



Public Consultation Brochure

# East Coast Railway Infrastructure Protection Projects

Preferred Scheme for  
**MERRION GATES TO SEAPOINT BEACH**



Rialtas  
na hÉireann  
Government  
of Ireland

Tionscadal Éireann  
Project Ireland  
**2040**



**Jacobs**





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## 01 Introduction to the East Coast Railway Infrastructure Protection Projects

**The East Coast Railway Infrastructure Protection Projects (ECRIPP) were established to provide improved coastal protection against predicted climate change effects of sea level rise and coastal erosion on the east coast railway corridor between Merrion Gates (Co. Dublin) and Wicklow Harbour (Co. Wicklow).**

**In recent years Iarnród Éireann has seen an increase in the frequency of storm events as a result of climate change. This necessitates more and more maintenance works to be carried out to respond to the effects of coastal erosion, wave overtopping and coastal flooding on the east coast rail line and supporting infrastructure. These works result in increasing disruption to existing services.**

The Dublin to Wicklow section of the East Coast Railway is a critical part of the Iarnród Éireann rail network, with southside DART, Gorey commuter and Rosslare Europort Intercity services operating along this scenic route. ECRIPP will deliver the necessary enhanced coastal protection to the existing railway infrastructure in a number of key locations on this rail network.

### **Why are Coastal Protection Measures Required?**

Iarnród Éireann has first-hand experience of the impacts of climate change on railway infrastructure on the east coast. Some areas of the east coast rail line have seen encroachment through the loss of coast of up to 20-30 metres in the last 10 years alone.

This has resulted in large losses of land, and incursions to such levels that the railway line between Dublin and Wicklow is vulnerable to further loss due to coastal erosion. This rate of loss will increase in line with climate change as storm frequency and intensity increases due to climate change.

These key sections of the coastal railway south of Dublin to Wicklow are particularly vulnerable to the impacts of coastal erosion, coastal flooding, wave overtopping and cliff instability. All of which are expected to increase both in frequency and severity in future years.

Each location is a standalone project as part of ECRIPP to address coastal erosion on the east coast railway corridor. Each project will be taken forward as a separate planning application submission and the programme for delivery may vary between the projects.

ECRIPP is funded by the Department of Transport, through the National Transport Authority under Project Ireland 2040 and is provided for in the Programme for Government and the National Development Plan.



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Figure 1: Seapoint during Storm Emma 2019





Five key locations, along a 65 km route have been **identified and assessed** as particularly exposed to coastal erosion and climate change effects.

### Key Locations

The locations of the five projects are:

- Merrion Gates to Seapoint Beach
- Whiterock Beach to South Killiney
- Bray Head to Greystones North Beach
- Kilcoole to Newcastle
- Newcastle to Wicklow Murrough

Figure 2: ECRIPP Key Locations Map





Figure 3: White Rock, Killiney

### Objectives of the East Coast Railway Infrastructure Protection Projects

The objectives of the projects are:

- Support the continued safe operation of rail services.
- Increase railway infrastructure resilience to climate change.
- Provide improved and sustainable coastal protection works against predicted climate change effects such as sea level rise, coastal erosion and storm surges on the east coast railway corridor.
- Secure the railway line for future generations.
- Allow for the long-term efficient management and maintenance of the railway corridor.
- Support sustainable low carbon local, regional, and international connectivity fostering a low carbon and climate resilient society.

### Benefits of the East Coast Railway Infrastructure Protection Projects

Iarnród Éireann's role as a sustainable national transport system is recognised in the publication of the All-Island Strategic Rail Review commissioned by the Governments of Ireland/Northern Ireland which proposes a very significant increase in capacity of our existing infrastructure and future expansion of the rail network across the island. ECRIPP will aid Iarnród Éireann increased capacity and expansion ambitions by supporting the development of the DART+ Programme and other improvements to the rail network on the east coast of Ireland.

## 02 Public Consultation Process

The East Coast Railway Infrastructure Protection Projects includes two non-statutory public consultation phases.

Public Consultation 1 sought feedback on the Emerging Preferred Scheme for the five projects. This input helped refine the designs for Public Consultation 2 where the Preferred Scheme for each project is now presented.

Public consultations are an opportunity for communities and stakeholders to share their views while the design is still in development.

Feedback can be submitted via the project website, email, phone, or post. More details are available in the “How to Engage” section.

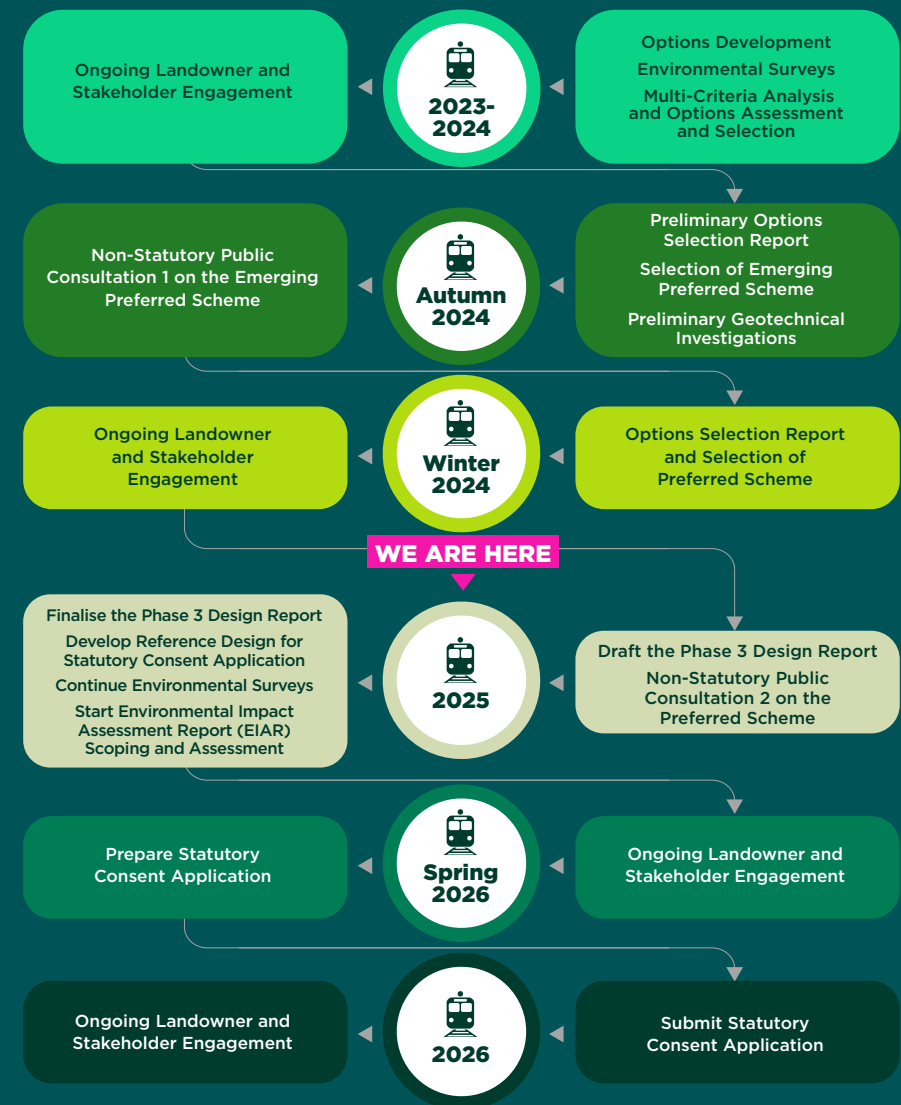


Figure 4: Consultation Roadmap



*Figure 5: Bray Tunnels*

## 03 Current Design Status

### **The project is in the Phase 3 Design Stage of the Preferred Scheme.**

This stage refines the concept designs, clarifies structure, geometry and explores construction methods and ways to minimise impacts. Feedback from Public Consultation 1 has also been incorporated.

At Public Consultation 2, stakeholders have another opportunity to provide commentary on the Preferred Scheme, which will be documented and considered in the preliminary design.

Once this information has been reviewed and considered, the Preferred Scheme will be finalised and the preliminary design completed.

This design may be adjusted further based on technical, environmental, and stakeholder input.



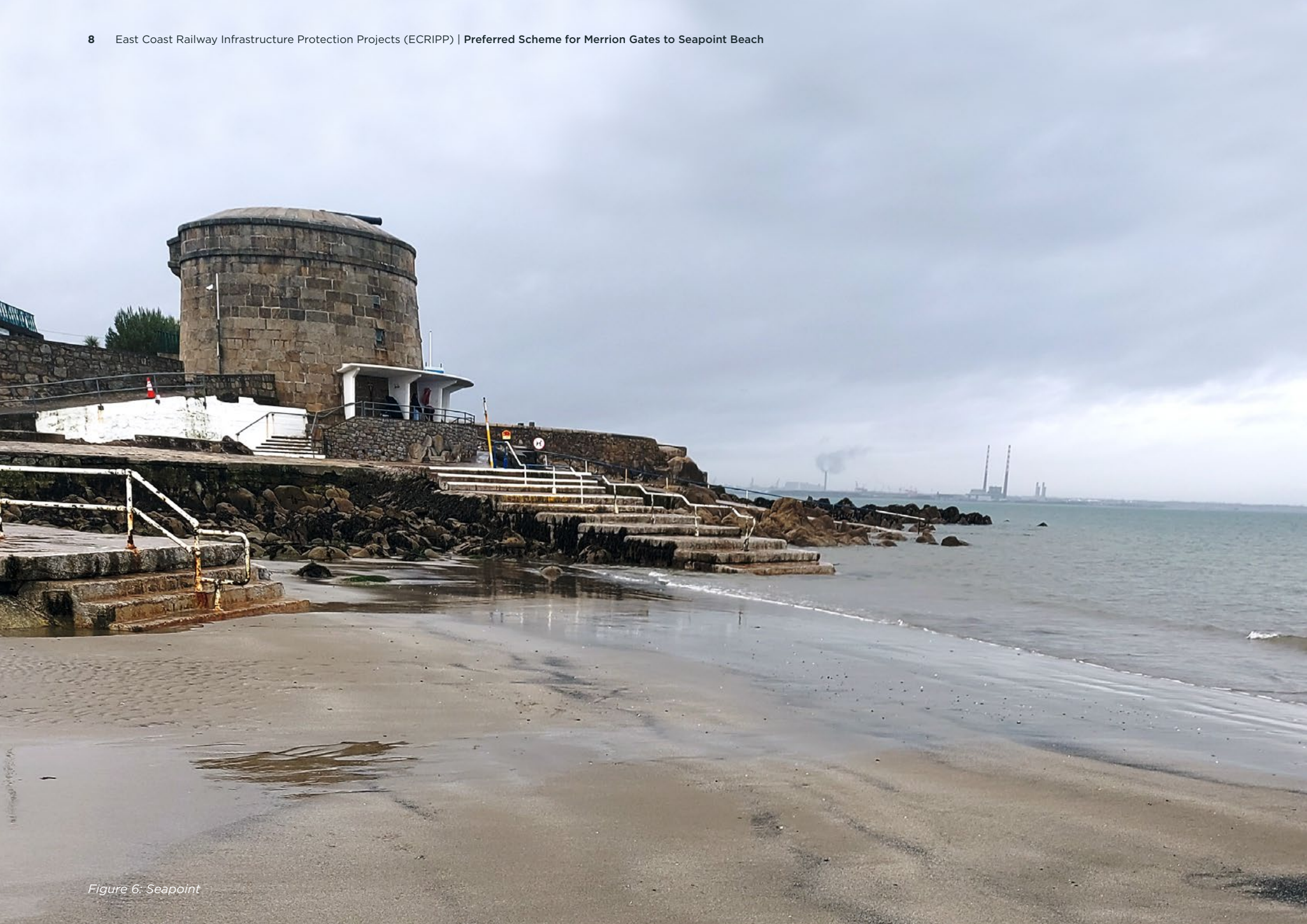


Figure 6: Seapoint





*Figure 7: Typical Rock Revetment*

## 04 Key Inputs of ECRIPP

The concept designs for each of the options considered the following:

- Wave climate and extreme water level data has been extracted from hydrodynamic modelling work undertaken during preliminary investigations for ECRIPP.
- Initial rock stability calculations have been undertaken to identify the required rock size to ensure long term stability of the rock armour.
- An assessment of wave overtopping rates during storm events has been undertaken. This includes an allowance for sea level rise. This analysis informs the required geometry of the improved defences to provide the required Standard of Protection (0.5% Annual Exceedance Probability, also known as a 1 in 200-year storm protection level).
- The condition of the existing coastal defences has been informed by condition survey.
- Defence type and material selection have been selected to provide a long design life and to minimise future maintenance requirements.
- Constructability and technical viability have been considered in the design to ensure the options are feasible.
- Within the bounds of each option form, the impact on the environment and community have been considered at a high level through multicriteria assessment (MCA).

## 05 Option Selection Process

**To assist the design development process and to determine the Preferred Scheme for each of the five projects, a structured engineering process has been followed.**

### STAGE 1

**Preliminary Assessment consists of the assessment of a long list of options against engineering, economic, and environmental criteria to evaluate the ‘feasibility’ of each option to meet the project objectives and requirements.**

This approach allowed for the long list of options to be filtered to a shorter list of feasible options. All feasible options were brought forward to Stage 2 where they could be explored in greater detail.

### STAGE 2

**The Multi-Criteria Analysis process consists of a more detailed multi-disciplinary comparative analysis of the feasible options that passed through Stage 1.**

The options for addressing coastal erosion and wave overtopping risks to the railway were evaluated using seven criteria: economy, safety, environment, accessibility and social inclusion, integration, engineering/technical, and planning risk to identify the Emerging Preferred Scheme.

Public Consultation 1 provided the public with the opportunity to provide commentary on the Emerging Preferred Scheme. This information has been reviewed and considered and the Preferred Scheme has been selected to progress to phase 3 design.

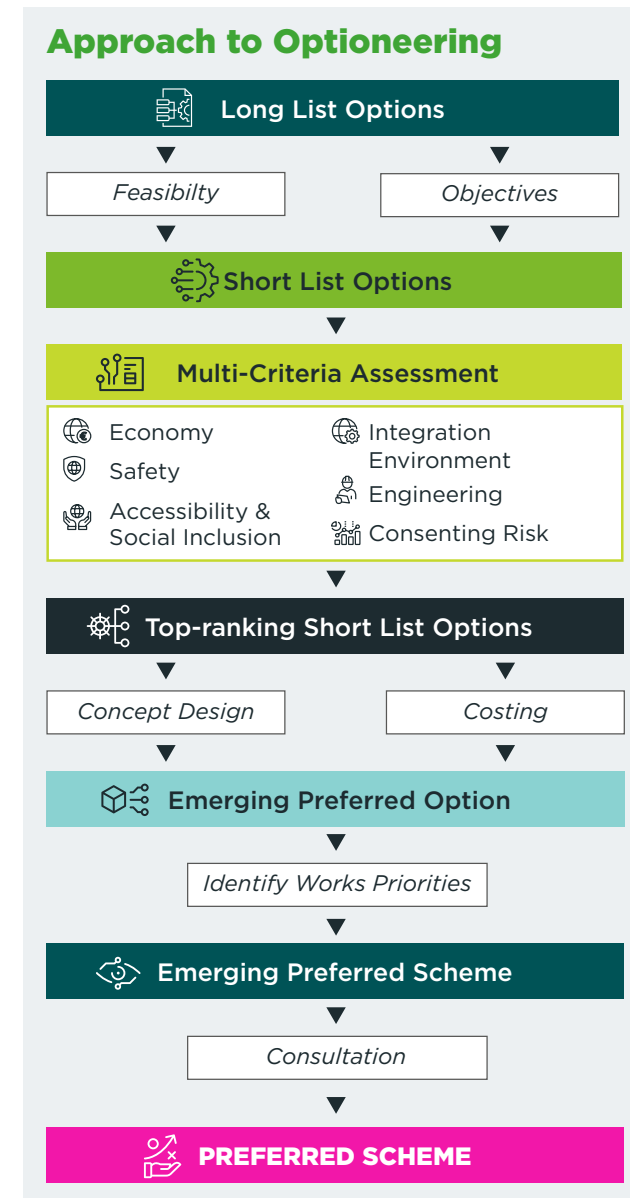


Figure 8: Approach to Optioneering Scheme





*Figure 9: View from Blackrock beach*

## 06 The Preferred Scheme — Merrion Gates to Seapoint Beach

**The Merrion Gates to Seapoint project is an urban frontage with the trainline running along the coastline. Much of this frontage is defended, mostly with natural stone revetments and seawalls. The foreshore along this frontage is soft sediment forming intertidal flats. The railway is relatively low-lying along this frontage and the main hazard is wave overtopping causing disruption and damage to the railway line. The project area is located within a number of designated sites.**

### Project Objectives

The objectives of the project between Merrion Gates and Seapoint are:

- To reduce the impacts of wave overtopping leading to disruption of service and damage to the railway

### Preferred Scheme

The preferred scheme comprises raising and strengthening the current defences along the majority of the frontage. The approach to raising the height of the defences differs by location due to the variation in the existing shoreline geometry, the variation in the available space for construction and the complexities around maintaining amenity provision.

### Merrion Gates to Booterstown Station

Rebuild the existing wall with a pre-cast concrete wall anchored for stability.

The existing wall is not suitable to be raised to withstand wave loading over the next 50 years. The existing wall will be rebuilt from the top of the existing revetment level using pre-cast concrete with ground anchors (these will not be visible) installed to provide the required stability. The new wall will be approximately 1.3m higher than the existing wall.

### Booterstown Station to Blackrock

Construct a new 1.3m high concrete wall seaward of the existing masonry wall, which will remain.

### Booterstown Station

Protection against wave overtopping will be provided whilst maintaining the existing access and amenity features. The existing walkway on the seaward side of the seawall will be raised and improved. A new concrete wall on the seaward side of the walkway will be constructed and access to the foreshore maintained. The fence alongside the platform will be replaced with a 1.35m high concrete wall, raised further with 0.9m high flood glass.

### Williamstown Martello Tower

Raise and improve the walkway; build new seaward concrete walls whilst maintaining foreshore access.

### Blackrock Station North

To preserve public foreshore access, a new concrete wall will be built seaward of a raised and improved walkway. Along the platform edge a new 0.5m concrete wall will be constructed with a further 0.8m of floodglass installed on top of the wall

### Blackrock Station

New walls will be constructed landward and seaward of the existing wall. The existing walkway along the seaward side of the seawall will be raised and a new wall will be installed on the seaward face of the raised and improved walkway to provide overtopping protection. A new backwall will be constructed along the line of the existing fence, raised further with floodglass alongside the station platform. Public access to the foreshore will be retained.

### Blackrock Bathing Area

The existing wall will be retained but will be strengthened and locally raised. Floodgates will be used at gaps in the existing wall. Back supports will be added to provide support against wave loading.



### **Southern Blackrock**

Raise the existing seawall and construct new rear wall along the railway fence line. The area between the two walls will be raised to provide improved amenity area.

### **Seapoint Station**

The existing wall will be raised by up to 0.9m by a concrete L-shaped wall which will provide back support to the existing wall and raise the platform level.

### **Central Seapoint Beach**

A new concrete seaward wall will be constructed over a raised and improved walkway over the existing revetment. New amenity steps will be provided seaward. The existing fence alongside the railway will be replaced with a 1.3m concrete wall. No works will be undertaken to the existing wall but the footpath between the existing wall and the new rear wall will be raised.

### **Southeast Seapoint Beach**

The existing wall will be raised by approximately 0.9m and a new rear wall will be constructed along the fence line. The footpath between the two walls will be raised to preserve views.

### **Land Acquisition**

The Project Team have been identifying and engaging with landowners in relation to temporary and permanent land take for the project. This information will support the planning application and land acquisition requirements.

### **Environmental assessment**

Walkover surveys of the project area to inform the environmental baseline are ongoing. The Project Team have applied to MARA for a Marine Usage Licence (MUL) to undertake environmental baseline surveys in the foreshore which will inform the Environmental Impact Assessment Report and the Appropriate Assessment.

### **Construction**

Construction of the project will require staging areas for site compounds, laydown zones, and material load-out points, particularly for rail-based delivery. A main compound will support welfare and logistics, with smaller satellite compounds positioned closer to work areas. Most construction will be carried out from the trackside, so staging areas will likely be remote from the actual works.

A small northern site may be used for crane operations and material handling, though its limited space and proximity to residences pose challenges. An alternative site south of Merrion Strands offers better space and access, making it more suitable for crane use, welfare facilities, and laydown areas.

Precast units are expected to be fabricated locally, transported to staging areas, and delivered to site via rail during overnight possessions. Equipment will be mobilised from Merrion Gates across the foreshore using temporary trackways to protect sensitive areas. Construction will involve removing and replacing existing walls with precast sections anchored for stability, and building new seawalls using a mix of precast and in-situ elements.

Rail-mounted equipment will be used within overhead line constraints, which are considered low risk. The construction will follow a rolling sequence with staggered work spreads to avoid delays. Precast units will be connected using in-situ concrete or mechanical fixings, with joints placed to accommodate movement and environmental effects.

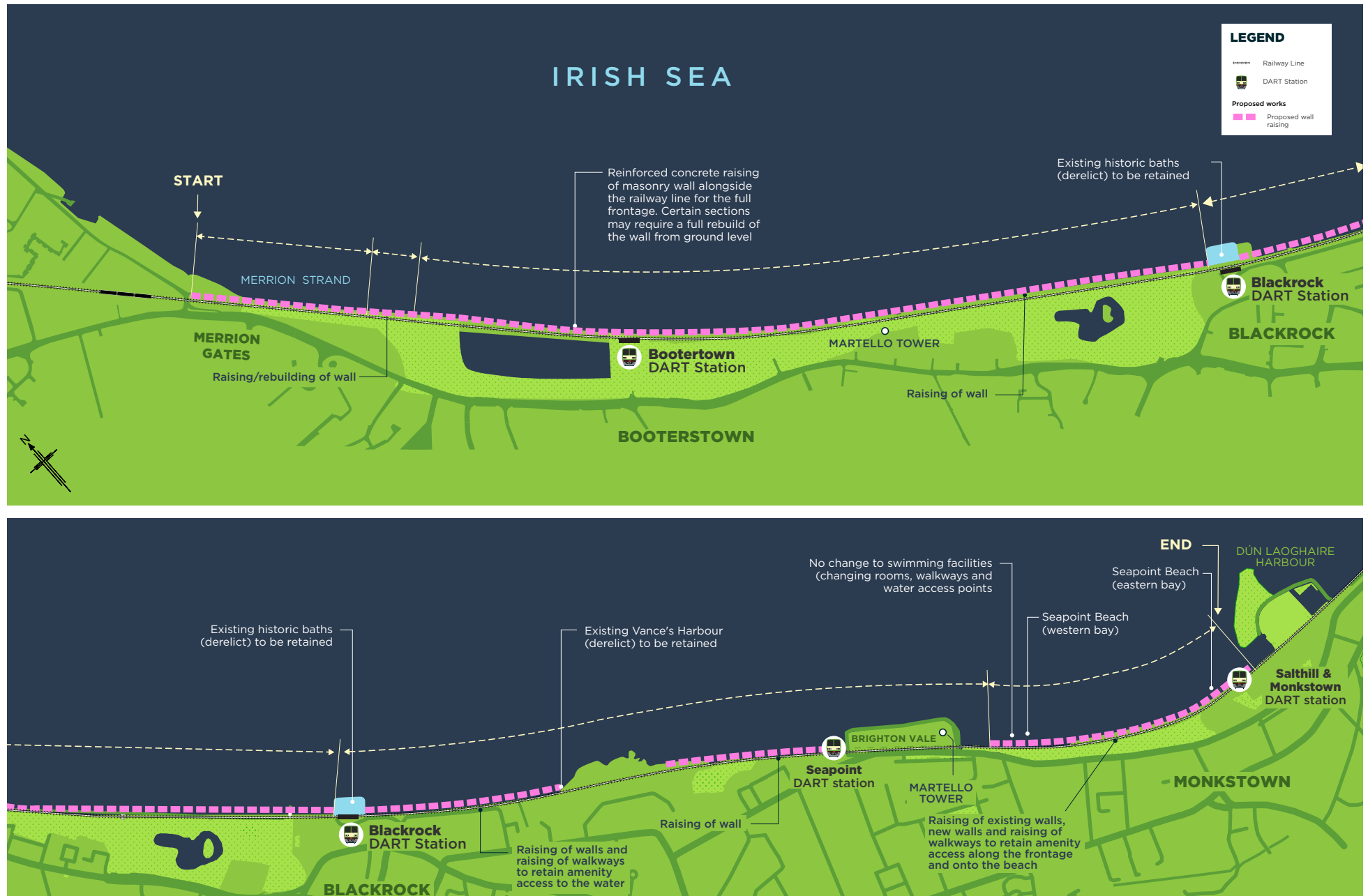


Figure 10: Preferred Scheme Plan - Parts 1 & 2





Figure 11: Illustrative view of Blackrock Station





Figure 12: Illustrative view of Booterstown Station



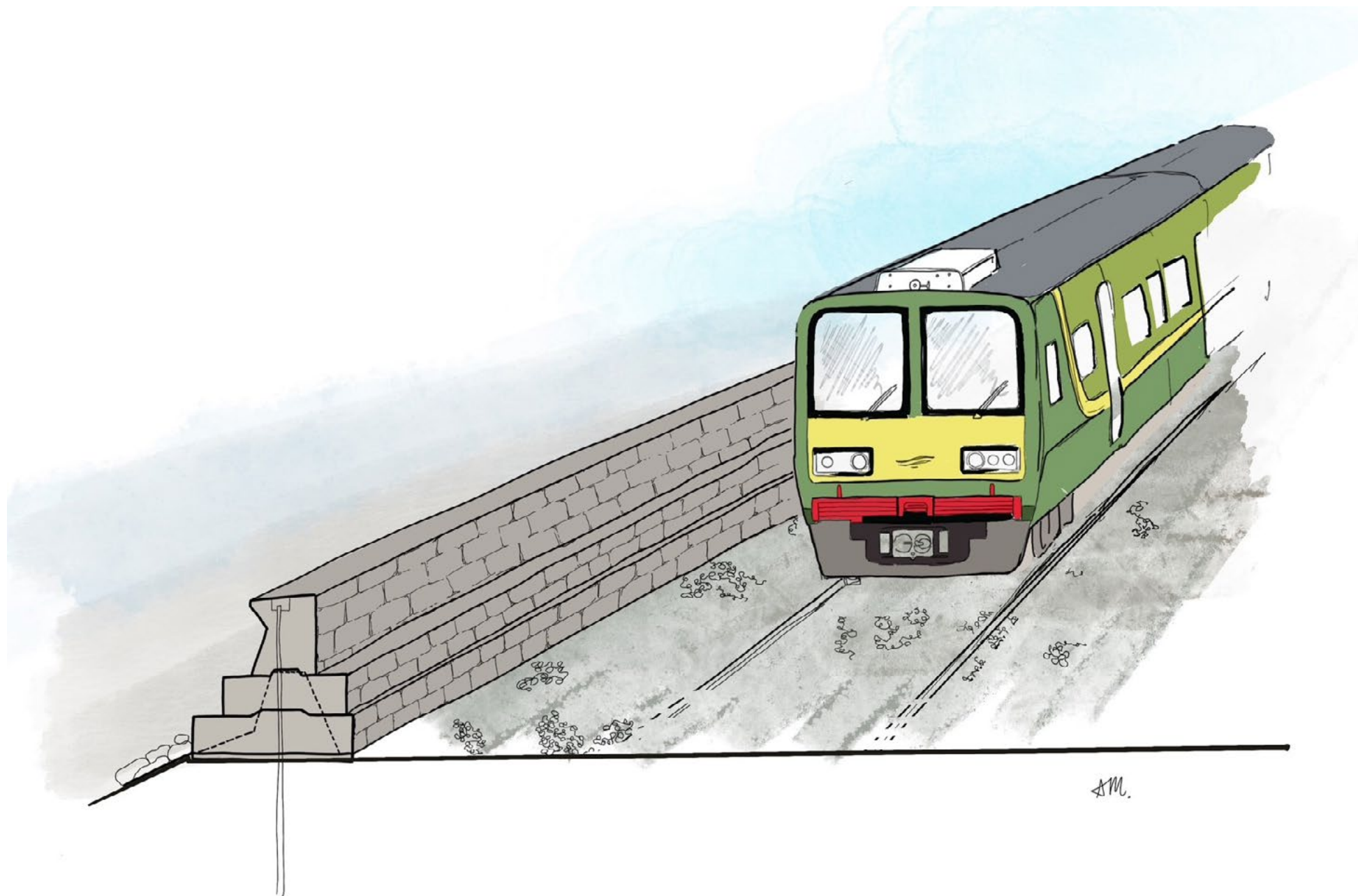


Figure 13: Illustrative view of Merrion section



Figure 14: Illustrative view of Seapoint walkway





Figure 15: Illustrative view of Seapoint walkway

## 07 Next Steps

### Further Design Development

After this consultation, all feedback will be reviewed and used to help finalise the Preferred Scheme. A Consultation Findings Report will be published to document the feedback received.

Next steps include continued design development and option refinement, which will inform the Environmental Impact Assessment and Appropriate Assessment and

other documentation in support the statutory planning process for the Project. Stakeholders will be afforded the opportunity to engage on the Project again at this point through the statutory stakeholder engagement process.

Public feedback is welcome throughout the design process and can be submitted via the project website, email, phone, or post.



## 08 How to Engage

**The project team is inviting public feedback on the Preferred Scheme. This is an opportunity for communities and stakeholders to share their views on the proposed coastal protection measures.**

Local knowledge is essential to help shape and improve the design, ensuring it benefits both local communities and railway users, while also protecting infrastructure for future generations.

The consultation period is now open, and full details, including submission deadlines, are available on the project website.

**Please contact us via the following means:**

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