to the north and south of the disposal area. Each biological grab sample will be taken in the same location as a video drop sample. This will allow for a more detailed assessment to be made on potential impacts from the dredge spoil disposal activities. In addition, blotted wet weight biomass will be measured at each site for each of the major phyla identified.

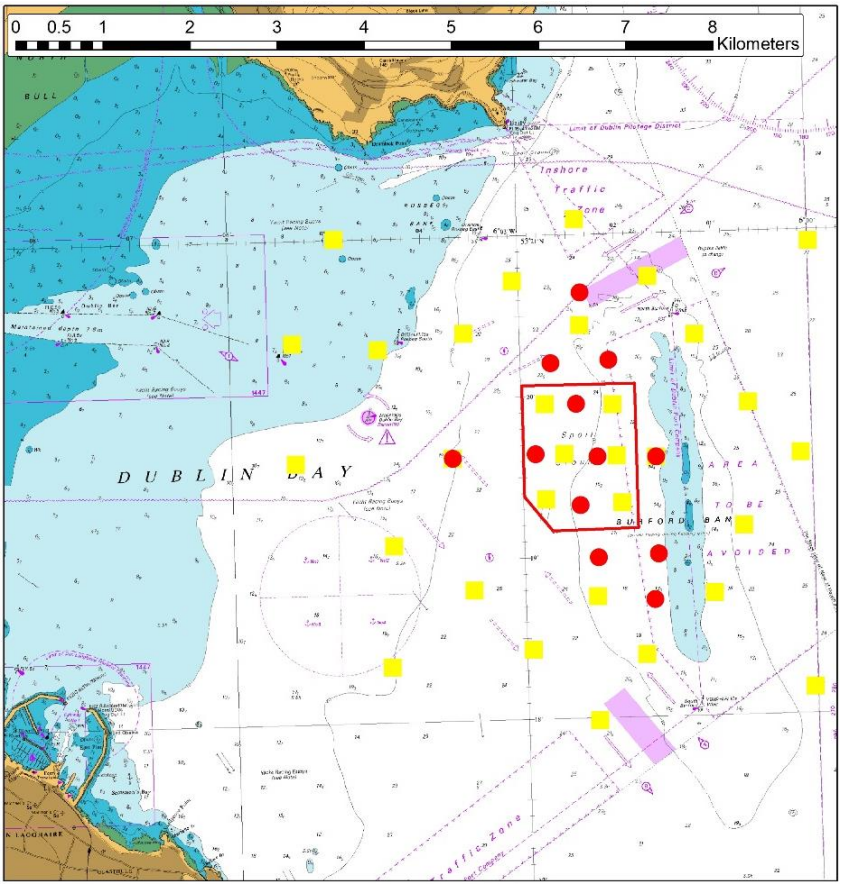

Figure 2 Proposed sampling locations (Biological infaunal samples – Red; Video drops – Yellow). These sites are indicative and subject to change following the video survey

Environmental data for granulometry and organic matter (Loss on Ignition) will also be measured at each site.

Results from these surveys will then be used to assess the community structure in the area using a combination of univariate indices (such as evenness and diversity indices) and multivariate analysis.

Comparisons will be made between the pre- and post-disposal results, and assessments made on community level impacts at the sites, and the spatial distribution of impacts.

Fisheries Management - Beam Trawl Survey

The beam trawl surveys are designed to confirm that the fish community in these areas from year to year remain largely the same, i.e. dominated by the same range of species, across the same general size ranges and broadly the same rank i.e. relative frequency of occurrence.

Replicate 2m beam trawls will be taken roughly in the middle of Dublin Bay one north and one south of the shipping channel with one taken within the channel. In addition one replicate trawl will be taken within the dumpsite and one immediately to the west of the dumpsite. See Figure 3 for the approximate locations of the proposed beam trawls.

The fishery surveys will be undertaken at the same time as the benthic surveys. Comparisons will be made between the pre- and post-disposal results, and assessments made on community level impacts at the sites, and the spatial distribution of impacts.

Figure 3 Approximate location of replicate beam trawl survey tracks

Appendix 19-8 Draft Archaeology & Cultural Heritage Management Plan

Landside Works

The impacts on cultural heritage assets on land arising from the MP2 Project focus on works associated with ground disturbance activities that might expose elements of the 19th Century Eastern Breakwater, which are assumed to remain undisturbed beneath Breakwater Road South.

To facilitate the construction of Oil Berth 3, reclamation work is planned along the west side of the Breakwater to build up the quayside of the Oil Berth. This will necessitate the reclamation of the sea pocket that accommodates the Pilot Boat pontoon, and five ship's timber and one metal piece that are in temporary storage under the pontoon.

It is necessary to demolish the Breakwater's Pier Head to facilitate the construction of Berth 50A. This work will remove the existing Port Operations Building, ancillary structures and the Pier Head itself. Masonry elements will be salvaged and stored for heritage gain projects.

The works represent direct and permanent impacts on the historic Pier Head. In anticipation of the steel-work required to tie-in the new quayside, it is anticipated that elements of the nineteenth-century breakwater that currently lie buried will be exposed.

The works provide opportunities to record archaeologically and recover exemplars of Bindon Blood Stoney's work, and to understand more fully the construction process developed to create the deepwater basin.

Heritage Gain Proposals

The proposed Greenway that is to follow the perimeter of the Port estate will converge on the north side of the river at the eastern end of the Port operation, and will be a location to celebrate the industrial heritage of the Port in a way that captures sound and vision (see standalone Heritage Gain Report by MOLA), The location will be the most eastern limit of the Port in the twenty-first century, marking its growth and development since the Breakwater Lighthouse defined the eastern limit and entrance to the deep water basin in the nineteenth-century. To celebrate this resonance, Dublin Port will create a public realm visitor experience at the new eastern limit that includes the re-use of the granite blocks and related elements of the Pier Head and the Breakwater Lighthouse (demolished circa 20 years ago), reconceived as an experiential place where walkers and cyclists can learn about the cultural and natural heritage of the Port and can continue to enjoy views of Dublin Bay in all its tidal cycles and weather-induced power and beauty.

Marine Works

Capital dredging is required to deepen the seabed at:

- Berth 50A to –11.0m CD;
- Oil Berth 3 to –13m CD,

- Berth 53 to -10.0m CD
- Localised widening of the navigation channel to –10m CD.

The total volume of material to be dredged will be circa 424,844m^3. A trailing suction hopper dredger and/or a backhoe dredger will carry out the dredging work. Dredged spoil will be disposed of at the licensed dump site used by DPC on the west side of the Burford Bank.

Where dredging will take place on the north slopes for Berth 53, concrete mattresses or their equivalent will be placed on the dredged slopes to provide stabilisation and scour protection to the Tolka Estuary.

The localised channel widening area crosses the approach channel. The approach channel is permitted through the ABR Project to be deepened to achieve a standard depth of –10m CD.

The extension of capital dredging into the south side of the localised channel widening area represents direct and permanent impacts on what appears to be previously un-dredged locations. As recorded on Rocque's 1757 map, this area was a wider mooring for ships in the eighteenth century before the construction of Pigeon House Harbour. It is a zone of high archaeological potential and the recovery of shipping debris and/or shipwreck must be anticipated.

Archaeological monitoring and management measures

The following archaeological monitoring and management measures will be undertaken:

Retaining an Archaeologist/s.

An archaeologist experienced in maritime archaeology will be retained by DPC for the duration of the relevant works.

Retaining a Heritage Architect.

A heritage architect experienced in industrial and maritime architectural heritage will be retained by DPC for the duration of the relevant works, to advise specifically in relation to works associated with the Breakwater Pier Head.

Archaeological Licences

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. The following licence types will be required: Excavation, to cover monitoring and investigations works; Detection, to cover the use of metal-detectors; and Dive Survey, to cover the possibility of having to conduct underwater inspections. The Excavation licence applications will be accompanied by a letter from DPC confirming that sufficient funds and other facilities are available to the archaeologist to complete the archaeological excavation, post-excavation, and preliminary and final reports (including specialist reports).

Archaeological Monitoring

Archaeological monitoring will be carried out by suitably qualified and experienced maritime archaeological personnel licensed by DCHG. Archaeological monitoring will be conducted during all terrestrial, inter-tidal/foreshore and seabed disturbances associated with the MP2 Project.

The monitoring will be undertaken in a safe working environment that will facilitate archaeological observation and the retrieval of objects that may be observed and that require consideration during the course of the works.

The monitoring will include a finds retrieval strategy that is in compliance with the requirements of the National Museum of Ireland.

Construction Schedules

The time scale and schedule for the construction phase will be made available to the archaeologist, with information on where and when ground disturbances will take place.

Discovery of Archaeological Material

In the event of archaeologically significant features or material being uncovered during the construction phase, machine work 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 undertaken. If it is not possible for the construction works to avoid the material, full excavation will be undertaken. The extent and duration of excavation will be a matter for discussion between DPC and the licensing authorities.

Archaeological Team

The core of a suitable archaeological team will be placed on standby to deal with any such rescue excavation. This will be complemented in the event of a full excavation.

Archaeological Dive Team

An archaeological dive team will be 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.

Site Office/Storage Facilities

A site office and facilities will be provided by DPC on site for use by archaeologists. This will include secure wet storage facilities to facilitate the temporary storage of artefacts that may be recorded during the course of the site work.

Buoying/Fencing

Buoying/fencing of any such areas of discovery will be undertaken if discovered during excavation.

Machinery Traffic

Machinery and construction plant traffic will be restricted to avoid any identified archaeological site/s and their environs.

Spoil

Spoil will not be dumped on any of the selected sites or their environs.

Post-Construction Project Report and Archive

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 will be to publication standard and will 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.

The above recommendations are subject to the approval of the National Monuments Service at DCHG.

Appendix 19-9 Draft Water Quality Management Plan

Introduction

The objective of the Water Quality Management Plan is to ensure that the mitigation measures specified in Chapter 9 of the EIAR are adhered to and that a monitoring regime is put in place to confirm the efficacy of the mitigation measures implemented so as to further safeguard the receiving water environment.

Temporary impacts on water quality have the potential to occur during the construction phase of the works. Mobilised suspended sediment and cement release through construction activities are the principal potential sources of water quality impact. The following have been considered in assessing the mitigation measures required:

- Increased suspended sediment levels due to the accidental release of sediment to the water column during:
  - Demolition of buildings & structures;
  - Berth Construction including the construction of waterside berths, quay walls, jetties, open piled structures.
  - Capital Dredging and Sediment disposal operations;
  - Landside ancillary works to serve the marine operations including the construction of ramps and deck structures to access linkspans, services and drainage installation, and installation of jetty furniture and fender systems etc.;
- Accidental release of highly alkaline contaminants from concrete and cement during the demolition of buildings and structures and the construction of hardstand areas, waterside berths, quay walls, jetties, bridging structures, etc.
- General water quality impacts associated with works machinery, infrastructure and on-land operations including the temporary storage of construction materials, oils, fuels and chemicals.

Detailed mitigation has been incorporated into the engineering design of the MP2 Project to minimise its potential impact on the water environment. Indeed, most potential impacts to water quality posed by this project during construction will be dependent on the quality of drainage and treatment of site run-off before discharge to Dublin Harbour. Therefore procedures will be put in place for the control and minimisation of surface water and suspended solids movement, Measures will also be taken to ensure existing drainage pathways are kept free from construction sediment and pollutants through the use of effective barriers to pollutant export and best practice techniques to control these pressures at source. Mitigation measures to be employed on site during the MP2 Project construction are described next.

Mitigation Measures

Construction Phase Best Practice Measures

Mitigation measures will include the requirements for best practice and adherence to the following relevant Irish guidelines and recognised international guidelines:

- Good practice guidelines on the control of water pollution from construction sites developed by the Construction Industry Research and Information Association (CIRIA, 2001);
- Netregs Guidance for Pollution Prevention series (GPP), Pollution prevention guidelines (PPGs) in relation to a variety of activities developed by the Environment Agency (EA), the Scottish Environmental Agency (SEPA) and the Northern Ireland Environment Agency (NIEA);
  - GPP2: Above Ground oil storage tanks
  - PPG3: use and design of oil separators in surface water drainage
  - GPP5: Works and maintenance in or near water
  - PPG6: Working at construction and demolition sites
  - GPP8: Safe Storage and disposal of used oils
  - GPP13: Vehicle washing and cleaning
  - PPG20: Dewatering underground ducts and chambers
  - GPP21: Pollution incident response planning
  - GPP22: Dealing with spills
- Fisheries Guidelines for Local Authority Works. Department of Communications, Marine & Natural Resources, Dublin, (Anonymous, 1998);
- Guidelines on protection of fisheries habitats during construction projects (Eastern Regional Fisheries Board, 2006);
- International Convention for the Prevention of Pollution From Ships, 1973, as modified by the Protocol of 1978 (MARPOL) for domestic waste discharges to the environment;
- International Marine Organisation guidelines; and
- Control of Substances Hazardous to Health (COSHH) Handling of Hazardous Materials.

Suspended Sediment and Sedimentation Measures

Suspended sediment, including all soils, sands and rubble is the single main pollutant to the aquatic environment generated at construction sites and largely arises from the erosion of exposed soils and sediments by surface water runoff. Appropriate erosion and sediment controls during construction to prevent sediment pollution will be implemented.

Demolition of existing buildings and structures, berth construction and construction of landside ancillary works

These demolition and construction works have the potential to result in a localised impact on water quality.

The mitigation and control measures to address the impact from suspended sediments associated with these activities will follow sound design principles and good working practices as listed in the Netregs Pollution Prevention Guidelines. In addition to the requirements of best practice and relevant guidelines, the following mitigation measures will be employed by the principal Contractor during the construction phase.

- 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.
- 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.

Capital Dredging and Disposal

A Dredging Management Plan was developed for the ABR Project and is set out in Alexandra Basin Redevelopment Project Construction Environmental Management Plan (CEMP) Rev. F August 2018, submitted to Dublin City Council in compliance with conditions attached to the ABR Project planning permission (PL.29N.PA0034). The mitigation proposed for dredging operations in the MP2 Project has been informed by ABR Project monitoring and experience working in the same locations.

The Dredging Contractor will comply with the mitigation measures arising from the EIAR and in the consents for Planning, Foreshore Licence/ Lease/ Ministerial Consent and Dumping at Sea Permit. The mitigation measures are summarised in this CEMP.

The following key relevant mitigation measures will apply to each dredging campaign in the MP2 Project:

- Loading will be carried out by a backhoe dredger or trailing suction hopper dredger (TSHD).
- The 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 shall 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 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 is to be in place prior to commencement.
- A documented Emergency Response Procedure is to be 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.

No other capital or maintenance dredging will take place at Dublin Port at the same time as the MP2 Project capital dredging to ensure that there is no overlap in dredging operations that might result in cumulative impacts. A Dredging Management Plan is presented in Section 1.1.10. The Contractor will comply with all measures and mitigation contained therein to ensure that water quality is not significantly impacted.

Concrete and Cement Pollution Measures

Demolition of existing buildings and structures, berth construction and construction of landside ancillary works

The impacts in relation to cement and concrete for the MP2 Project are, for the most part (but not limited to); demolition of buildings and structures, construction of piles and foundations for the proposed berthing areas, quay walls etc, the installation of the concrete berthing area areas (to be poured in-situ) and construction of landside ancillary works.

The following mitigation measures will be implemented:

- Breaking of concrete (associated with structure demolition) has the potential to emit alkaline dust into the receiving environment. 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 will 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 etc.; and initial siting of any concrete mixing facilities such that there is no production within a minimum of 10 metres from the aquatic zone.
- The use of concrete in close proximity to water bodies requires a great deal of care. Fresh concrete and cement are very alkaline and corrosive and can cause serious pollution in water bodies. It is essential to ensure that the use of wet concrete and cement in or close to any water body is 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 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 Construction Works

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 which limit the risk to within acceptable levels. The Contractor will implement the following measures during construction:

- A detailed works specific Construction Environmental Management Plan (CEMP) will be prepared by the Contractor which will meet the minimum requirements of this project level CEMP and will include detail in respect of every aspect of the works in order to minimise potential impacts and maximise potential benefits associated with the works;
- 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, and include all mitigation required by the CEMP;
- 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.
- The use of oils and chemicals on-site will receive significant care and attention. The following procedures will be followed to reduce the potential risk from oils and chemicals:
  - 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 PPG 26 “Safe storage – drums and intermediate bulk containers” (Environment Agency, 2011) shall be implemented to ensure safe storage of oils and chemicals;
  - The safe operation of refuelling activities shall be in accordance with PPG 7 “Safe Storage – The safe operation of refuelling facilities” (Environment Agency, 2011);
- Contingency Planning: A project specific Pollution Incident Response Plan will be prepared by the Contractor consistent with DPC's Environmental Emergency Plan as part of the draft Construction Environmental Management Plan (CEMP) for the construction works and will be in accordance with PPG 21 Pollution Incident Response Planning. Whilst a major incident is highly unlikely to occur in circumstances where the mitigation measures as detailed in the CEMP are implemented, the finalisation of this document is considered to be best practice. The Contractor's Environmental Manager and DPC will be notified in a timely manner of all incidents where there has been a breach in agreed environmental management procedures. Suitable training will be provided by the Contractor to relevant personnel detailed within the Pollution Incident Response Plan to ensure that appropriate and timely actions is taken.

Water Quality Monitoring Programme

A Construction Environmental Monitoring Programme has been prepared to provide additional safeguards to the receiving environment and an assessment of the effectiveness of the mitigation measures implemented to

address any potential environmental effects to the receiving environment during the construction phase of the works. The monitoring programme will form part of the specification of the Contract Documents for the construction stage.

The Construction Environmental Monitoring Programme includes the following elements related to the receiving waters:

- An assessment based on 3-D computational hydrodynamic modelling and water quality modelling to design the placement of a number of water quality monitoring buoys and telemetry based warning systems.
- the establishment of a baseline for suspended solids, and dissolved oxygen within the receiving waters of the Liffey Estuary Lower and Dublin Bay. The baseline has been established using existing monitoring data, particularly the high resolution data acquired through the ABR Project monitoring programme, which may be confirmed if required in advance of construction.
- The establishment of water quality trigger levels and corresponding actions (including the necessity to temporarily cease construction operations) to safeguard sensitive conservation sites and the operations of other users of the receiving waters (e.g. Power Stations).

The preparation of the Construction Environmental Monitoring Programme has involved engagement with a range of interested parties/stakeholders including Dublin City Council, EPA, National Parks & Wildlife Service, Dublin Port tenants, ESB and local community groups.

Monitoring will continue during construction to assist in the confirmation of the effectiveness of the mitigation measures identified in the EIAR. Regular visual confirmatory monitoring and environmental assurance audits will also be undertaken during the construction phase of the works.

In addition, DPC's existing EMS and monitoring protocols (described earlier in Section 3.3) will monitor the operational activities to ensure that measures to address operational impacts are effective and confirm that adequate protection is being provided to the sensitive receiving waters.

The management of the environmental monitoring programme will fall under the remit of the Environmental Facilities Manager who is independent of the Contractor. The Environmental Facilities Manager will provide reports to the relevant authorities as required and will also submit copies of those reports to the liaison group.

The Contractors' site supervisors will work closely with the Environmental Facilities Manager to monitor activities and ensure that all relevant environmental legislation is complied with and that the requirements of the CEMP and conditions of all relevant permits are implemented.

The Contractor will notify the Environmental Facilities Manager immediately on the occurrence of:

- any incident or accident that significantly affects the environment;
- any breach of licence or permit conditions;
- any malfunction or breakdown of key control equipment or monitoring equipment that is likely to lead to loss of control or environmental mitigation measures;

- any incident with the potential for environmental contamination, or posing a threat to the aquatic environment, or requiring an emergency response by the Local Authority.

This will include date and time of the incident, summary details of the occurrence, and where available, the steps taken to minimise any emissions, measures taken to restore compliance where breach of a licence condition has occurred.

Monitoring Programme Liffey and Tolka Estuaries

The monitoring system has been designed to ensure robust protection is afforded to the assets of the users of the River Liffey Channel, notably the intakes of power stations, as well as Natura 2000 sites, notably the South Dublin Bay and River Tolka Estuary Special Protection Area (SPA) (Site Code 004024) and the Rockabill to Dalkey Island Special Area of Conservation (SAC) (Site Code 003000).

It is proposed to use four monitoring stations at locations indicated in Figure 4. These are the same locations being used by the ABR Project.

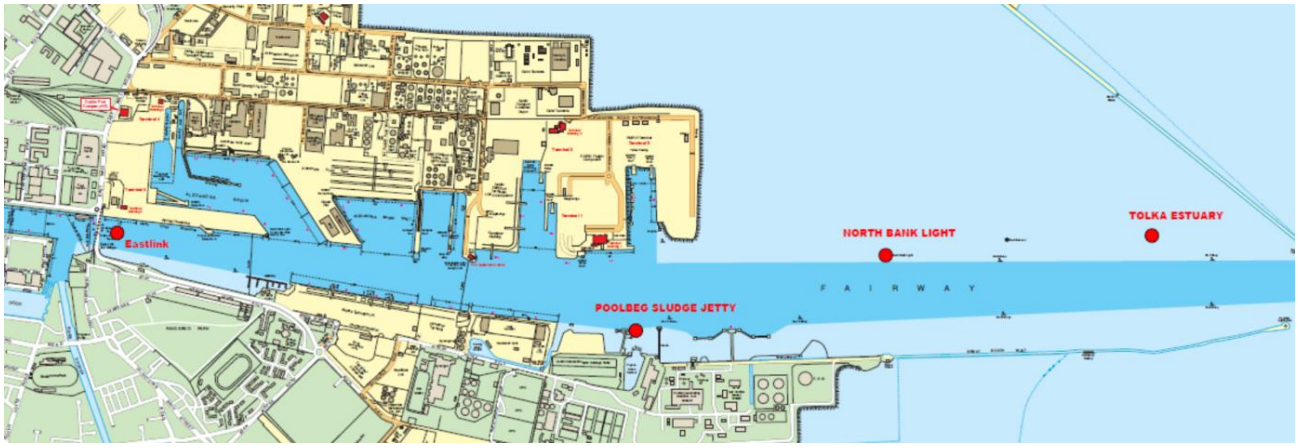

Figure 4 Location of Monitoring Stations

Monitoring Station 1 (Eastlink)

This monitoring station will be sited in the River Liffey Channel upstream of the works at East Link Bridge.

Monitoring Station 2 (Poolbeg Sludge Jetty)

This monitoring station will be sited along the southern edge of the River Liffey Channel at the Poolbeg Sludge Jetty in close proximity to a power station intake.

Monitoring Station 3 (North Bank Light)

This monitoring station will be sited along the northern edge of the River Liffey Channel at the North Bank Light outside, but in close proximity to, the South Dublin Bay and River Tolka SPA.

Monitoring Station 4 (Tolka Estuary)

This monitoring station will be sited in the Tolka Estuary near the northern edge of the River Liffey Channel inside the South Dublin Bay and River Tolka SPA.

Monitoring System Specification

The specification is based on state of the art 24/7 real time monitoring. Water quality monitoring sensors, giving high resolution data with respect to the following parameters will be used at each of the three monitoring locations

- Turbidity
- Dissolved Oxygen
- Temperature
- Salinity
- pH

Water level will also be 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.

Apparatus housing and moorings used are robust and designed for the marine conditions at the monitoring locations. A calibration and maintenance programme will be put in place comprising:

- Regular calibration of sensors
- Regular maintenance of sensors (including cleaning)
- Maintain Data Quality Control
- Provision of replacements if required

A data acquisition and transfer system will be used to enable the transmission of high resolution data at approximately 15 minute intervals.

A data storage, interrogation system will be put in place comprising

- Provision of Data Server
- Web site for access to data
- Suitable Software to interrogate and display data

The following trigger levels that will prompt investigation are proposed:

- Dissolved Oxygen level falling below 6 mg/l
- Peak Suspended Solids level rising more than 100mg/l above background (Based on the Turbidity v Suspended Solids relationship previously established this is equivalent to a Turbidity increase of 40 NTU above background)

The Dissolved Oxygen trigger level has been selected to safeguard fish-life.

Duration of Monitoring Programme

The monitoring network infrastructure has been in place since 2016 and the project specific monitoring programme will be established at least one month prior to commencement of the works associated with the MP2 Project and continue for the duration of the construction works.

Incident Response / General Observations

In the event of possible environmental incidents, staff will undertake additional investigative sampling as required to seek to identify the possible source and nature of any pollutants present. They will record any general observations relevant to the event which may inform the investigation including:

- Weather conditions;
- Any unusual water attributes (e.g. unusual colour or smell of sample, foam, scum);
- Any other observations including works within or surrounding the site;
- Any other general observations.

In this regard, written and photographic records will be made as appropriate.

Reporting

Data from ongoing monitoring programmes will be collated at regular intervals (usually calendar months) and summarised in synoptic reports by the Environmental Facilities Manager. Any breaches of emission, trigger levels or compliance values will be indicated in the report along with the findings of any relevant investigation.

In addition to interim synoptic reports an annual environmental report will be prepared.

Appendix 19-10 Draft Dredging Management Plan

Background

A Capital Dredging Scheme is an integral part of the MP2 Project and the EIAR and NIS includes an assessment of the loading and dumping activities required to ensure that a holistic approach is taken in assessing potential environment effects.

In addition to planning consent, the loading and dumping activities are also subject to two additional consents.

Foreshore Consent

DPC will submit a Foreshore Application for the MP2 Project to the Department of Housing. Planning and Local Government (DHPLG), in order to obtain permissions for undertaking works on the Foreshore (below the mean High Water Mark) including the construction of new quays and jetties and undertaking the Capital Dredging Scheme.

Dumping at Sea Consent

DPC will submit a Dumping at Sea Permit application for the MP2 Project to the EPA, should ABP grant development consent, in order to obtain permissions for loading and dumping activities associated with the Capital Dredging Scheme.

Chemical analysis has shown that the sediments to be dredged from the Port's navigation channel and basins during the MP2 Project are suitable for conventional dumping at sea (see Chapter 8 of the EIAR).

Key Mitigation Measures

The following key mitigation measures apply to the Capital Dredging Scheme

- No over-spilling at the surface of the dredger for all dredging activities within the inner Liffey Channel will be permitted.
- 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.
- The 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.
- A trailer suction head 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 to the bottom as the dredger turns between successive lines of dredging to minimise the risk of fish entrainment.
- A maximum of 4,100m^3 of sediment and entrained water will be loaded into the dredger's hopper for each loading/dumping cycle, equivalent to approximately 2,030 tonnes (wet weight).

Dredging and Loading Activity

Trailer Suction Hopper Dredgers' are equipped with a trailing suction head. When the ship reaches the location requiring dredging, it reduces speed and lowers the suction head to the seabed. The trailing suction head moves slowly over the bed, collecting the sediments in a similar way to a giant vacuum hoover. The water and material mix is then pumped up the arm of the suction head to the ship's hull (hopper). Once full, the dredger retracts its suction head and begins to sail slowly to the dump site.

When in position over the dump site, the ship slowly sails in the desired direction as doors in the underside of the vessel open and the sediment is released from the hopper. This allows the operators to control accurately where the sediment is deposited.

The capital dredging loading activity will take place within the inner Liffey channel which is dominated by silts.

Model simulations of the proposed loading and dumping regime using a Trailer Suction Hopper Dredger, of a size akin to current maintenance dredging practices, were used to determine the environmental impact of the dredging operations (see Chapters 9 and 12 of the EIAR).

The following input was used in the model simulations:

Typical Capacity of Trailer Suction Hopper Dredger	4,100m³ hopper capacity
Ratio of sediment/entrained water during loading	0.3
Average Trip Frequency	3-4 hours
Time to release load	90 seconds

The predicted distribution and concentration of Total Suspended Solids within the receiving waters is presented in Figure 5 and Figure 6. The capital dredging activity is expected to be completed within a 2-3 month period within each winter dredging season, depending on weather conditions. The loading and dumping methodology will ensure that there is no significant increase in Total Suspended Solids above recorded background levels, outside the confines of the dump site.

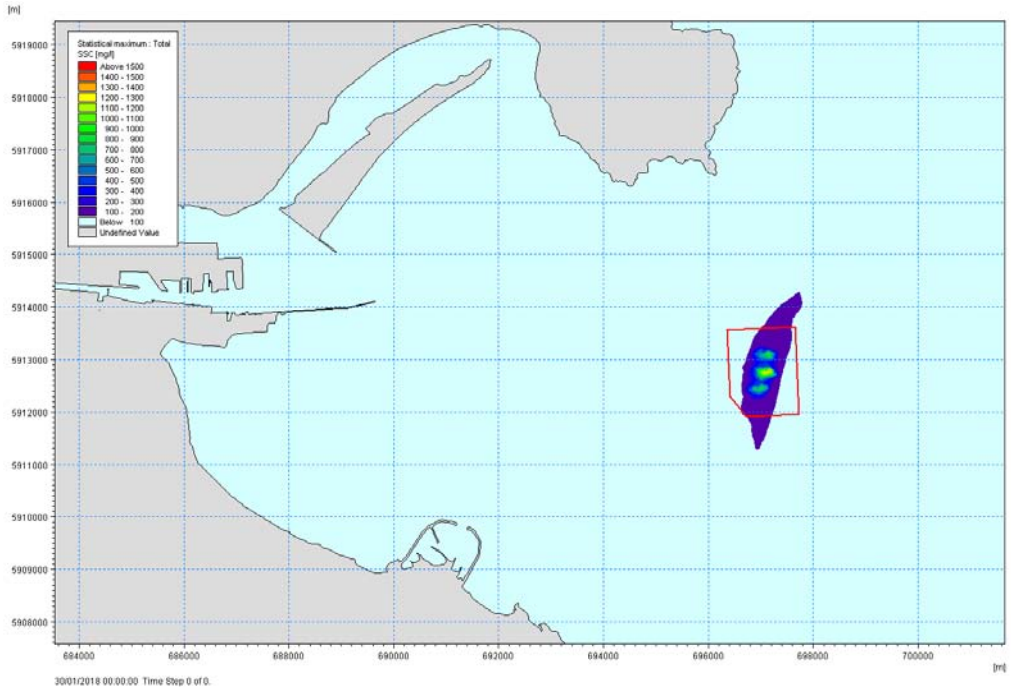

Figure 5 Maximum Total Suspended Solids Concentration envelope using a Trailer Suction Hopper Dredger dumping circa 2,030 tonnes (wet weight) at 3 hourly intervals on average within each winter capital dredging season

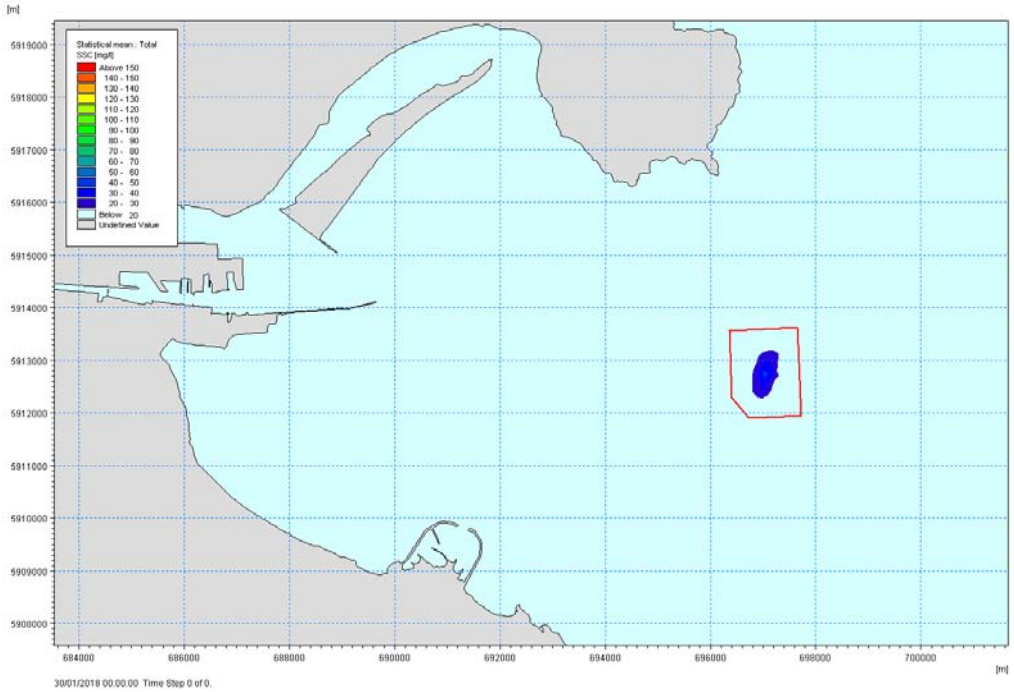

Figure 6 Mean Total Suspended Solids Concentration envelope using a Trailer Suction Hopper Dredger dumping circa 2,030 tonnes (wet weight) at 3 hourly intervals on average within each winter capital dredging season

Contract Management

The Capital Dredging Campaign will be carried out by suitably qualified and experienced dredging Contractors, following competitive tender. The Contractors will be provided with a copy of the CEMP at tendering stage and are required to comply with all relevant mitigation and environmental protection measures therein.

Each winter dredging season, the successful dredging Contractor will set up a base office within the Dublin Port Estate. Daily meetings will take place among the dredging Contractor, DPC, Harbour Master and the Environmental Facilities Manager. These meetings will review the capital dredging works undertaken the previous day and agree the current day's work programme, taking into consideration navigational requirements including scheduled vessel movements and environmental constraints and feedback from Marine Archaeologists and Marine Mammal Observers (MMOs) undertaking monitoring duties on board the dredger.

Inspections by the Office of Environmental Enforcement (OEE) and the Foreshore Unit, DHPLG will be facilitated at short notice.

Appendix 19-11 Draft Pollution Incident Response Plan

This draft Pollution Incident Response Plan (PIRP) sets out best practice for dealing with potential environmental incidents on the MP2 Project site. The PIRP will help to prevent or reduce environmental damage if such an incident occurs. The PIRP should be read in conjunction with DPC's Emergency Management Plan (attached) and with the other environmental management plans presented in this CEMP which list the potential environmental impacts that may arise and the mitigation that will be implemented to prevent impact.

The draft PIRP will be finalised in the event that development consent is obtained, in order to incorporate additional requirements pursuant to conditions attached to statutory consents, and methods and plant in use by the appointed Contractor.

The DPC Emergency Management Plan (EMP) provides guidelines for responding to an emergency within the Port area. Where incidents constitute an emergency as per the EMP they will be governed by the guidelines and provisions outlined therein. In all cases where a pollution event falls within the remit of the EMP the procedures outlined in the EMP must be complied with.

The purpose of this PIRP is to provide clear guidelines on responses to pollution incidents to allow a rapid and efficient response to any incident in order to minimize environmental impact or damage. It is presumed that all relevant mitigation outlined in the individual environmental management plans in this CEMP is fully and effectively implemented.

The Main Works Contractor's designated representative (e.g. HSE Manager, Site Manager) will be responsible for coordinating the PIRP and ensuring adequate resources are available for implementation. The PIRP will ensure all appropriate and relevant resources are identified in advance and made available as quickly as possible during a pollution response event. The plan is intended for guidance purposes only and any response may be adapted depending on the specific circumstances of a particular pollution event.

Pollution Scenarios

The PIRP will detail the response required to pollution events including:

- Emissions to Water
  - Sediment release
  - Wastewater release
- Emissions to Air
  - Odours
  - Dust

For avoidance of doubt DPC's EMP provides comprehensive guidance in relation to emergency response to the following pollution events:

- oil spills to the marine or river environment (Annex A5)
- oil spills on the shore side (Annex A8)

- spills of hazardous materials (Annex 9)

The EMP uses a tiered system to describe oil and chemical spills:

- Tier 1 - Background and minor operational spills resulting in shoreline pollution which can be wholly dealt with by the relevant local authority or harbour authority and their oil spill response Contractors
- Tier 2 - Small-scale incidents where local authorities or ports may require mutual aid in order to initiate and maintain a shoreline response and also involve Irish Coast Guard (IRCG) resources
- Tier 3 - A large spill where substantial further resources may be required and support from National Government is necessary through the implementation of the IRCG National Oil Spill Contingency Plan. Additional assistance can be obtained from IRCG International response Contractor and also through the EU monitoring and Information centre

Any significant spillage or release of oils, chemicals or hazardous materials resulting from MP2 Project activities falls within the remit of the EMP and will be responded to in accordance with the EMP guidelines. Very minor and localised spills may be dealt with by the Contractor.

Key Provisions of the PIRP

The PIRP will include site and project specific pollution incident response measures including:

- Preparation of a Project Organization Chart indicating the area of responsibilities and the reporting lines of the project personnel.
- Contact details of MP2 Project Environmental Facilities Manager
- Contact details for Main Works Contractor (MWC) representatives responsible for coordinating pollution response (e.g. HSE Manager, Site Manager)
- Personnel on site and roles in PIRP implementation
- Date of PIRP issue and review dates
- PIRP distribution list and number of copies and version
- Detailed site plan
- Detailed drainage map of the site including location of all interceptors and outfalls
- Contact details for internal and external services and agencies with a role in pollution response or stakeholders whose assets may be impacted
- Details of chemicals held on site including maximum quantity, storage locations and containment conditions, Safety Information Data Sheets
- Detailed inventory of pollution prevention equipment - on and off site resources listed with calibration, service details

Pollution Response Initiation

All operatives and personnel on site will comply with all relevant mitigation measures to prevent pollution outlined in the individual environmental management plans. Any person who detects a pollution incident will notify the MWC representative responsible (HSE Manager, Site Manager).

On receipt of notification of any such incident the MWC representative will:

- Inform the Environmental Facilities Manager
- Establish the nature of the spill, the source, direction of travel and quantity of material involved
- Assess the extent, nature and potential impact of the pollution event on the receiving environment and any likely impact on Port Operations
- Halt the activities giving rise to the pollution if possible
- Mobilise the pollution response team to take immediate appropriate steps to stop further pollution and contain polluting material where possible by deploying pollution control equipment as required
- Consider whether additional resources are required to mitigate the event
- In the case of significant pollution, inform stakeholders that may be impacted
- Notify DPC's Emergency Management Team If the pollution event falls within the remit of the EMP
- Gather as much further information as possible relating to the incident including noting wind direction and speed
- Inform the relevant regulatory authorities (e.g. Dublin City Council Pollution Control Section 01 2222066 or 24 Hrs. contact 01 6796186; EPA; National Parks and Wildlife Services)
- Put monitoring in place to measure the duration and extent of the event, and the concentration of know pollutants
- Keep a diary record of all actions
- Take comprehensive photographic records of the event
- Ensure all expenditure in response to the spill is tracked under a single project number
- Liaise closely with relevant DPC personnel as identified in the PIRP contacts list.

Training and Records

Training in appropriate pollution response procedures will be provided to all site personnel. This will be undertaken at induction training and through regular toolbox talks to ensure that information in relation to the current construction phase of the MP2 Project is kept up to date.

The MWC representative will be responsible for implementing the training programme. The MWC representative will also carry out regular inspections of essential pollution prevention equipment to ensure it is adequately serviced, in calibration or certification and fit for purpose.

The MWC representative will maintain a detailed record of all pollution events and responses, costs incurred and environmental impacts. The record will include a comprehensive debriefing of participants to provide an analysis of causes of the pollution event, detail lessons learned and preventive or corrective actions taken to prevent event recurrence or similar events.

APPENDIX 19 SUMMARY OF MITIGATION MEASURES & CONCLUSIONS

Appendix 19-12 Outline Mobility Management Plan

OUTLINE MOBILITY MANAGEMENT PLAN

MP2 Project, Dublin Port Company

IBH0596
oMMP MP2 Project
V1
28 June 2019

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Document status

Version	Purpose of document	Authored by	Reviewed by	Approved by	Review date
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Glossary

BUG	Bike User Groups
CIÉ	Córas Iompair Éireann
DART	Dublin Area Rapid Transit
DFT	Dublin Ferryport Terminals
DPC	Dublin Port Company
NTA	National Transport Authority
oMMP	Outline Mobility Management Plan
RTPI	Rail Time Passenger Information
UFT	United Ferry Terminal

1 INTRODUCTION

This Outline Mobility Management Plan (oMMP) has been prepared to accompany the planning application for the MP2 Project.

This oMMP has been prepared to set out the type of measures which could be adopted by Dublin Port Company (DPC), in liaison with the operators within the MP2 Project, to ensure sustainable transport enabling schemes are available to staff and visitors of the MP2 Project. For the MP2 Project the operators will be the Ro-Ro operators within the Unified Ferry Terminal (UFT) and the Lo-Lo operator (currently DFT).

Should the application for permission for the MP2 Project be granted, this oMMP will be progressed by DPC, in liaison with the operators within the MP2 Project, to provide a MMP for the scheme once complete and operational.

A MMP is a management tool that brings together transportation requirements, employers, and other staff and site management issues in a coordinated manner. A successful plan can reduce transport costs for both staff and the employer in addition to providing a more conducive working environment. It brings together a package of measures tailored to the needs of an individual work site or a collection of work sites. These include measures to promote and improve the attractiveness of using public transport, cycling, walking, car sharing, flexible working or a combination of these, as alternatives to single occupancy private car travel. A MMP considers all travel associated with a work site, including business travel, fleet management, customer access and deliveries.

This oMMP gives an initial overview of the package of measures and campaigns that will be implemented at the MP2 Project. The measures will be piloted and monitored on an on-going basis. It is envisaged that the effectiveness and impact of these measures will be reviewed by Dublin City Council (DCC), DPC and the individual operators within the MP2 Project against a set of agreed targets, principally in relation to:

- A reduction in car journeys to and from the work site;
- An increase in the number of journeys by people who share their journeys by car;
- A reduction in the need to travel, especially during peak traffic periods; and
- Enabling staff and visitors to use alternative modes of transport.

Close working will be required between DCC, DPC and the operators at the MP2 Project in order to finalise a MMP that sets achievable targets and provides benefits to both the staff and visitors travelling to the MP2 Project, and also the wider community.

It is envisaged that the MMP for the MP2 Project will, in the fullness of time, fall under the hierarchy of the Port-wide Travel Plan as the Dublin Port Masterplan continues to be implemented over the next 21 years. Figure 1.1 below illustrates this concept:

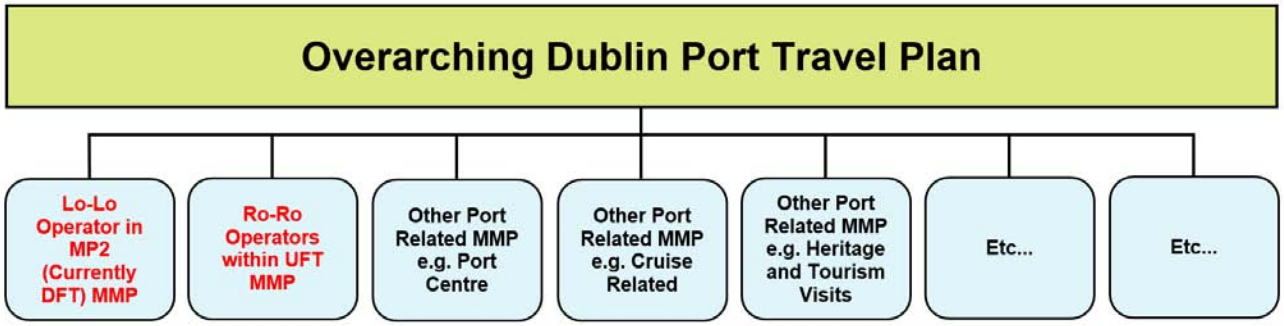


Figure 1.1 Illustration of Suggested Concept for the Dublin Port Travel Plan

2 ROLES AND RESPONSIBILITIES

DPC will, in liaison with the operators:

- Allow budget allocations for MMP activities; and
- Appoint an on-site MMP Coordinator,

A MMP Coordinator will be appointed by DPC, in liaison with the operator's senior management to oversee the implementation and operation of the MMP. The MMP Coordinator will be responsible for the promotion of walking, cycling and public transport amongst staff and visitors. This oMMP identifies the following key tasks likely to be attributed to the MMP Coordinator:

- Oversee the continuing development and implementation of the MMP;
- Implement marketing activities;
- Coordinate and undertake data collection and review;
- Undertake a review and development of the MMP;
- Act as contact point for the MMP;
- Monitoring and updating travel patterns;
- Promoting benefits of cycling, walking and public transport use;
- Amending procedures as necessary to promote sustainable transport; and
- Ensuring that users of the MP2 Project are aware of the measures provided to facilitate alternative modes of travel. The existing, consented and proposed transport facilities that will serve the users of the MP2 Project are detailed in Section 6, and the MMP will make users aware of these facilities, and monitor their use.

Promotion of sustainable transport modes is paramount to the success of the MMP and emphasis will be placed on the provision of information for staff identifying available services, timetables and pick up / drop off point locations.

2.1 Public Transport Timetables

The MMP Coordinator will make public transport information available to staff and visitors of the MP2 Project. There are several public transport services (Bus/Rail/Luas/DART) in the vicinity of the Dublin Port Estate. A summary of the existing public transport facilities is provided in Figure **6.7** further below.

The MMP Coordinator will ensure users of the MP2 Project are aware of the available public transport facilities in the local vicinity by providing maps of bus, rail and tram stop locations. The Coordinator will also ensure users of the MP2 Project are aware of the following websites and apps where public transport information can be obtained.

Bus Éireann

Real time passenger information (RTPI) is provided on the Bus Éireann website (https://www.buseireann.ie/). Bus Éireann provides bus services to and from Dublin for the rest of Ireland.

Dublin Bus

RTPI, timetable, fare and route planner information is provided on the Dublin Bus mobile friendly website (https://www.dublinbus.ie/). Dublin Bus have a smartphone and tablet app that is available for free download. Dublin bus operates within Dublin City and the Greater Dublin Area.

Swords Express

The Swords Express website (https://www.swordsexpress.com/Timetable/) provides the full timetable, which includes routes from Swords and routes from Dublin City, where it is available for download. This is in addition to a live position map with real time travel updates, shown in Figure 2.1.

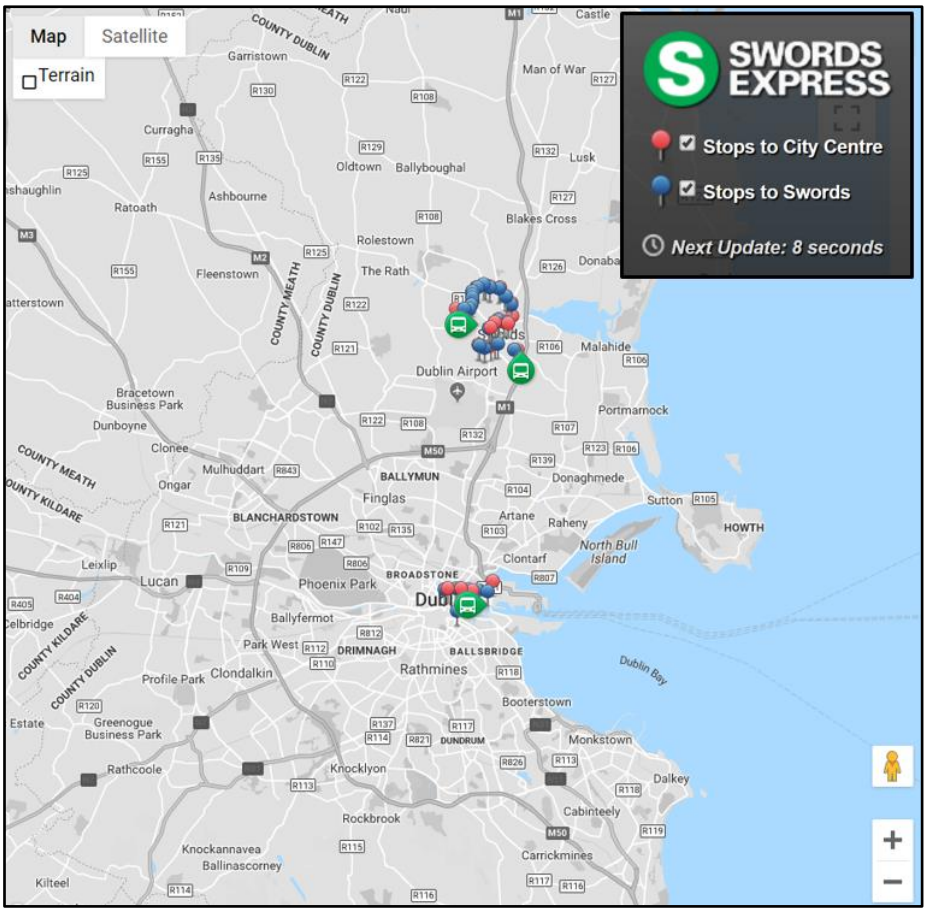


Figure 2.1 Swords Express Live Position Map

Air Coach

Aircoach is a private bus and coach operator that provides scheduled coach services to and from Dublin City Centre and Dublin Airport. Booking, fares and timetable information are available on the Aircoach website (https://www.aircoach.ie/).

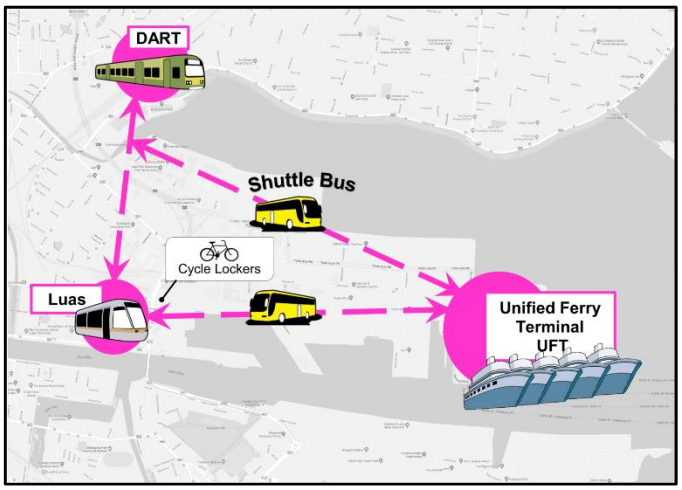
Ferry Link

FerryLink is run by a private coach company that connects the existing Irish Ferries and Stena sites with Dublin City Centre. Booking and timetable information can be accessed on the Irish Ferries website (https://www.irishferries.com). Figure 2.2 shows the Ferry Link service at Irish ferries Terminal 1 building.

Figure 2.2 Ferry Link

EastPoint Shuttle Bus

This is a private shuttle bus service that connects the DART (Dublin Area Rapid Transit) and the Luas to EastPoint Business Park. Timetable and fare information can be accessed through the following website: https://www.eastpoint.ie/Shuttle-Bus-and-Location. The website also provides RTPI on the next bus arriving to the Luas, DART and EastPoint stops.



DPC is progressing a proposed shuttle bus in parallel with the MP2 Project. It is envisaged that the bus will connect the MP2 Project to the Luas and the DART. Should the application for permission for the MP2 Project be granted for the MP2 Project and the shuttle bus be realised, the MMP Coordinator will make users aware of the service, including the timetable and location of the stops.

Luas

The Luas is Dublin's tram / light rail transit system. Live passenger information is provided on https://www.luas.ie, in addition to fare information, a halt location map, and a link to National Journey Planner (discussed in the following section). The information provided on Luas.ie can also be obtained using the Luas App that provides live travel updates.

Iarnród Éireann (Irish Rail)

The Iarnród Éireann website (www.irishrail.ie) can be visited to access country-wide rail services including the DART and Commuter Services. Timetables, fares and tickets, and travel information are available on the website.

2.2 The National Journey Planner

The National Transport Authority's (NTA) National Journey Planner is accessible on www.journeyplanner.transportforIreland.ie. The Journey Planner travel app for Ireland can be downloaded for free.

The service is multi-operator which means it provides journey planning, timetable and travel information from all licenced public transport providers in Ireland. It has a huge scope with 9,600 bus stops across Ireland included, 750 different routes, 152 train stations, and route and timetable information from 120 different transport providers.

The MMP Coordinator will make staff and visitors of MP2 aware of this service, which allows journeys to be planned from anywhere in Ireland, using public transport and / or individual transport, including walking and cycling. The example in Figure **2.3** shows a route from the existing Terminal 1 building to Connolly Station in the City Centre.

As is evident in Figure **2.3**, bike hire stations are also incorporated in the National Journey Planner map.

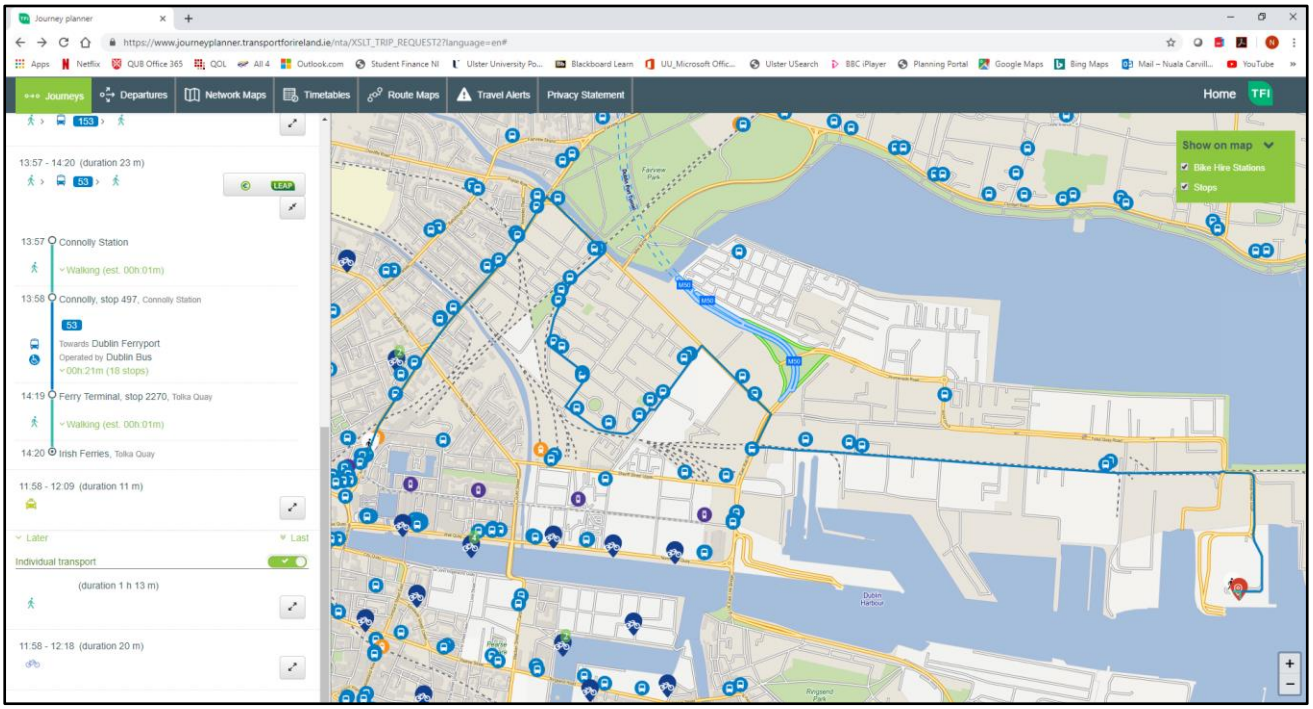


Figure 2.3 Example of Route Planner on National Journey Planner Website (**www.journeyplanner.transportforireland.ie**)

2.3 Travel Information on the DPC Website

The DPC website (https://www.dublinport.ie/tourism/getting-around) provides travel information on how to get to the Port Estate via car, bus and Luas, and includes information on car parking charges. The MMP Coordinator can make staff and visitors to the MP2 Project aware of the travel advice provided on the DPC website.

Additionally, the MMP Coordinator will also be responsible for liaising with DPC to ensure that the travel information on their website continues to be updated and accurate as the MP2 Project is progressed, completed and operational.

3 TRAVEL SURVEY AUDIT & MONITORING

The MMP will be reviewed on an annual basis to ensure it is continually updated. Each year travel surveys will be undertaken to assess compliance with the modal shift targets (if they have been achieved or not). The surveys will then enable new modal shift targets to be set or incentives changed to achieve existing targets.

The MMP Coordinator will undertake travel surveys soon after the opening of the section of the proposed development that the operator has taken control of. The surveys will be for staff and visitors.

This will enable a dataset of information to be constructed and will aid the implementation of the MMP. The staff survey will include the following:

- Personal and employment details (subject to compliance with data protection requirements);
- Current modal split of employees and visitors, together with journey lengths (distance and time);
- Reasons for current mode of travel;
- Hours of work;
- Level of business trip activity and modal split;
- Level of interest in car sharing;
- Problems encountered in communicating; and
- Ideas for improvement of the MMP.

This information will enable the MMP Coordinator to identify where staff are travelling from on a daily basis and identify areas where the largest groups of staff are travelling from / to, allowing the MMP Coordinator to concentrate on areas where most impact can be made on changing travel habits.

Survey data will be collected digitally or manually. Online tools, such as Survey Monkey, QuestionPro or Google Forms, will be utilised to carry out the survey and analyse the responses.

Surveys to collect travel information will be created and distributed digitally to staff via email or web link, and the response levels and status of surveys will be monitored by the MMP Coordinator.

Visitor travel information will be gathered through a similarly designed digital survey. Most companies use online booking systems which establishes digital communication. Visitors will be informed about active travel and sustainable travel options at the MP2 Project (discussed in Section 6) prior to their journey to the

MP2 Project through this digital avenue. Surveys will also be circulated to visitors of the MP2 Project using this digital communication route.

Some users of the MP2 Project may not have email access, therefore the MMP Coordinator will need to conduct manual surveys to ensure all users of the MP2 Project have equal opportunity to respond.

A sample Method of Travel to Work Survey is included in Appendix A. It provides an example of the type of questions that may be included in a travel survey audit.

Once the MMP Coordinator has compiled the survey data, targets for reduction in car based travel will be determined. The MMP Coordinator will then monitor and review these targets at regular intervals and determine how successful the MMP is.

A wide range of information will be monitored to demonstrate the impact of the MMP. Examples of monitoring include:

- Multi-modal traffic / travel surveys to and from the site;
- Automated traffic counters;
- Pedestrian and cycle counts on routes into the development;
- Use of cycle stands;
- Car parking utilisation by visitors and staff;
- Travel diaries;
- Discussions with public transport service providers, such as CIÉ, to establish demand for bus, rail and tram services;
- Surveys of passengers boarding and alighting at bus stops serving the development;
- Monitoring of specific initiatives such as car sharing.

Continued promotion of sustainable transport modes is paramount to the success of the MMP. Emphasis will be placed on ensuring staff and visitors are provided with information identifying available transport services, and the health and social benefits of choosing active and sustainable transport options.

4 OBJECTIVES AND TARGETS

The overall objective of the MMP is to reduce the number of and reliance on private car trips, especially by staff, while increasing the number of pedestrian, cycling and public transport trips by encouraging the shift from car based trips to more sustainable modes.

The initial surveys undertaken by the MMP Coordinator will set a base line modal split for MP2 Project. From these initial surveys, further incentives / disincentives will be considered to increase the use of sustainable modes and reduce private car trips. Each year surveys will be undertaken and revisited modal split targets set. The MMP will aim to achieve a number of key objectives which are set out below:

- To enable and encourage staff and visitors to access the development by sustainable modes of transport, where appropriate;
- To ensure that sustainable travel choices are available at times relevant to the development proposal;
- To minimise the need for staff and visitors to travel to and from the development by private vehicle;
- To ensure staff and visitors are aware of the health and environmental benefits of travel by non-car modes;
- To foster a culture amongst staff in seeking to travel by sustainable modes in preference to the private vehicle wherever possible;
- To ensure staff and visitors are aware of the MMP and are kept informed of its development; and
- To ensure a broad range of sustainable travel options are available for staff and customers to access the development.

5 MEASURES

Within an agreed timeframe the position of the MMP Coordinator of each relevant section of the proposed development will be filled to ensure that the requirements of the MMP will be implemented quickly and efficiently.

As part of this development, the following will be implemented by the MMP Coordinator to try and reduce the number of single vehicle journeys and increase the number of trips by sustainable modes of transport:

- Establish a car-sharing scheme at an early stage. Implementation of such a scheme would assist staff to find a car share partner in their organisation;
- The proposed scheme will have end user facilities such as cycle parking, and showering and changing facilities to facilitate and encourage sustainable travel. These will be provided at the administrative building for UFT and the Lo-Lo operator (currently DFT). The location of cycle parking and connectivity to the UFT Terminal building are included in Section 6.3.2;
- Encouragement for staff to walk to work (where possible) through advertising the health, social and economic benefits of walking;
- Display / provision of maps showing key walking routes, distances and walking times to / from origins and destinations;
- Implementation of cycle-to-work scheme, which is government-led tax incentive scheme enabling employers to purchase a bicycle and equipment through salary sacrifice for 12 months;
- Establish a Bike User Group(s) (BUG), which is simply a group of cyclists in a workplace sharing concerns and ideas.
- Raise awareness of the wealth of public transport facilities available to users;

There are several existing and proposed public transport and active transport facilities in the vicinity of the Dublin Port Estate. Section 6 that follows details the suite of active and sustainable travel measures that are envisaged to be available to users of the MP2 Project.

6 ACTIVE AND SUSTAINABLE TRAVEL MEASURES

An accessibility assessment was undertaken to establish the existing, consented and proposed sustainable travel and active transport provision serving the MP2 Project. The assessment considers travel by walking, cycling and public transport. These are the measures that will be delivered through the planning process and the MMP, and the MMP Coordinator will promote, survey, monitor and evaluate the use of this suite of measures to establish and continue towards a trend of sustainable transport modes.

The main components that provide a high level of accessibility for the MP2 Project are the:

- Existing density of active travel facilities available in Dublin City Centre;
- Existing density of sustainable travel facilities in Dublin City Centre including bus, rail, DART and Luas;
- Existing provision of cycle locker facilities of the Port Centre public realm scheme to facilitate multi-modal journeys by sustainable travel;
- Consented active travel measures incorporated within the internal roads scheme to connect the MP2 Project to the City;
- Proposal for DPC to subsidise the provision of a shuttle bus service to the MP2 Project;
- Proposed connectivity on foot and by cycle to the UFT footprint;
- Proposed commitment to a MMP for the MP2 Project, as outlined in this report.

This oMMP details the existing, consented and proposed active and sustainable travel measures that will be utilised by staff and visitors of the MP2 Project. It is envisaged that when the MMPs are progressed, the Coordinators will update this suite of active and sustainable travel measures as appropriate.

6.1 Existing Facilities

There is an existing, established density of walkways and cycle-ways throughout Dublin City, that make up the external network. These include pedestrian and cycling facilities, and public transport facilities, which can be utilised by users of the MP2 Project.

6.1.1 Pedestrian and Cycling Facilities

There are three main existing public bicycle schemes in Dublin that can be utilised by staff and visitors of the MP2 project:

- DublinBikes;
- Urbo; and
- BleeperBike.

A public bicycle system is a service in which bicycles are made available for shared use to individuals on a short term basis.

DublinBikes

DublinBikes is a DCC led self-service bicycle rental scheme which has operated in the city of Dublin since 2009. Figure 6.1 below shows a typical DublinBike station located on North Wall Quay.

Figure 6.2 shows the location of the DublinBike stations throughout the City. Figure 6.3 shows the location of the existing stations located immediately west of the Port Estate boundary.

Figure 6.1 Example of the DublinBike Stations Located on North Wall Quay

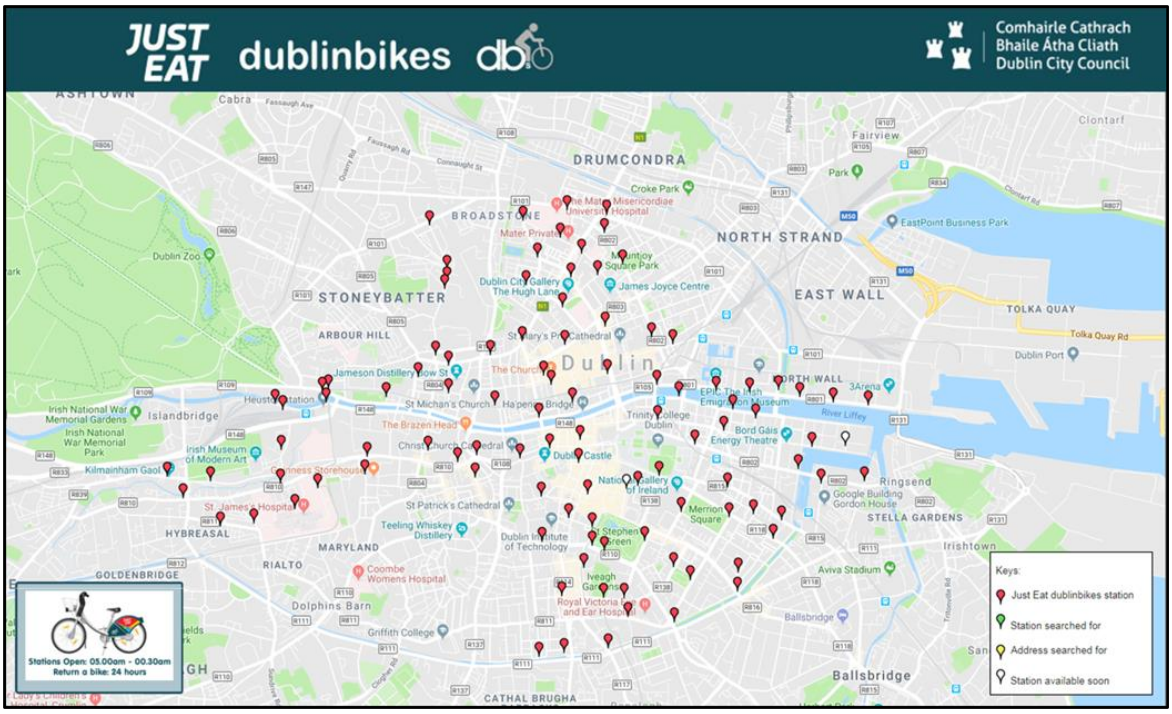


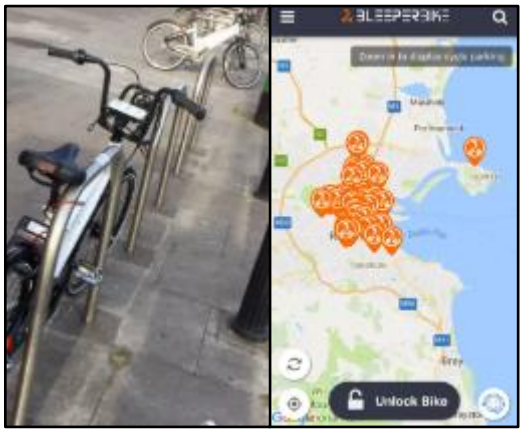
Figure 6.2 DublinBike Stations

Figure 6.3 DublinBike Stations in the Environs of the Dublin Port

Urbo and BleeperBike

More recently private providers, such as Urbo and BleeperBike, have introduced dockless shared public bicycle systems to Dublin. The schemes are evolving and anticipate providing a more flexible service in terms of geographical range for locating and returning the bicycles.

GPS-tracked smart bike software is used to provide a situationless bike sharing system. The rental system is sourced through an app which assists to locate, lock and unlock the closest available bike. These facilities can be utilised by users of the MP2 Project



Greater Dublin Area Cycle Network Plan

The NTA produced the Greater Dublin Area Cycle Network Plan in December 2013.

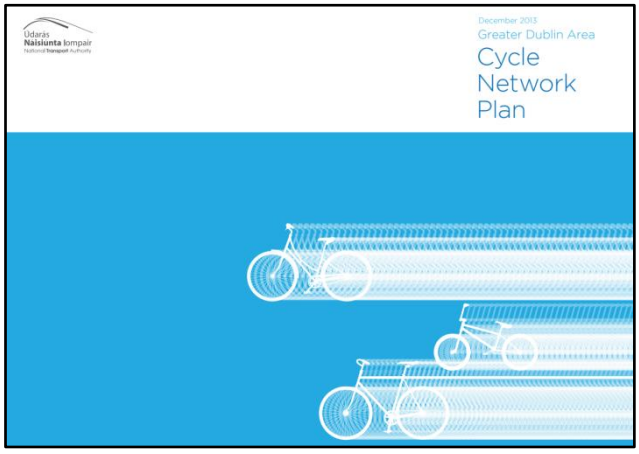


Figure **6.4** below is an extract of the Existing Cycle Facility Type, Sheet E1, which shows that Dublin City is currently a well serviced area. These networks can be utilised by users of the MP2 Project.

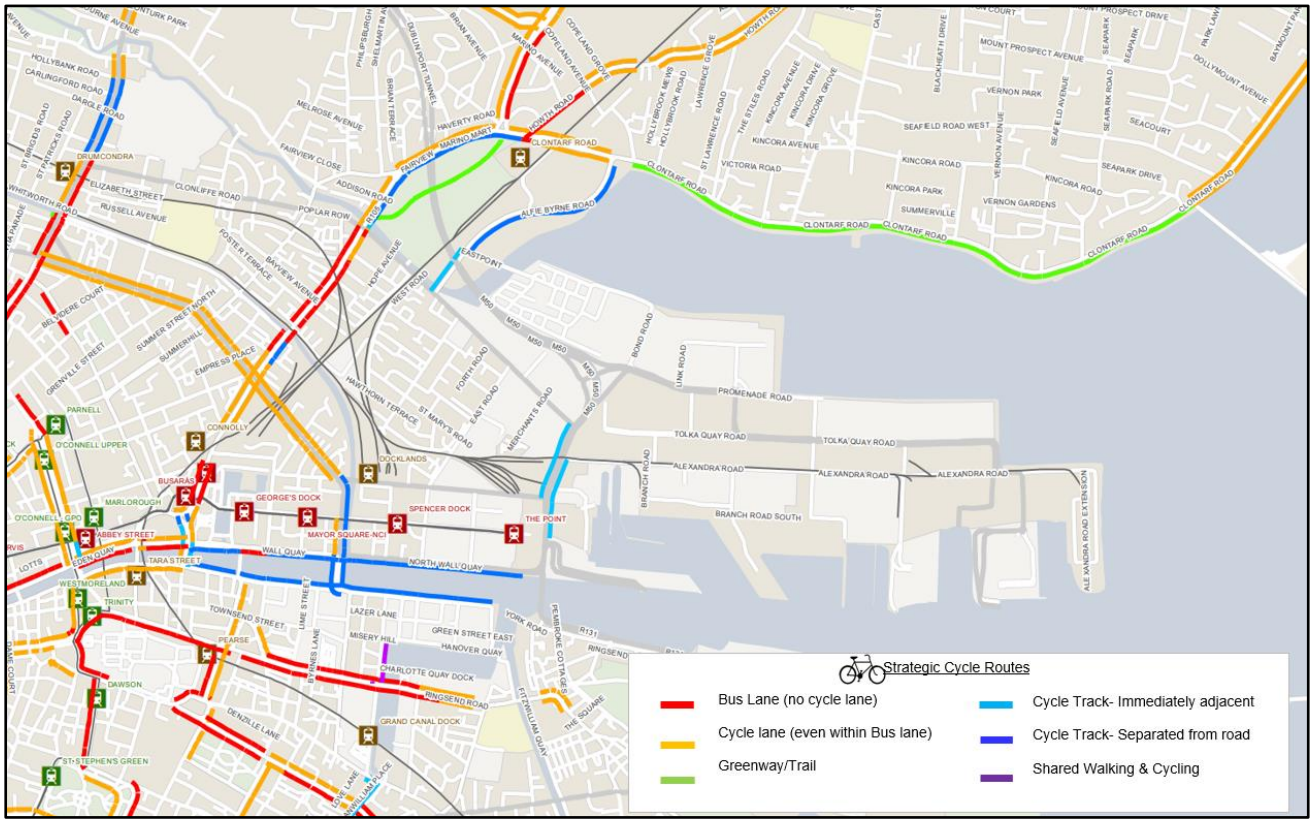


Figure 6.4 Existing Cycling Facilities in the Environs of the Dublin Port

Figure 6.4 confirms that although Dublin City is currently a well serviced area, there is an absence of existing cycle facilities within the Port Estate. The consented internal roads scheme, discussed in Section 2.2, addresses this gap.

Figure **6.5** below illustrates how the consented Greenway within the Port Estate will link the MP2 Project to Dublin's wider strategic cycle network.

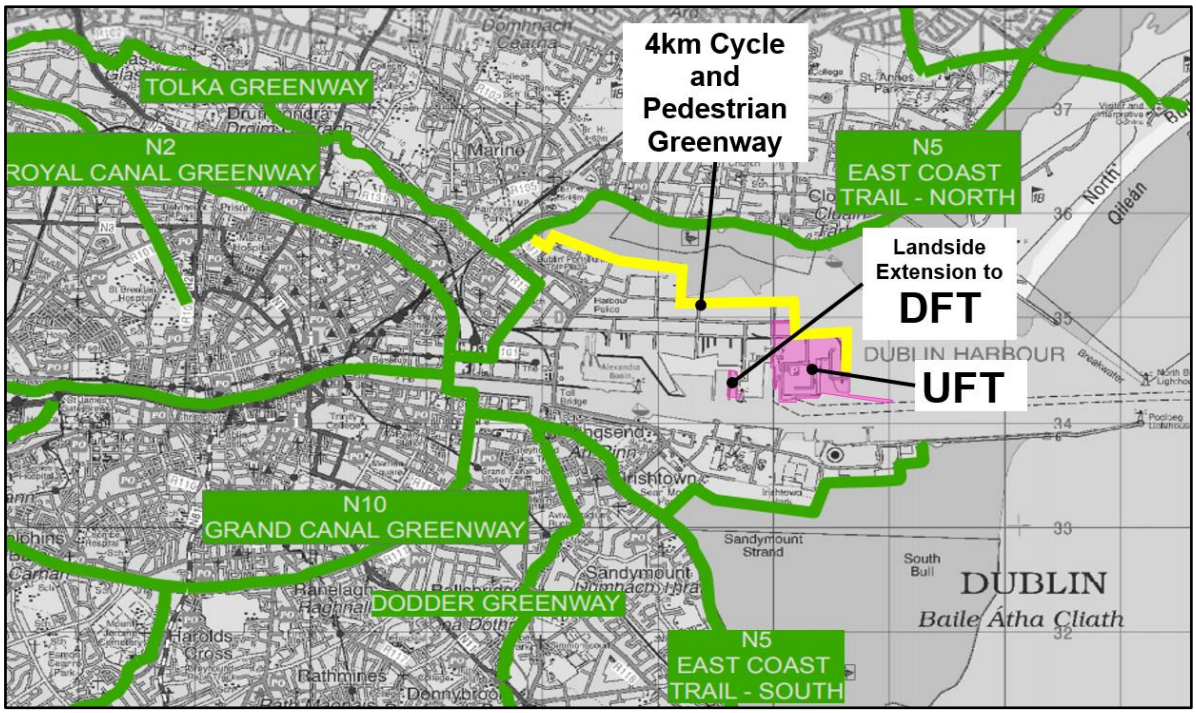


Figure 6.5 Consented Greenway within the context of Dublin's Proposed National Cycle Network

6.1.2 Cycle Parking and Integrated Multi-Modal Transport Options

The proposed MP2 Project will have end user facilities such as cycle parking, showering and changing facilities to facilitate and encourage active travel. These will be provided at the administrative building for UFT and the Lo-Lo operator (currently DFT).

Cycle parking facilities have been provided as part of the recent public realm provision at Port Centre. There is a combination of free standing cycle parking, an enclosed secure compound for communal parking, and private individual lockers as shown in Figure 6.6 below.

The cycle lockers facilitate integrated multi-modal non-motorised sustainable transport modes. They allow staff to store their privately owned bicycle in a secure space at the Port Estate.

This would allow staff within the MP2 Project to commute to the Port Estate via public transport and then cycle to their final destination within the Port Estate.

Figure 6.6 Location of Cycle Lockers at Port Centre

6.1.3 Public Transport Facilities

Córas Iompair Éireann (CIÉ) is Ireland's national public transport provider. Over 230 million journeys are made annually on the network of national, regional, local and urban services across Iarnród Éireann, Dublin Bus and Bus Éireann. A summary of some of the existing public transport facilities (Bus/Rail/Luas/DART) in the vicinity of Dublin Port is presented in Figure **6.7** and Table 6.1 below.

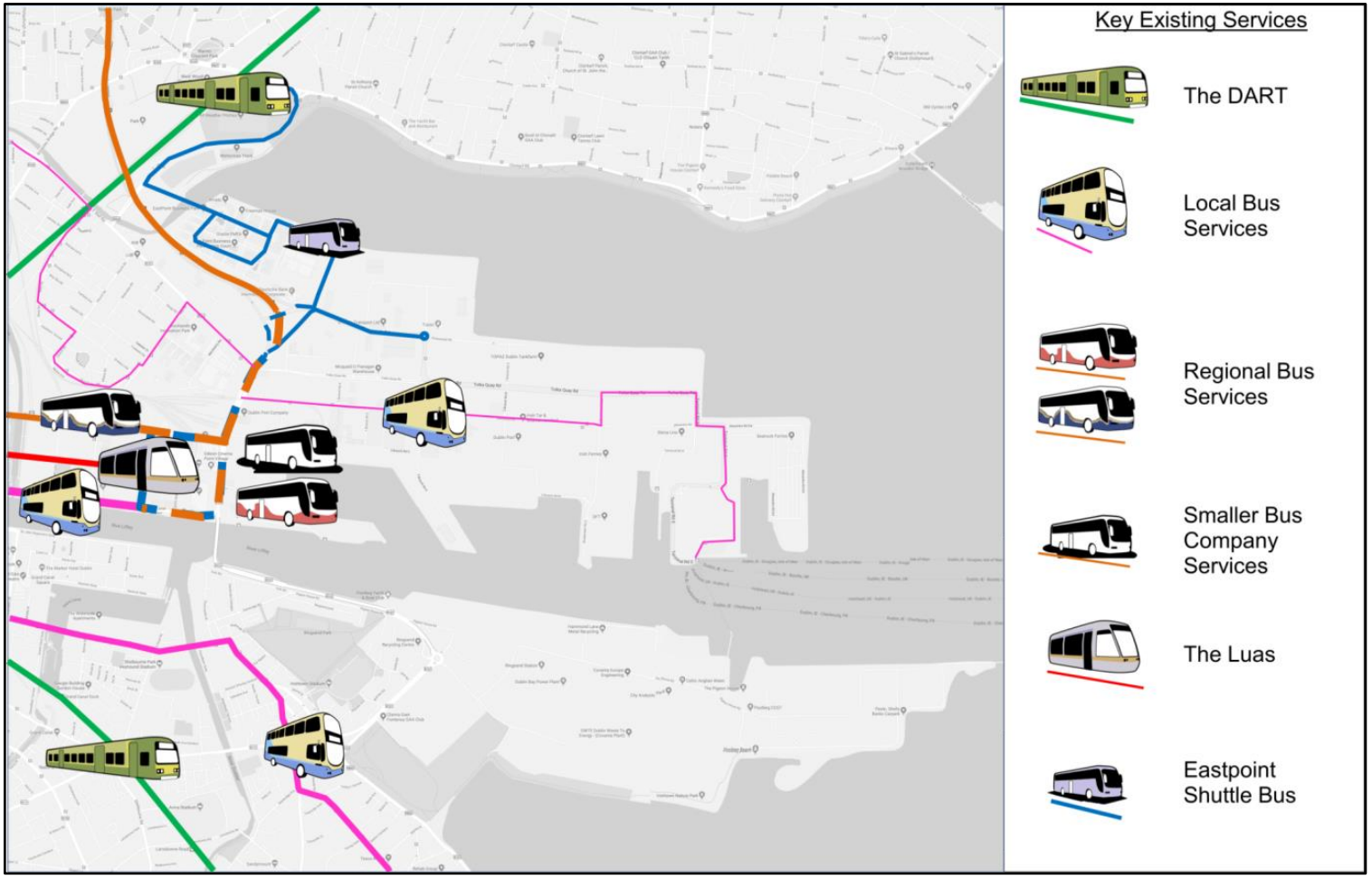


Figure 6.7 A summary of some of the existing public transport facilities in the vicinity of Dublin Port Estate

6.1.3.1 Bus Facilities in the Vicinity of Dublin Port Estate

The closest bus stops to the Dublin Port Estate are indicated in Figure 6.8 below.

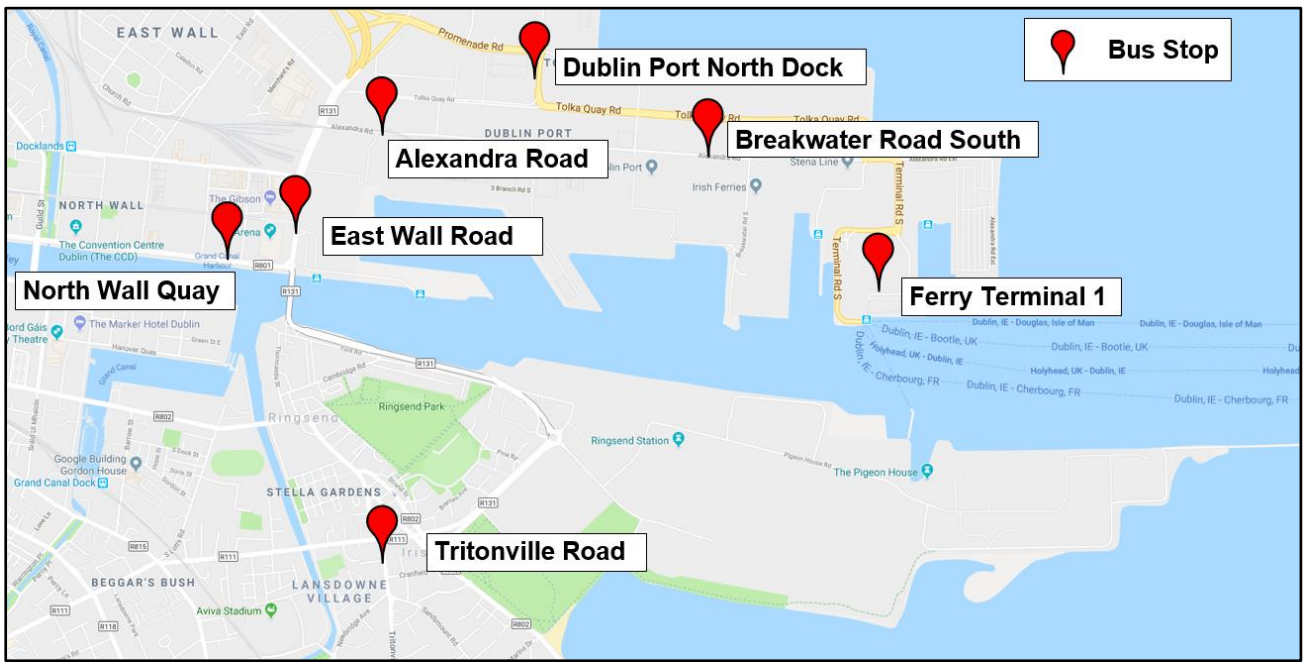


Figure 6.8 Bus Stop Locations in the Vicinity of Dublin Port Estate

The highest frequency bus stops for the north Port Estate are located at the North Wall Quay and East Wall Road near the 3 Arena. The closest highest frequency bus stop on the other side of the Liffey is at Tritonville Road, Sandymount.

North Wall Quay Bus Stop

An eastbound flagged bus stop is located opposite the south facing side of the 3 Arena on North Wall Quay, approximately 300m from the north Port Estate, as shown in Figure **6.9** below.

The main bus operators serving this bus stop are Bus Éireann and Dublin Bus Airlink.

North Wall Quay is a two way road with two eastbound lanes and one westbound lane. There is a signalised pedestrian crossing approximately 55m from the North Wall Quay bus stop.

Figure 6.9 Bus Stop Facilities on North Wall Quay

The East Wall Road Bus Stops

East Wall Road is a high frequency bus corridor providing links to the local and strategic network including Dublin Airport. It is also the link that connects the M50 to Dublin City. There are two flagged bus stops located on the East Wall Road approximately 50m from the north Port Estate as indicated in Figure **6.10** below.

The main bus operators serving these bus stops are Dublin Bus and Bus Éireann, and other smaller bus companies that also operate at the stops.

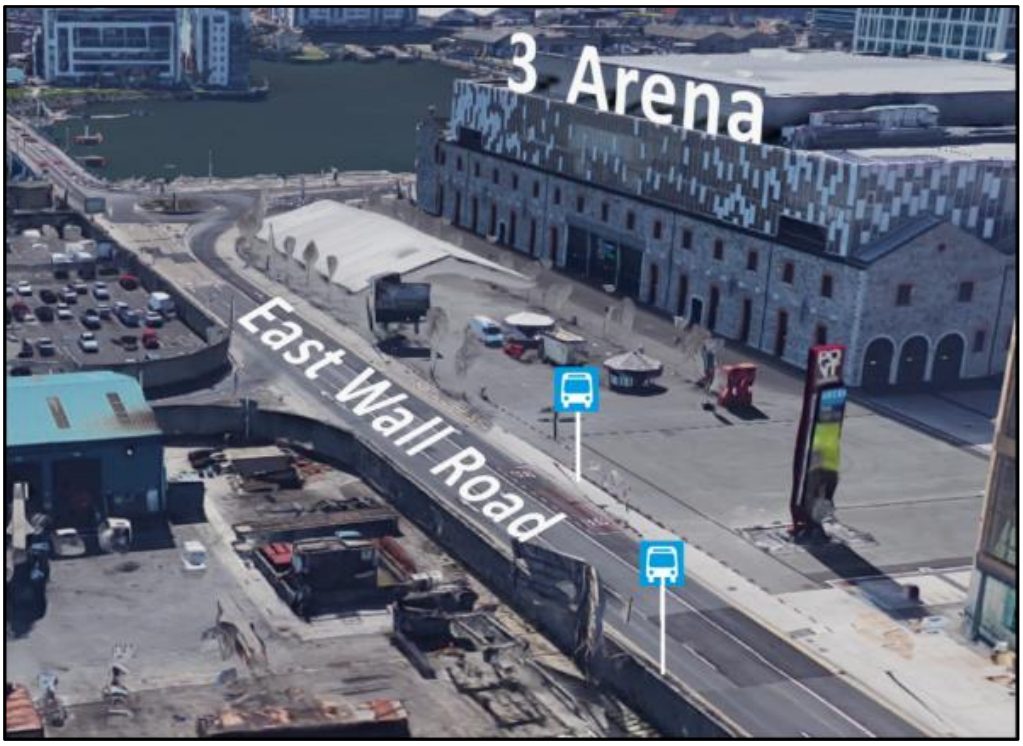


Figure 6.10 Bus Stop Facilities on East Wall Road

Dublin Bus 53 Serving the North Port Estate

There is an existing bus that provides a service within the north Port Estate as illustrated in Figure **6.7** above. It is Dublin Bus 53 and it serves the north Port Estate and existing Ferry Terminal 1 at Irish Ferries. It runs from 07:00 to 19:00 Monday to Saturday and 11:00 to 18:00 on Sundays.

FerryLink Connecting Irish Ferries and Stena to Dublin City Centre

FerryLink is run by a private coach company that connects the existing Irish Ferries and Stena sites with Dublin City Centre.

The coach operates from Westmoreland Street - Port - Connolly Station - Westmoreland Street 7 days a week. It takes approximately 15 minutes in normal traffic conditions between Dublin Port and Connolly Station.

The coach departs from Irish Ferries Terminal 1 building once all ferry passengers have disembarked and therefore departure times from Dublin Port can vary. Figure **6.11** below shows the timetable and the existing service as captured by the traffic survey cameras at 07:36 on the day of the traffic survey (23 May 2018).

Figure 6.11 FerryLink

EastPoint Shuttle Bus

There is a private shuttle bus that connects the DART and the Luas to the EastPoint Business Park located close to the northwest of the Port Estate.

The EastPoint Shuttle Bus is run by EastPoint Business Park and has two routes servicing Clontarf Road Dart Station and the Point Luas stop as shown in Figure 6.12 below.

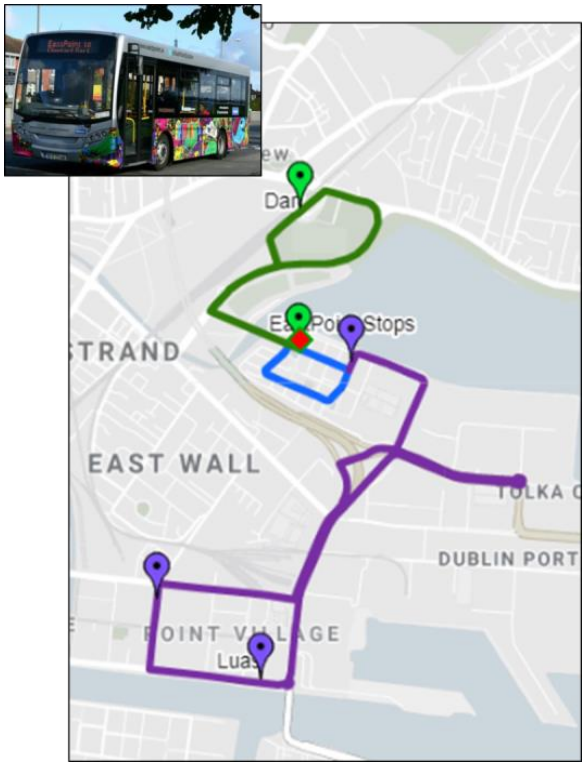
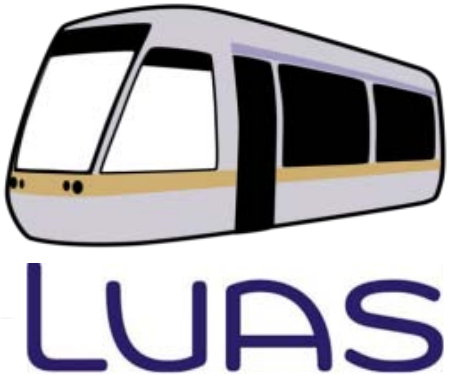


Figure 6.12 Route of the EastPoint Shuttle Bus

6.1.3.2 Rail and Tram Facilities



Luas

The Luas (Gaeilge word for "speed") is the tram / light rail transit in Dublin which began operating in 2004. The Luas is operated by Transdev Ireland, under tender from TII.

There are two main lines: The Green Line and the Red Line.

The Green runs from Brides Glen to Broombridge and is 24.5km in length with 35 Stops.

The Red Line is 20km in length and has 32 Stops. It runs from Tallaght to The Point and from Saggart to Connolly.

The Red Line service runs the closest to Dublin Port Estate as shown in Figure **6.13** below.

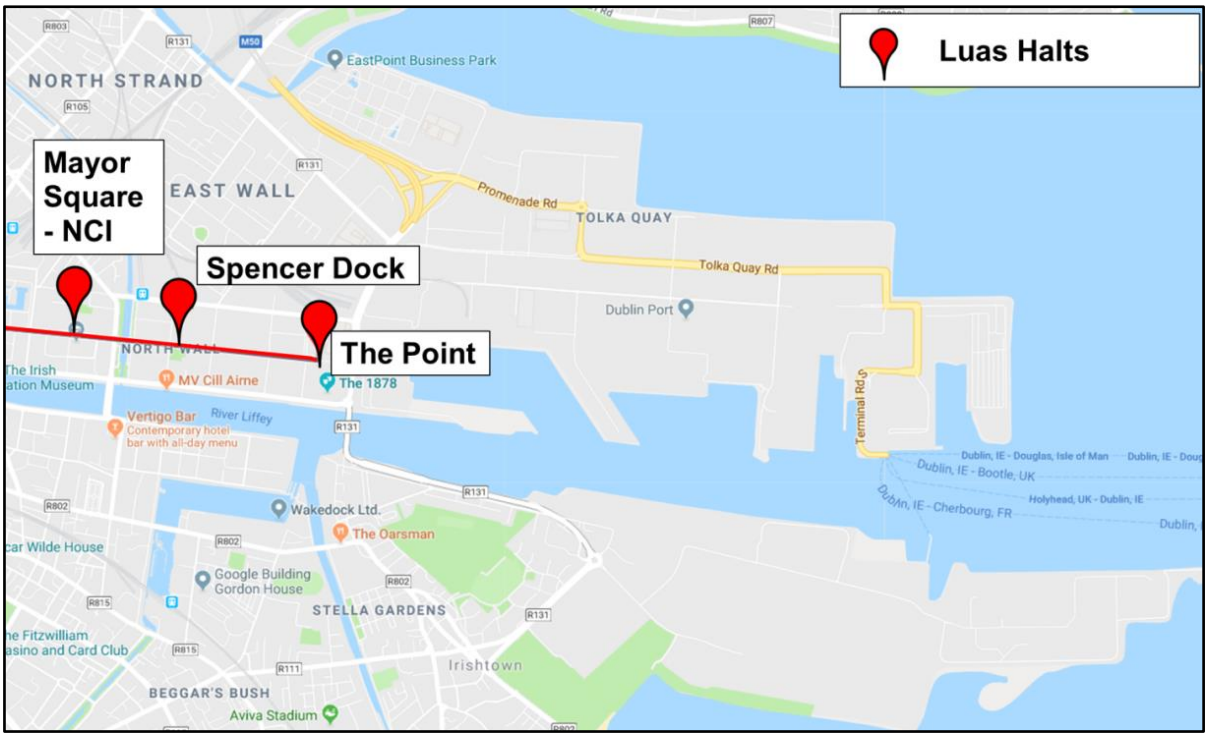


Figure 6.13 Luas Halt Locations in the Vicinity of Dublin Port Estate

'The Point' Luas Halt is located behind the 3 Arena along Mayor Street Upper, approximately 200m from Dublin Port as indicated in Figure **6.14** below.

Figure 6.14 The Point Luas Halt Facility in Relation to Dublin Port Estate

The Point Luas Halt has shelters, timetable information, is well lit and in a location that is visible by members of the public (important for security and alleviating any fear of intimidation for users), as is indicated in Figure **6.15** below.

The Red line operates from 05:00 to 00:00 Monday to Saturday and 07:00 to 23:00 on Sundays.

Figure 6.15 Luas Facilities at 'The Point'

A proposed rubber wheeled public transport provision is envisaged to serve the north Port Estate and the MP2 Project. This will include either the provision of a new dedicated bus route, or the extension of the existing bus route to link with the LUAS terminal at the 3 Arena and the DART.

Iarnród Éireann

Iarnród Éireann, also known as Irish Rail, is the operator of the national railway network in Ireland, established in 1987. As mentioned earlier, Iarnród Éireann is a subsidiary of CIÉ. It provides passenger and freight rail services as well as operating Rosslare Europort. It operates all internal DART, Commuter, InterCity and freight railway services in the Republic of Ireland.

The DART

The DART is Dublin's Electric Rail System. It runs along the coast of the Irish Sea from Malahide / Howth in north County Dublin and southwards as far as Greystones, Co Wicklow.

DART services operate every 15 minutes all day.

The nearest DART Stations to Dublin Port are located in Figure **6.16** below.

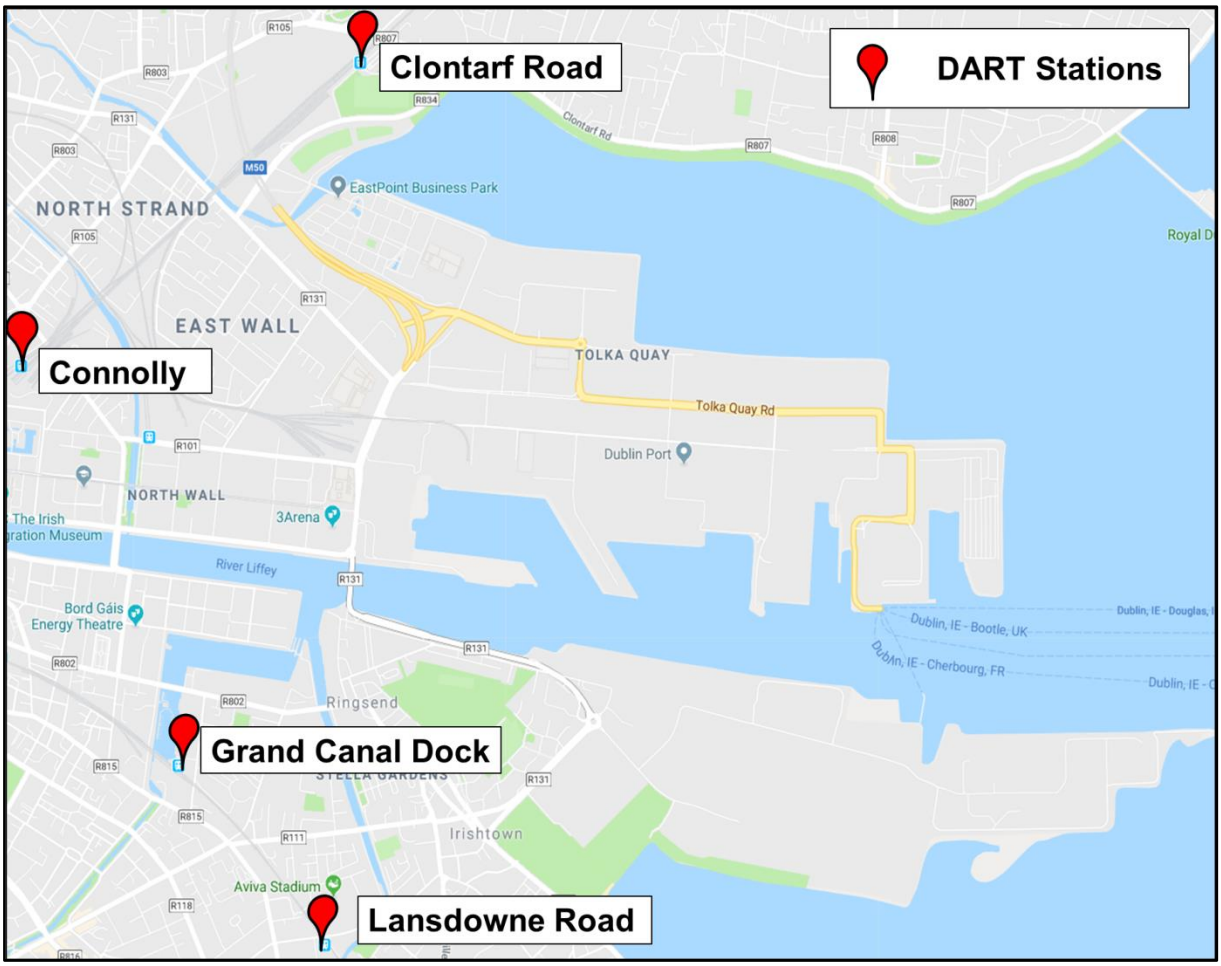


Figure 6.16 The DART Station Locations in the Vicinity of Dublin Port Estate

One of the closest DART stations to the north Port Estate is Connolly Station at approximately 1.7km. Dublin Connolly is the busiest railway station in Dublin and Ireland, and is a focal point in the Irish route network.

Services that run from this station are as follows:

- Dublin/Sligo;
- Dublin/Belfast;
- Dublin/Rosslare Europort;
- Commuter services to Drogheda, Dundalk, Maynooth and Longford;
- DART.

Lansdowne Road DART station is approximately 1.4km from the Port Estate with the main route serving Dublin to Dundalk and Dundalk to Bray / Gorey. See Figure **6.17** below.

Figure 6.17 Facilities at Lansdowne Road Station

The DART Expansion Programme

The DART Expansion Programme is a series of potential projects which would develop and expand the DART network in the Greater Dublin Area.

The programme includes:

- The DART Underground line, a high-capacity second DART line running underground through the heart of Dublin City;
- Electrification of the northern commuter line from the existing end of the DART network in Malahide on to Drogheda;
- Electrification of the line from Heuston to Hazelhatch and completion of the four-tracking of this line between Inchicore and Park West;
- Electrification of the line from Connolly to Maynooth, together with removal of level crossings and re-signalling; and
- Expansion of fleet and depot facilities.

The location of the DART expansion in relation to the Port Estate is illustrated in Figure **6.18** below.

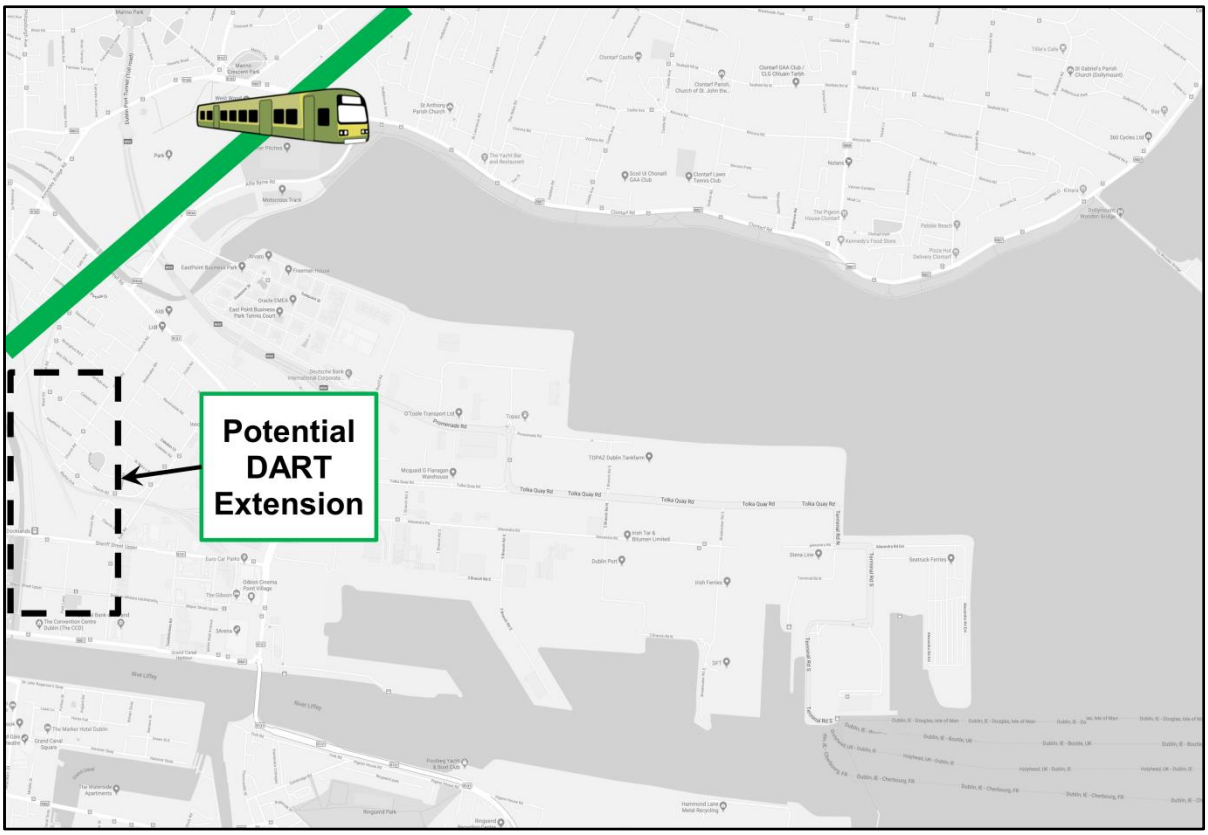


Figure 6.18 Location of the DRAT Expansion in Relation to the North of the Port Estate

If the potential DART extension schemes come forward it will further enhance the already established services accessible to the users of the MP2 Project.

Local Rail Services

The closest local rail station to Dublin Port Estate is Docklands located about 800m from the north Port Estate. The station is owned and operated by Iarnród Éireann.

It was opened in 2007 and has two-platforms which it runs services from Dublin to Longford. The facilities at Docklands Station are illustrated in Figure **6.19** below.

Figure 6.19 Facilities at Docklands Station

A summary of the public rail services in Dublin City is illustrated in Figure **6.20**.

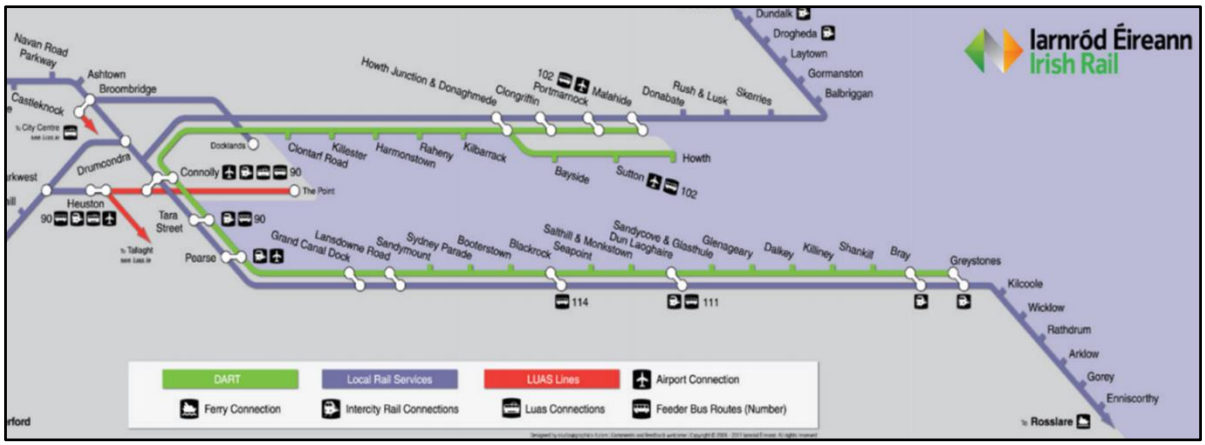


Figure 6.20 A Summary of the Public Rail Services in Dublin

6.1.3.3 Summary of Public Transport Facilities

A summary of some of the existing public transport facilities in the vicinity of Dublin Port Estate is presented in Table 6.1 below.

Table 6.1 Summary of a Selection of the Existing Public Transport Facilities in the Vicinity of Dublin Port Estate

Company	Mode	Service No	Stop Location	Route	First Service	Last Service	No of Services		
							Mon- Fri	Sat	Sun
Bus Éireann	Bus	22	North Wall Quay 3 Arena	Dublin - Ballina	07:00	23:00	3	3	3
				Ballina - Dublin	01:00	18:15	3	3	3
		23	North Wall Quay 3 Arena	Dublin - Sligo	07:40	23:00	3	3	3
			East Wall Rd 3 Arena	Sligo - Dublin	01:00	18:45	2	2	2
		133	East Wall Rd 3 Arena	Dublin Airport - Wicklow	06:40	22:40	22	17	15
				Wicklow - Dublin Airport	07:00	22:00	22	16	15
		100x	North Wall Quay 3 Arena	Dublin - Dundalk	06:40	23:40	19	19	19
			East Wall Rd 3 Arena	Dundalk - Dublin	03:30	20:30	19	19	19
		101x	North Wall Quay 3 Arena	Wilton Terrace - Drogheda - Termon Abbey	10:30	17:30	4	-	-
			East Wall Rd 3 Arena	Termon Abbey - Drogheda - Wilton Terrace	05:40	16:00	7	-	-
Dublin Bus	Bus	53	Ferry Terminal	Talbot St - Dublin Ferryport	07:25	19:00	13	13	7
				Dublin Ferryport - Talbot St.	07:25	19:00	13	13	7
		33d	East Wall Rd 3 Arena	Custome House Quay - Portrane	17:45	17:45	1	-	-
				Portrane - Custome House Quay	07:02	07:02	1	-	-
		33x	East Wall Rd 3 Arena	Custome House Quay - Skerries	16:15	18:00	5	-	-
				Skerries - Custome House Quay	06:35	07:55	5	-	-
		41x	East Wall Rd 3 Arena	UCD Belfield - Knocksedan	17:00	17:30	3	-	-
				Knocksedan - UCD Belfield	07:40	07:50	6	-	-
		142	East Wall Rd 3 Arena	Portmarnock - UCD Belfield	07:10	15:30	11	-	-
				UCD Belfield - Portmarnock	11:00	17:35	10	-	-
		151	East Wall Rd 3 Arena	Docklands - Foxborough	06:30	23:20	48	46	30
				Foxborough - Docklands	06:00	23:30	51	48	34
		1	Sandymount Tritonville Rd	Santry - Sandymount	06:30	23:30	51	38	36
				Sandymount - Santry	06:40	23:30	52	38	36
		47	Sandymount Tritonville Rd	Poolbeg St. - Belarmine	07:40	23:30	19	17	15
				Belarmine - Poolbeg St.	06:30	23:30	19	17	15
	A	747	East Wall Rd	Airport - Heuston Rail Station	05:05	00:30	104	70	61

			3 Arena	Heuston Rail Station - Airport	04:45	23:30	105	30	35
		757	East Wall Rd 3 Arena	Airport - Camden Street	05:00	00:25	39	39	35
			North Wall Quay 3 Arena	Camden Street - Airport	04:55	23:25	38	38	35
Swords Express	Bus	500/X	Dublin Liberty Hall	Dublin - Swords	07:00	23:00	47	23	10
				Swords - Dublin	06:15	22:00	40	28	9
		501/X	Dublin Liberty Hall	Dublin - Swords	07:45	08:05	2	-	-
				Swords - Dublin	07:55	18:10	6	-	-
		503	Merrion Square	Dublin - Swords	17:25	17:50	2	-	-
				Swords - Dublin	07:25	07:50	3	-	-
		504	Dublin Liberty Hall	Dublin - Swords	17:45	17:45	1	-	-
				Swords - Dublin	07:25	09:34	2	-	-
		505/X	Dublin Liberty Hall	Dublin - Swords	16:50	19:00	4	-	-
				Swords - Dublin	06:25	08:25	2	-	-
		506/X	Dublin Liberty Hall	Dublin - Swords	16:30	18:20	2	-	-
				Swords - Dublin	07:20	08:01	2	-	-
Aircoach	Bus	702	East Wall Rd 3 Arena	Greystones - Dublin Port	01:00	23:10	18	18	18
				Dublin Port - Greystones	00:05	23:05	18	18	18
		703	East Wall Rd 3 Arena	Killiney - Dublin Airport	00:55	23:55	18	18	18
				Dublin Airport - Killiney	00:35	23:35	18	18	18
Transport for Ireland	Luas	Red Line	The Point	Saggart - Connolly or The Point	05:30	00:00	50	49	34
				Tallaght - Connolly or The Point	05:42	23:52	52	47	34
				The Point - Saggart or Tallaght	05:30	00:30	52	41	34
Iarnród Éireann	DART	DART	Lansdowne Road	Dundalk - Dublin -Bray/Gorey	06:10	23:55	81	51	40
				Bray/Gorey - Dublin - Dundalk	05:40	23:10	82	67	40
	Train	Local Train	Docklands	Dublin - M3 Parkway - Longford	07:50	19:25	12	-	-
				Longford - M3 Parkway - Dublin	07:27	19:05	12	-	-
			Lansdowne Road	Dublin To Dundalk	08:04	16:50	2	-	-
				Dundalk To Dublin	06:30	14:37	5	-	-

It is therefore demonstrated above that there are numerous existing and proposed public transport connectivity opportunities for the MP2 Project.

6.2 Consented Facilities

A major consideration for provision of sustainable transport for the proposed MP2 Project is the already consented internal roads scheme within the northern Port Estate, which incorporates pedestrian and cycling facilities.

The integration of the consented roads scheme to the proposed MP2 Project is consistent with a core aim of the Revised Masterplan to achieve closer integration between the Port Estate and the people of Dublin. Figure **6.21** summarises the consented internal roads, cycle and pedestrian networks at the northern Port Estate.

The consented internal roads scheme is of vital importance to the vehicular and sustainable transport connectivity to the MP2 Project. It is therefore confirmed that this scheme will be complete and operational prior to the completion of the construction of the MP2 Project. The consented internal roads scheme satisfies the following objectives for the proposed MP2 Project:

- Promote movement linkages in the form of pedestrian and cycle routes between the MP2 Project and Dublin City;
- To promote the development of future port facilities in the principles of universal design to make environments inherently accessible for those with and without disabilities;
- Facilitating public access to the Port Estate in a manner which is consistent with the safe and secure operation of a modern busy port;
- Facilitate multi-modal integration between public transport facilities and walking and cycling facilities

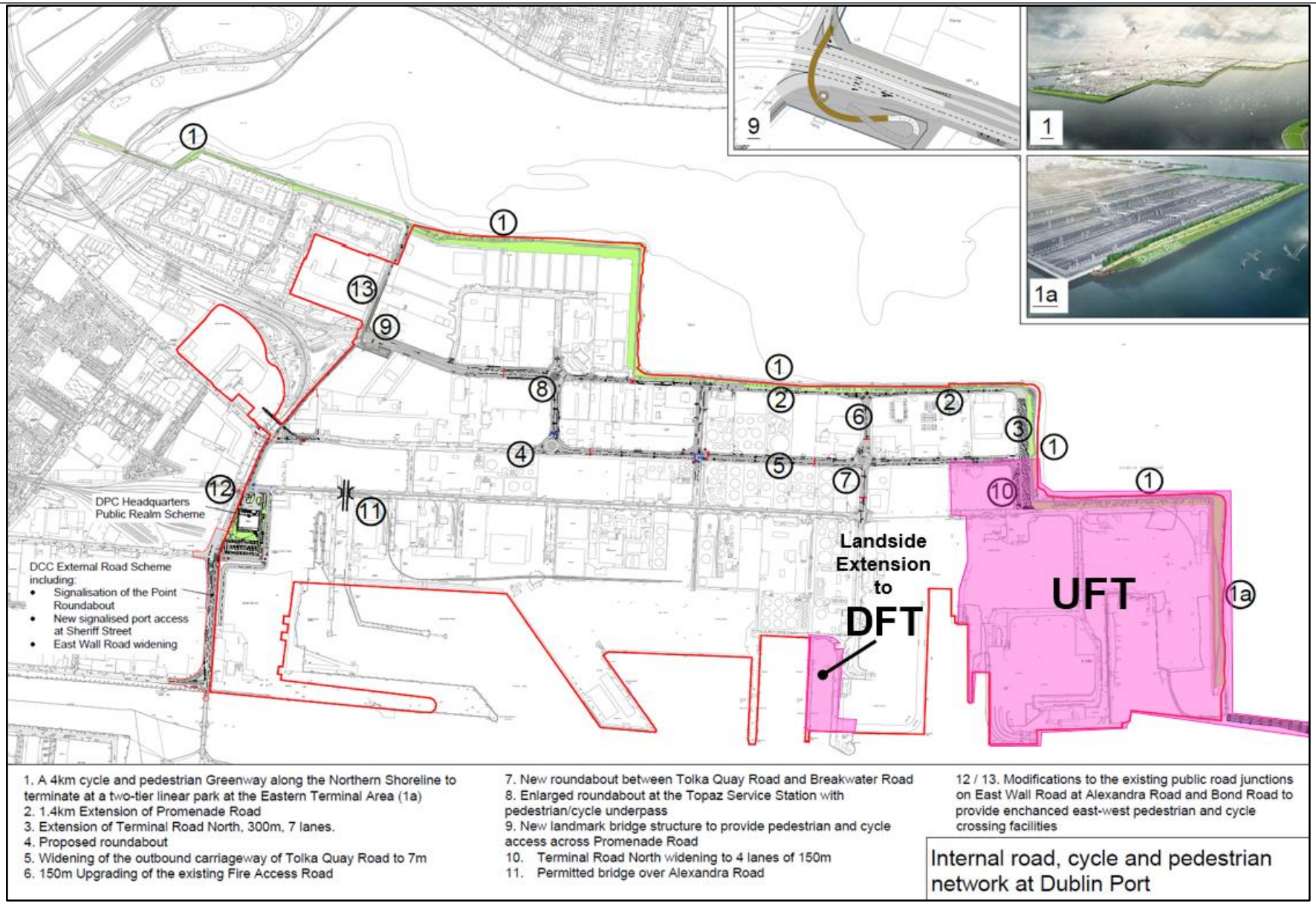


Figure 6.21 Indicative Internal Roads, Cycle and Pedestrian Networks at Northern Port Estate

Figure **6.22** and Figure **6.23** illustrate two sections of the consented 4km cycle and pedestrian Greenway along the northern shoreline overlooking the Tolka Estuary.

The Greenway connects the City to the MP2 Project, and particularly to the proposed enhanced public realm and heritage area located to the east of the UFT footprint.

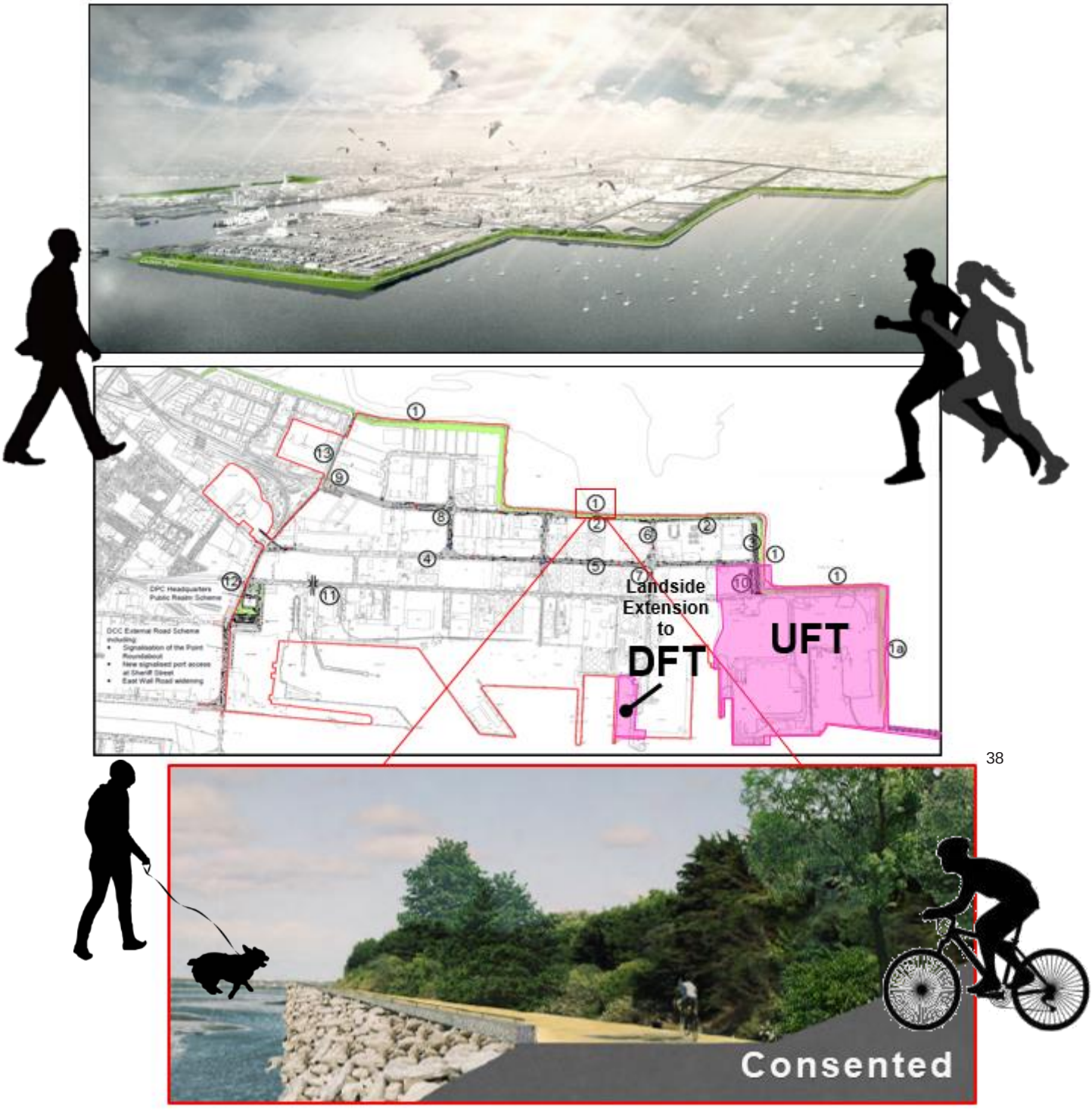


Figure 6.22 Part of the Consented 4km Cycle and Pedestrian Greenway along the Northern Shoreline

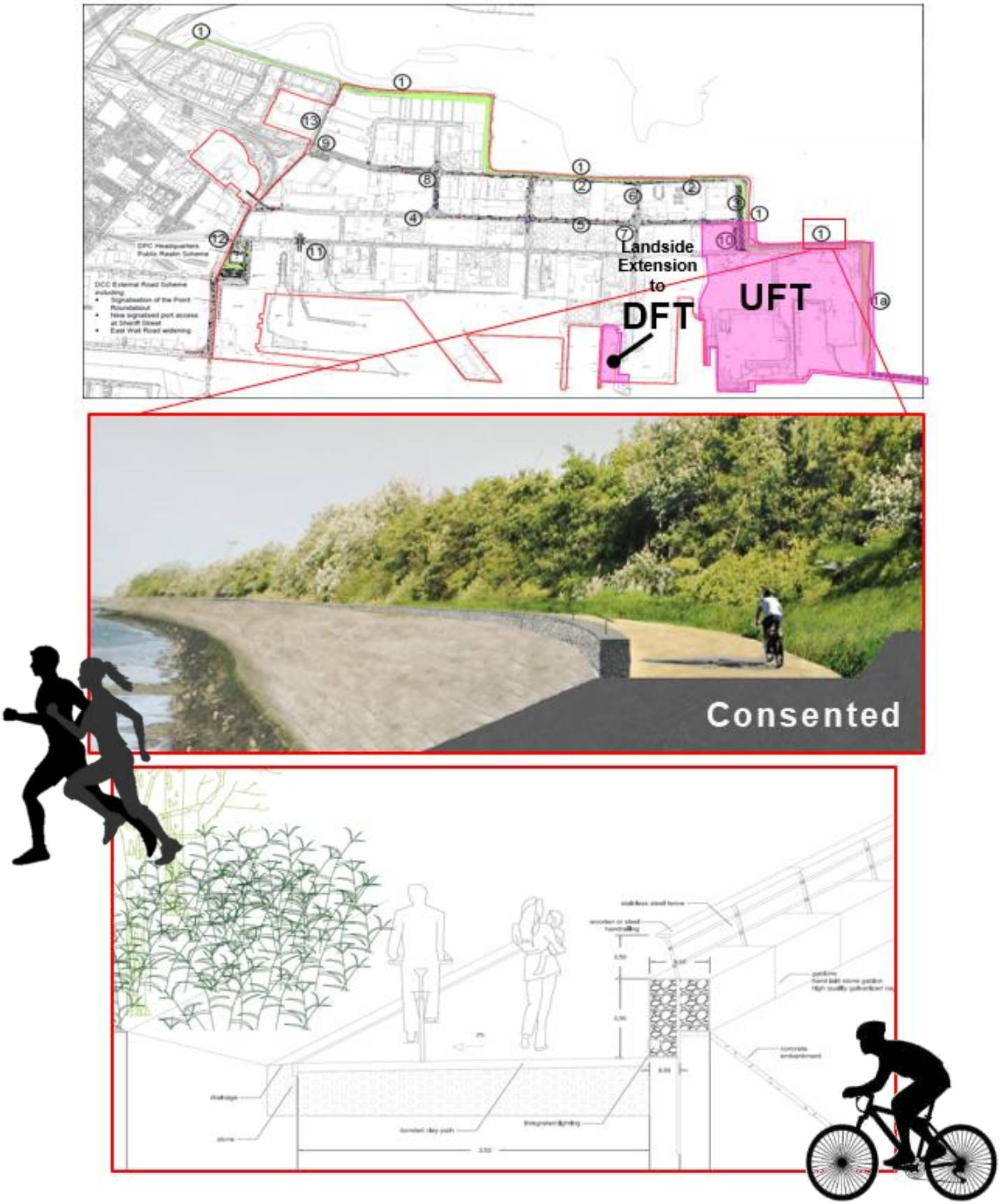


Figure 6.23 Part of the Consented 4km Cycle and Pedestrian Greenway along the Northern Shoreline

Figure **6.24** illustrates the consented landmark bridge structure to provide pedestrian and cycle access across Promenade Road. The bridge connects the northern shoreline Greenway to the pedestrian network on East Wall Road. The bridge will be grade separated allowing safer crossing point for pedestrians and cyclists generated by the MP2 Project away from vehicular traffic on Promenade Road.

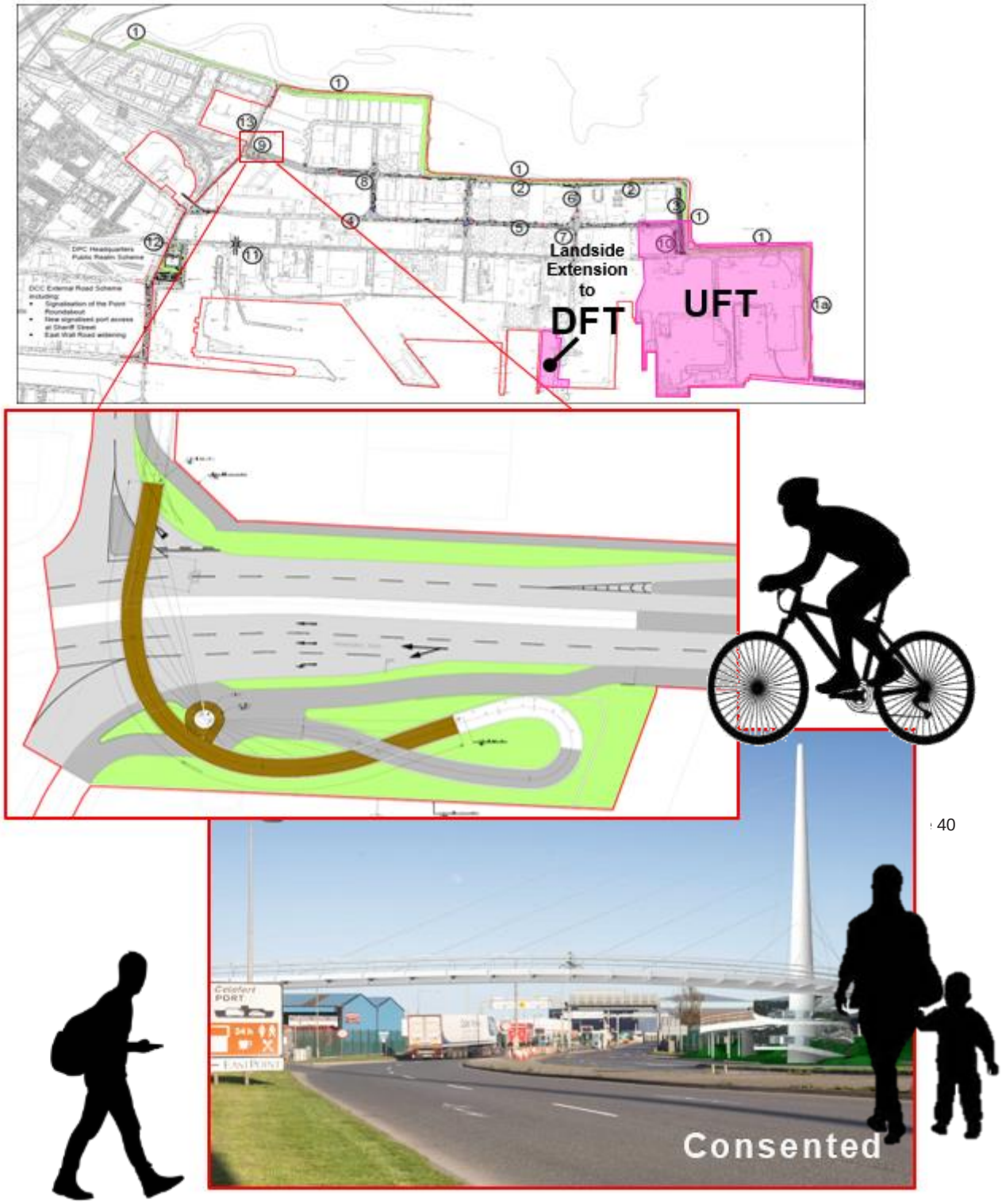


Figure 6.24 Consented Landmark Bridge Structure to Provide Pedestrian and Cycle Access across Promenade Road

As part of the consented road improvements the Promenade Road Roundabout is to be enlarged and will incorporate a pedestrian / cycle underpass as illustrated in Figure **6.25**. The underpass allows pedestrians and cyclists generated by the MP2 Project to pass safely under the roundabout and away from traffic flows.

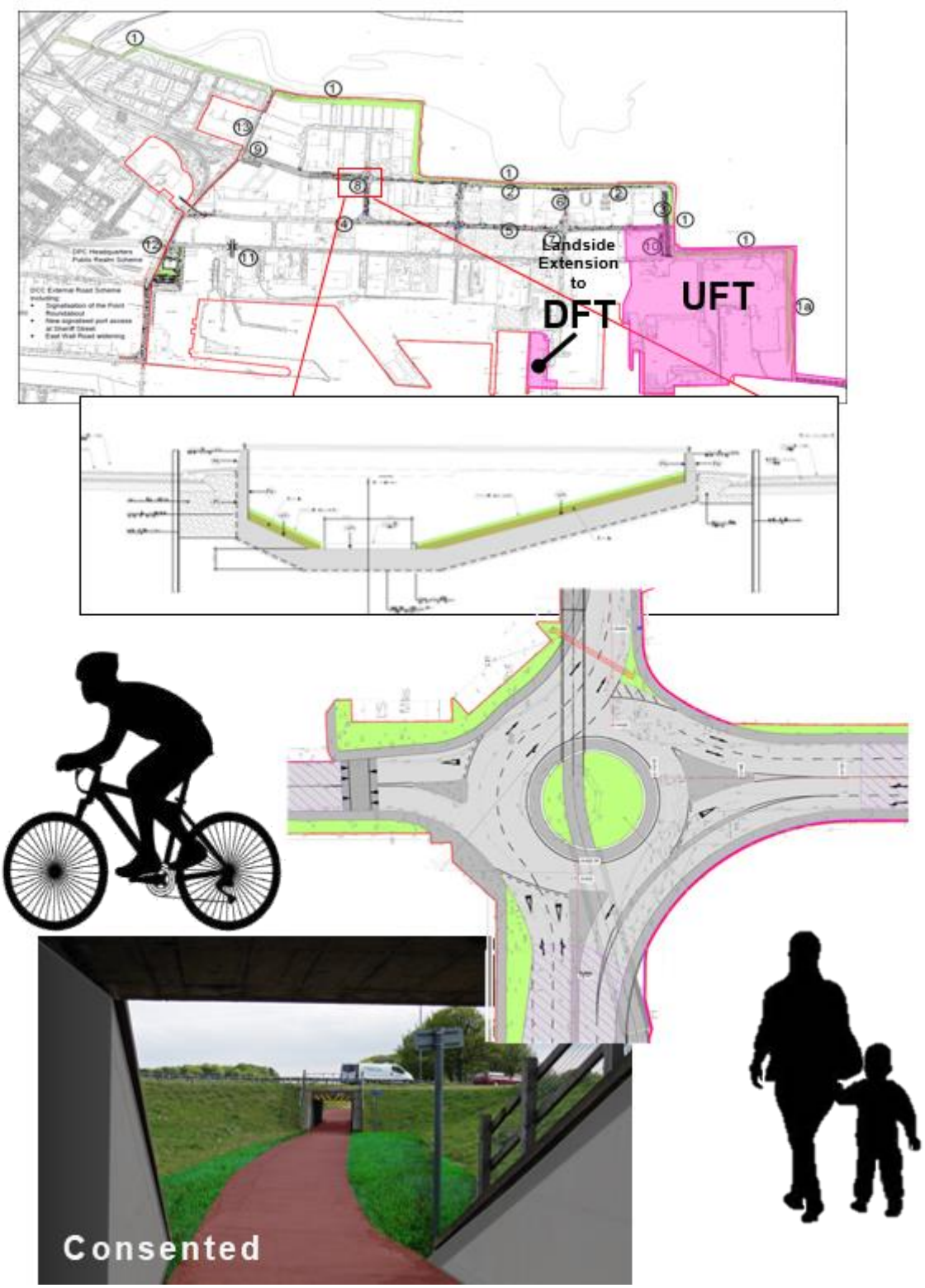


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Figure 6.25 Consented Enlarged Promenade Road Roundabout with Pedestrian / Cycle Underpass

6.3 Proposed Facilities

Should the application for permission for the MP2 Project be granted, there are a number of proposed that will be implemented to ensure connectivity to the MP2 Project by active travel and sustainable modes. These include proposals for foot passengers, public transport provision, staff parking, and set down and pick up at UFT.

6.3.1 Proposed Subsidised Shuttle Bus to Serve UFT

The Revised Masterplan states on Page 66:

> *"It is the objective of DPC to ensure that the north Port Estate secures public transport provision to the passenger ferry terminals. This public transport provision could be through either the provision of a dedicated bus route or the extension of the existing bus route to link with the LUAS terminal at the 3 Arena."*

This concept is illustrated in Figure **6.26**.

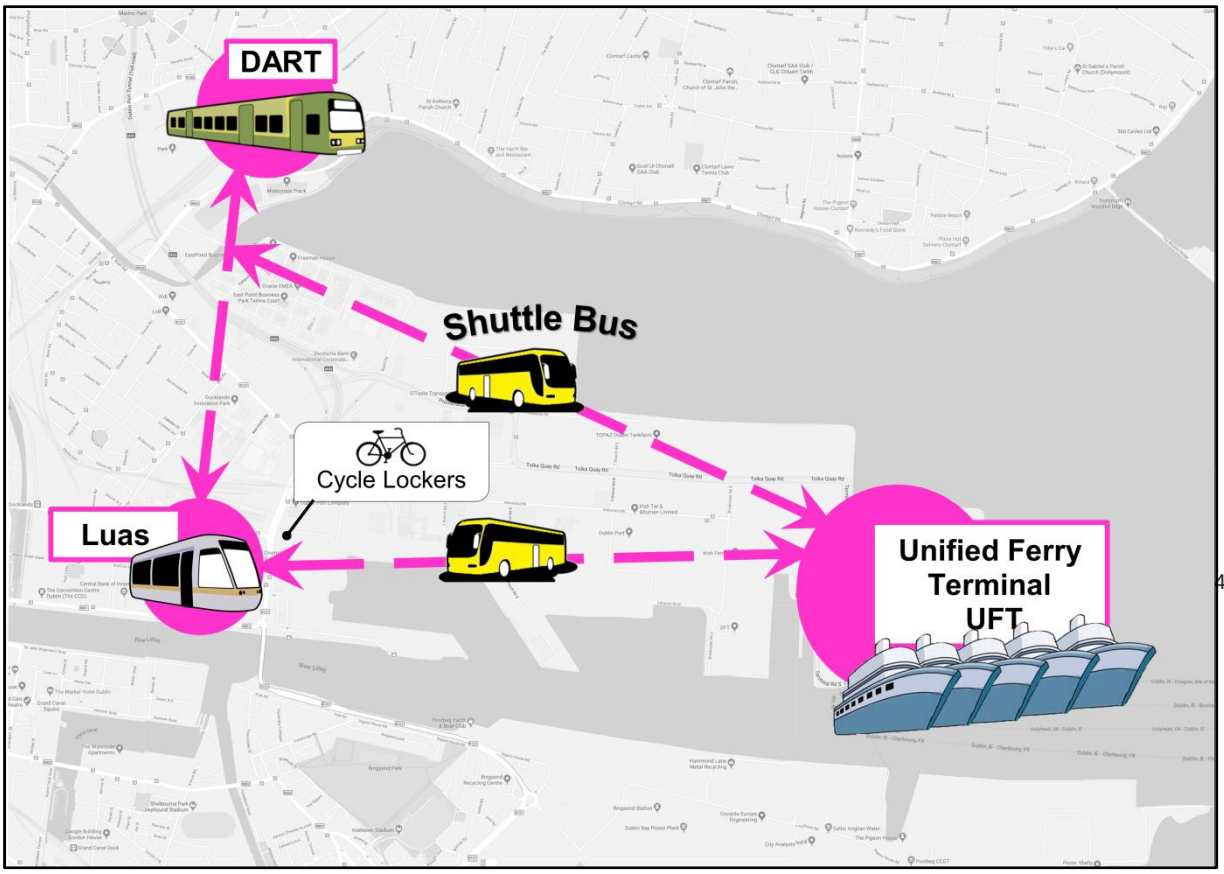

Figure 6.26 Illustration of Shuttle Bus Concept to Serve UFT

DPC is prepared to provide an annual financial subsidy of up to €100,000 for a period of five years (total €500,000) to a shuttle service operating to create a connection between the proposed MP2 Project, the DART in Clontarf and the LUAS at the Point, as illustrated in Figure **6.26** above. It would link into the EastPoint

Business Park, have multiple stops throughout the north Port Estate, and connect with the ferry Terminal 1 building.

DPC will progress this matter independently of, but in parallel to, the MP2 Project.

It is appropriate for NTA to design, tender and award the service as it can then be fully integrated and managed within the existing suite of bus services to provide an optimum service and cost benefit solution. To be successful, it would need to be relatively high frequency and seven days per week, which is reflected in the large subsidy.

The specification for the bus service is to be environmentally friendly to the greatest extent possible: preferably electrical, CNG at the very least (so as not to contribute to NOx and PMs), or hydrogen powered.

This enhances shuttle bus provision, in addition to the density of public transport services located at the perimeter of the Port Estate, the upgraded internal road network and cycle lockers at the Port Centre, will ensure that integrated multi-modal sustainable transport provision is available to all users of the MP2 Project.

6.3.2 Access and Movement Facilities within UFT

Connectivity by Foot and Cycle

Figure 6.27 and Figure **6.28** highlight the location of the consented Greenway in the vicinity of the UFT footprint. They show the proposed footway and cycleway connections for UFT along with the location and connectivity to the enhanced public realm and heritage scheme proposed as part of the MP2 Project.

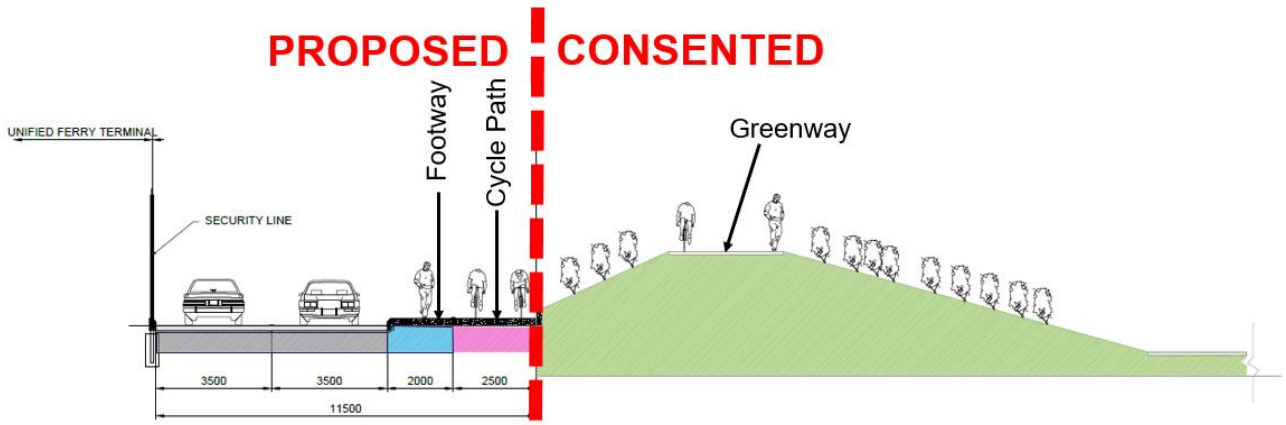

Figure 6.27 Cross Section of Proposed Pedestrian and Cyclist Access to UFT (See location in Figure below)

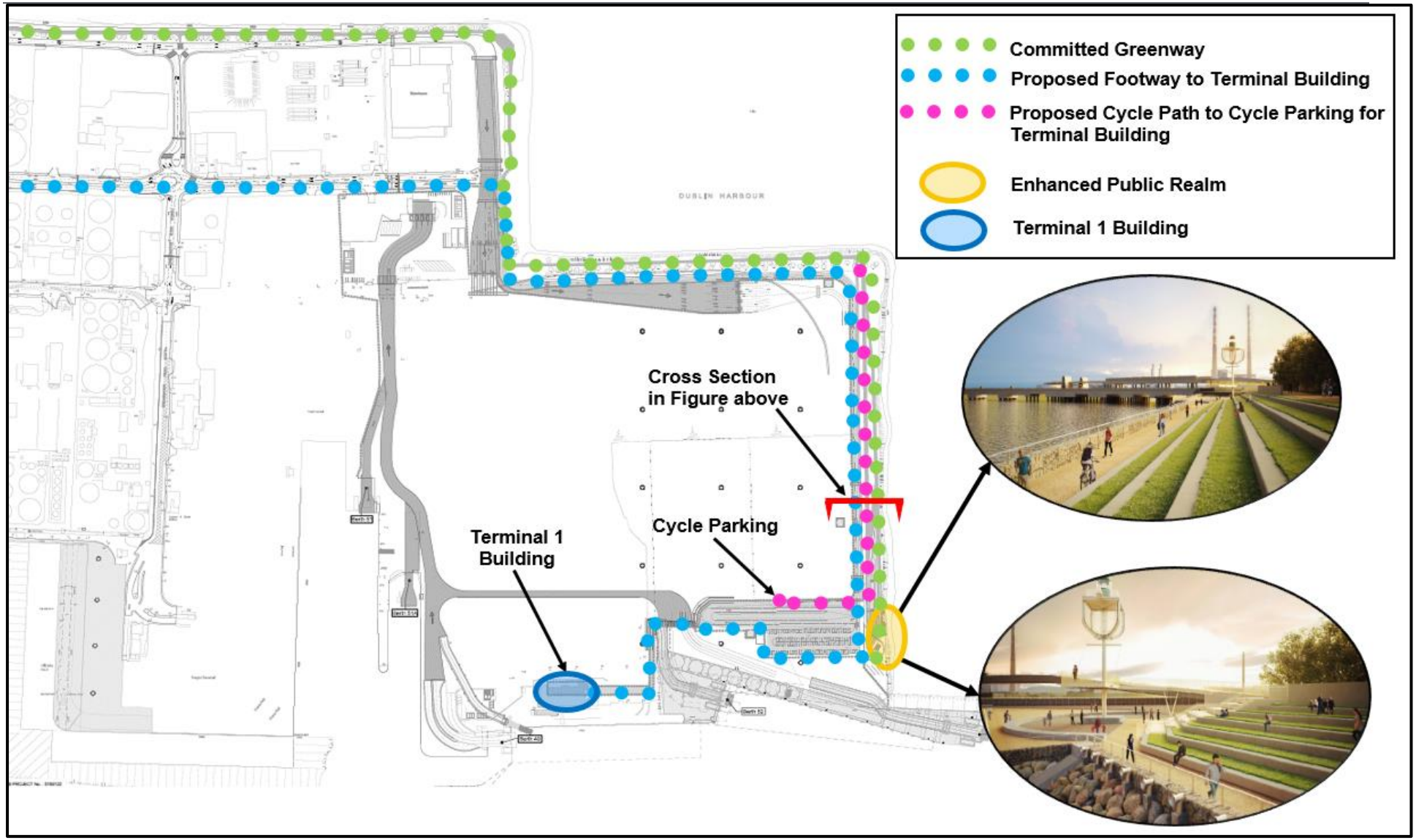

Figure 6.28 Proposed Pedestrian and Cyclist Access to UFT

Access to the Existing Passenger Terminal

It is proposed to retain the existing Terminal 1 building to serve UFT. The location of the building is shown in Figure **6.28** above.

Figure **6.29** below shows the location of:

- 171 Car Parking spaces;
- Cycle Parking;
- Bus / coach / set down / pick up turning circle;
- Bus / coach / set down / pick up spaces.

Patrons access between the parking area and the Terminal 1 building by a pedestrian underpass. Routes to access and exits points at the building will be adjusted to maintain separation of passengers and the public using the pedestrian underpass.

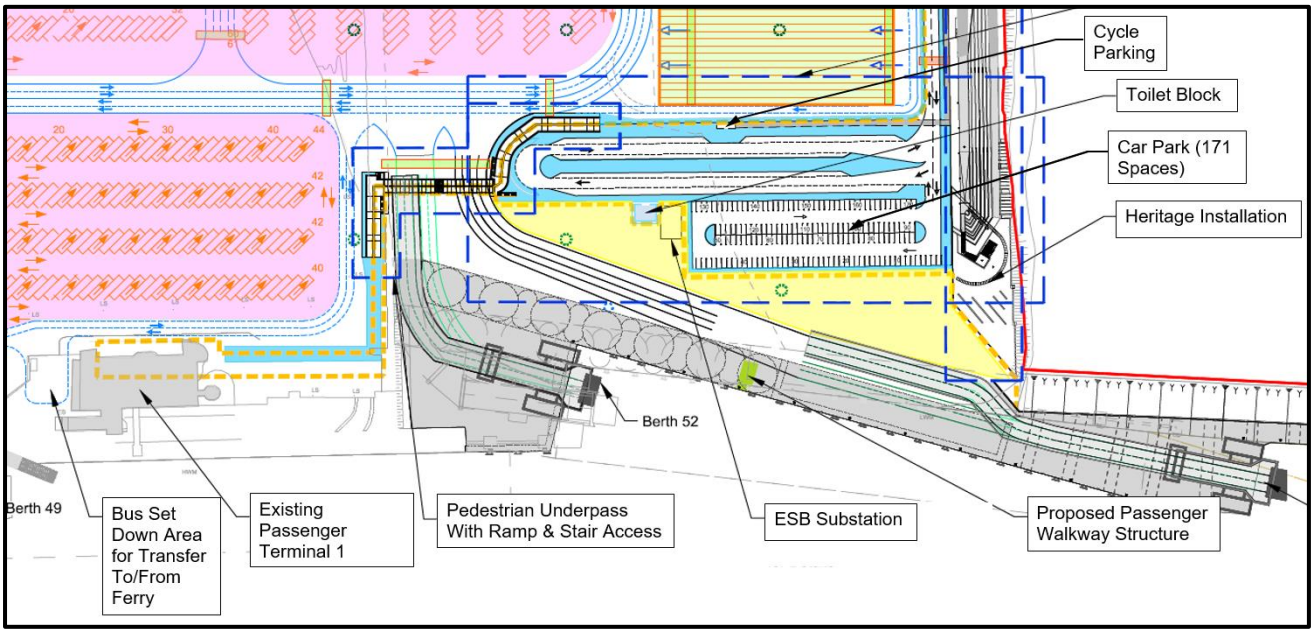

Figure 6.29 Section of Proposed Layout of UFT - Bus Turning, Car Parking and Pedestrian Walkway to Terminal 1 Building

Pedestrian Underpass

A pedestrian underpass is proposed to facilitate pedestrian links to the existing Terminal 1 building. It is proposed that the structure will have two independent corridors to separate passengers within the ISPS Restricted Area, accessing the Terminal 1 building from the Accompanied Staging Area, from members of the public, accessing the Terminal Building from the set down and parking area.

On each approach, on each side of the ISPS line, it is proposed to install part M Compliant ramps and ambulant disabled stairs. The proposed pedestrian underpass plan is presented in Figure **6.30** and a section through the underpass as indicated on plan is present in Figure **6.31**.

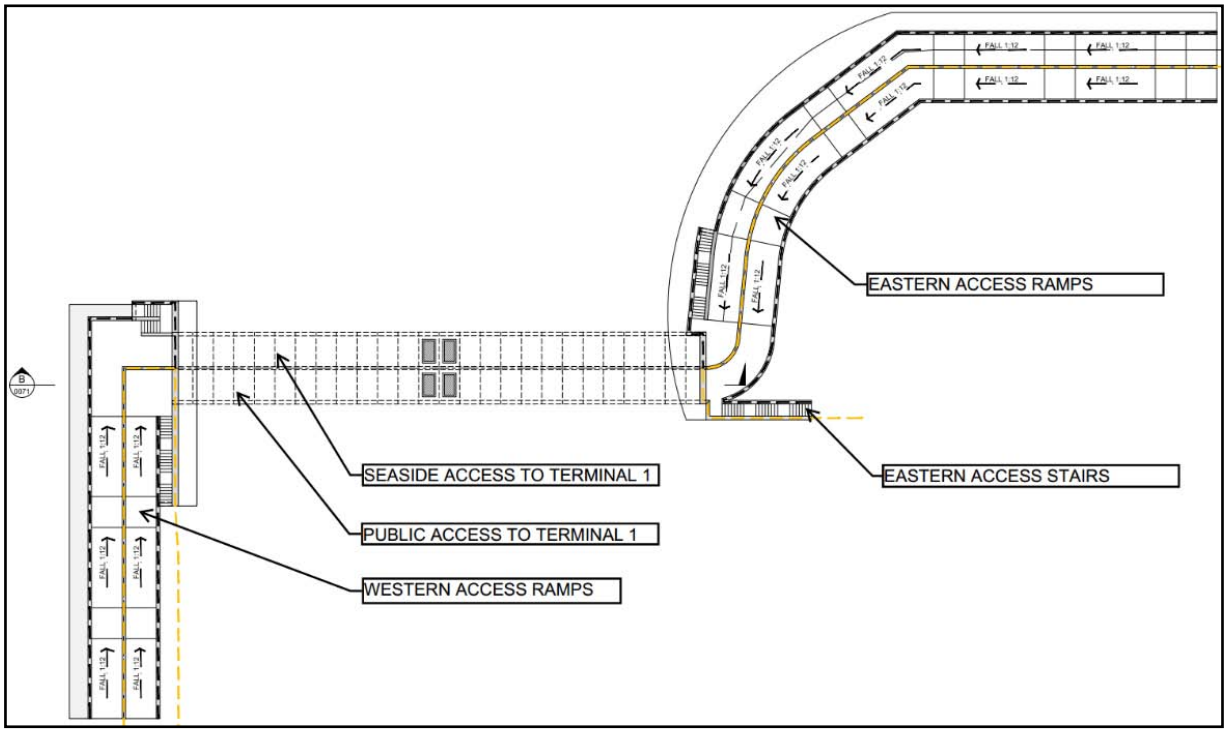

Figure 6.30 Proposed Pedestrian Underpass Plan

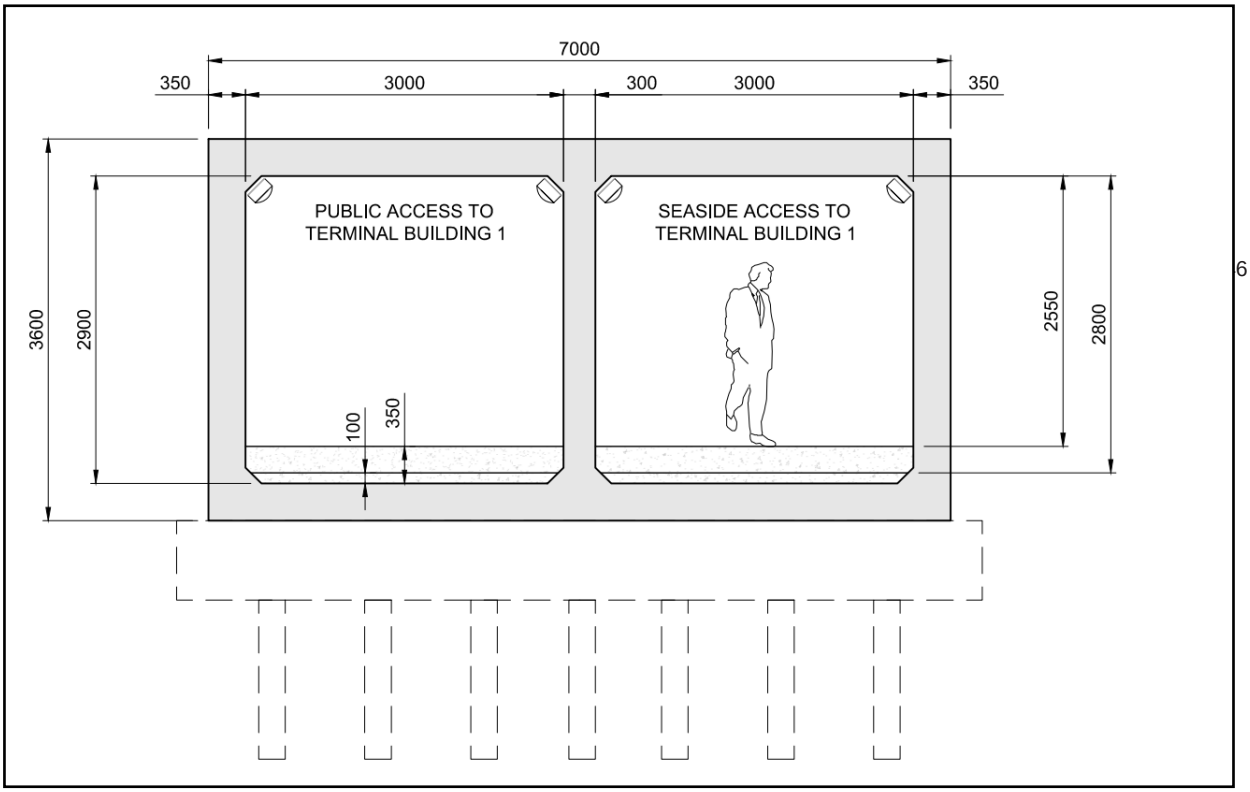

Figure 6.31 Proposed Pedestrian Underpass Section

Outbound Foot Passengers

The existing Terminal 1 building will facilitate foot passengers for all berths. As illustrated above, access to the Terminal will be via the proposed public road which runs around the northern and eastern perimeter of the UFT, outside of ISPS Restricted Area.

A set down area for both cars and buses and parking facilities is provided outside the south-east corner of the UFT. Access from this point to the terminal building will be on foot with a pedestrian underpass provided to cross pedestrians beneath vehicle movements associated with Berth 52 and 53. Foot passengers will use the existing check-in facilities to cross into the ISPS Restricted Area within the building.

Access to ships on Berth 49 will be available directly from Terminal 1 with access to vessels on other berths by bus from the building.

For Berths 51 and 53 the bus will drop passengers off within the vessel and the busses will drop off at passenger walkway structures for Berths 51A and 52.

Inbound Foot Passengers

Arriving foot passengers will be transported back to the Terminal 1 building by bus (and walkway from Berth 49). They will exit the ISPS Restricted Area through the check point for An Garda Síochána; Revenue and the Department of Agriculture, Food & Marine using the facilities already in place in Terminal 1. They will then walk through the public side of the pedestrian underpass to access the pick-up and public transport facilities available at the set down and parking area.

Vehicles departing this area will then pass along the public perimeter road on the north and east boundary of the UFT and cross the HGVs queuing pre check-in using the proposed signalised junction before joining the main port exit route on Tolka Quay Road.

Passenger Walkway Structures to Access the Vessels.

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It is proposed to provide passenger walkway plant to access Berth 51A and Berth 52. Each unit will include ambulant disabled stairs and an enclosed high-level walkway to facilitate access to the ship.

Appendix A

Sample Method of Travel to Work Survey

DPC MP2 Project – Method of Travel to Work Survey

1. Postcode of Current Residence

2. Workplace Address

Company

Address

City/Town

ZIP/Postal Code

3. What is your main mode of travel to work? (Select One)

- ☐ Walk
- ☐ Cycle
- ☐ Public Transport - Bus
- ☐ Public Transport - Rail
- ☐ Other (Please Specify)
- ☐ Private Car - Driver
- ☐ Private Car – Passenger (i.e. Car Share)
- ☐ Motorcycle
- ☐ Taxi

4. What is your average Journey time for work? (Select One)

- ☐ 0-15 minutes
- ☐ 15-30 Minutes
- ☐ 30-45 Minutes
- ☐ 45-60 Minutes
- ☐ 1-1.5 hours
- ☐ 1.5-2 hours
- ☐ 2 hours +

5. How far do you travel to get to work? (Select One)

- ☐ 0-5 miles
- ☐ 5-10 miles
- ☐ 10-15 miles
- ☐ 15-20 miles
- ☐ 20-25 miles
- ☐ 25-30 miles
- ☐ 30 miles +

6. What is the reason you use your current mode to work?

- ☐ Cheap
- ☐ To keep healthy
- ☐ Convenient
- ☐ Good for the environment
- ☐ Other (Please Specify)

7. What are your typical working hours? (Select One)

- ☐ Monday- Friday 9-5
- ☐ On site / Construction
- ☐ Night Work
- ☐ Flexible
- ☐ Shift Work (Please Specify)

- ☐ Other (Please Specify)

8. How often do you travel for work i.e. business trips? (Select One)

- ☐ Never
- ☐ Once or Twice per week
- ☐ Once or Twice per Month
- ☐ Daily
- ☐ Other (Please Specify)

9. What is your main mode of travel for business? (Select One)

- ☐ Walk
- ☐ Cycle
- ☐ Public Transport - Bus
- ☐ Public Transport - Rail
- ☐ Other (Please Specify)
- ☐ Private Car - Driver
- ☐ Private Car – Passenger (i.e. Car Share)
- ☐ Motorcycle
- ☐ Taxi

10. Would you be interested in car sharing?

- ☐ Yes
- ☐ No

11. Do you encounter problems commuting by active travel or public transport methods?

- ☐ Yes
- ☐ No (Please Specify)

12. Have you any other suggestions relating to active travel or public transport facilities at Dublin Port Estate?

DONE