

# Environmental Management During Construction of the S2S Cycleway in Clontarf, Dublin



# Location – opposite North Bull Island





# North Bull Island – Environmental Status

- Designated as an official bird sanctuary under the Wild Bird Protection Act, 1931 (first in Ireland)
- Established as a National Nature Reserve in 1988
- Special Area of Conservation (North Dublin Bay SAC)
- Biogenetic Reserve (Council of Europe)
- **UNESCO World Biosphere Reserve**



# Overview of the Scheme

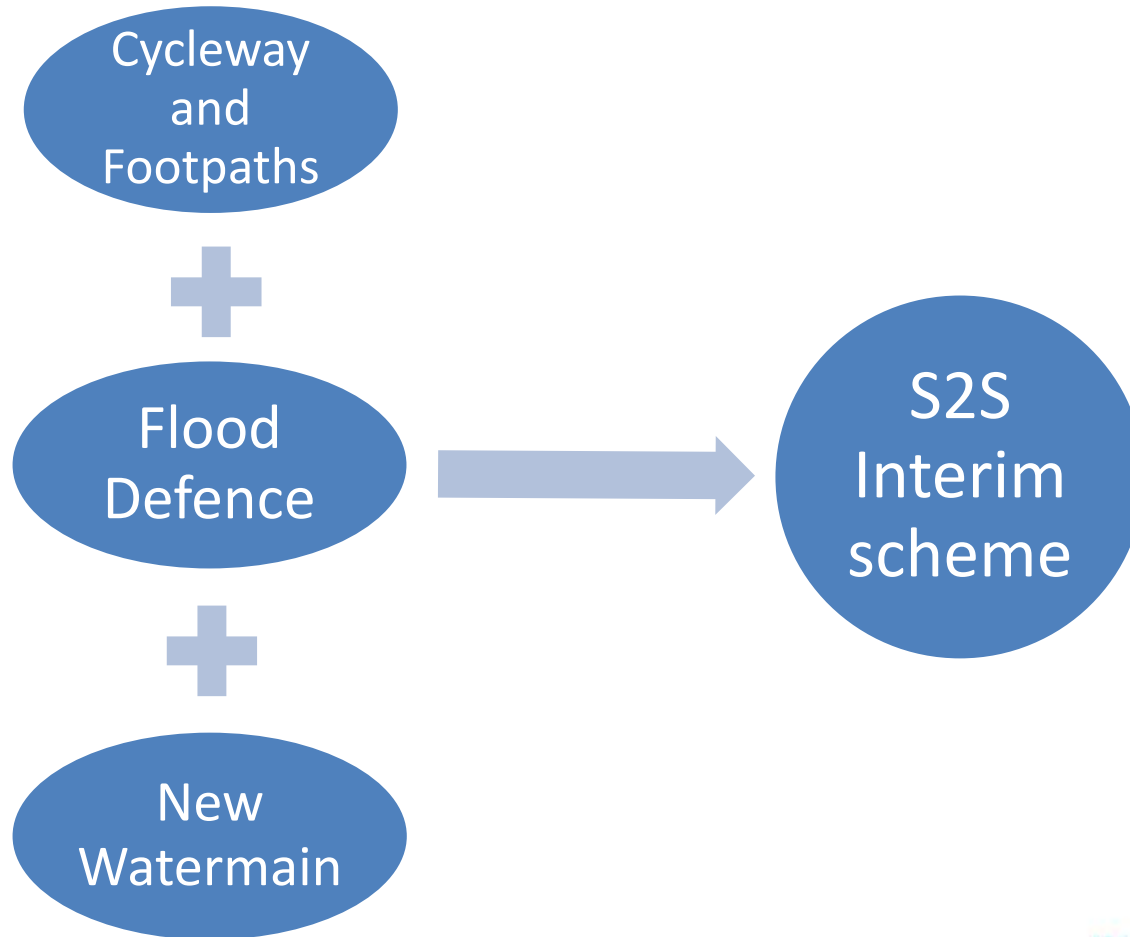
The scheme involved the combination of three different projects along a 2.0km length of promenade:

- Construction of segregated premium cycleway, carriageway realignment, and associated traffic calming measures;
- Construction of coastal flood defence measures;
- Installation of new 600mm water main along the length of the scheme.



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# Overview of the Scheme



# Benefits of Combining the Projects



Better Value for Money

New Segregated Cycleway for Commuters and Tourists

New watermain laid during excavation

Sea Defence Element Added to Seawalls

Greater Efficiency in Planning, Design and Construction

Less Disruption to the SAC / SPA and Wildlife



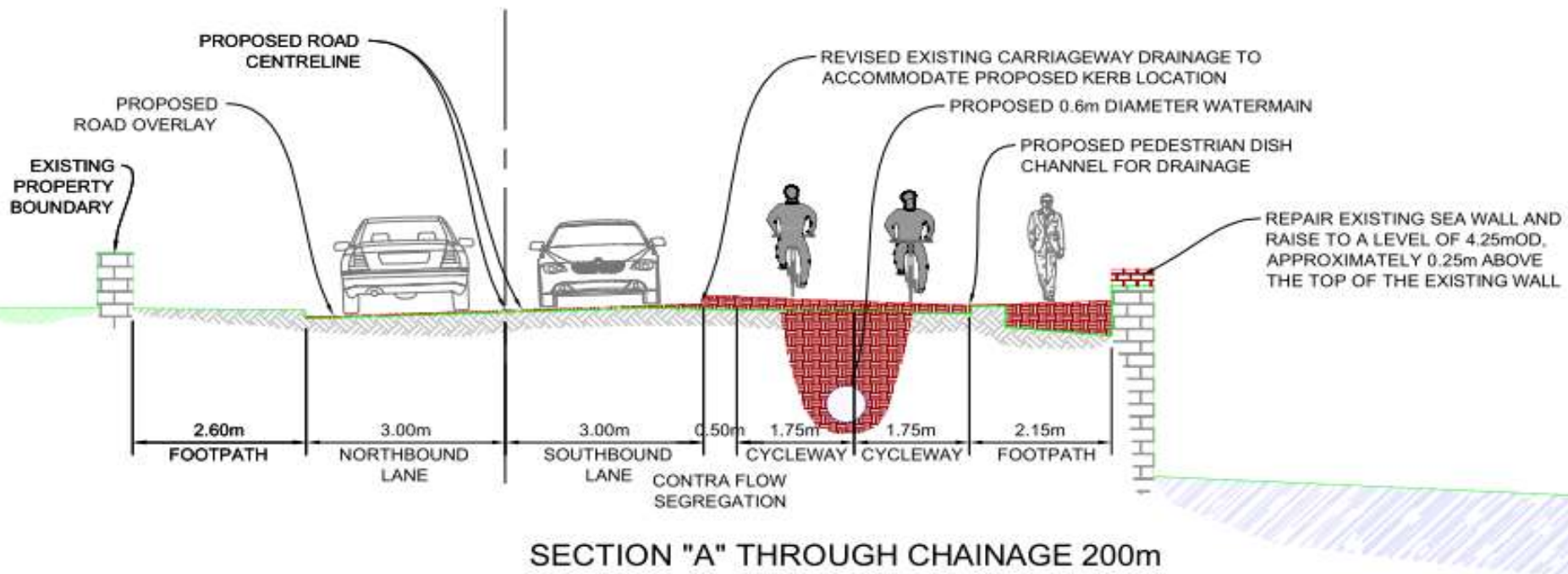


# Typical Cross-section of Scheme





# Typical Cross-section of the Scheme



SECTION "A" THROUGH CHAINAGE 200m  
(SCALE 1:100 @ A1)



# Amenity Improvements



Improved  
Access along  
Shoreline



Tourism &  
Recreation



Renovation of  
Tram Shelter



# Streetscape Environment Improvements

Energy  
Efficient LED  
Lighting



Reduced  
Noise  
Pollution



Improved  
Pedestrian  
Safety

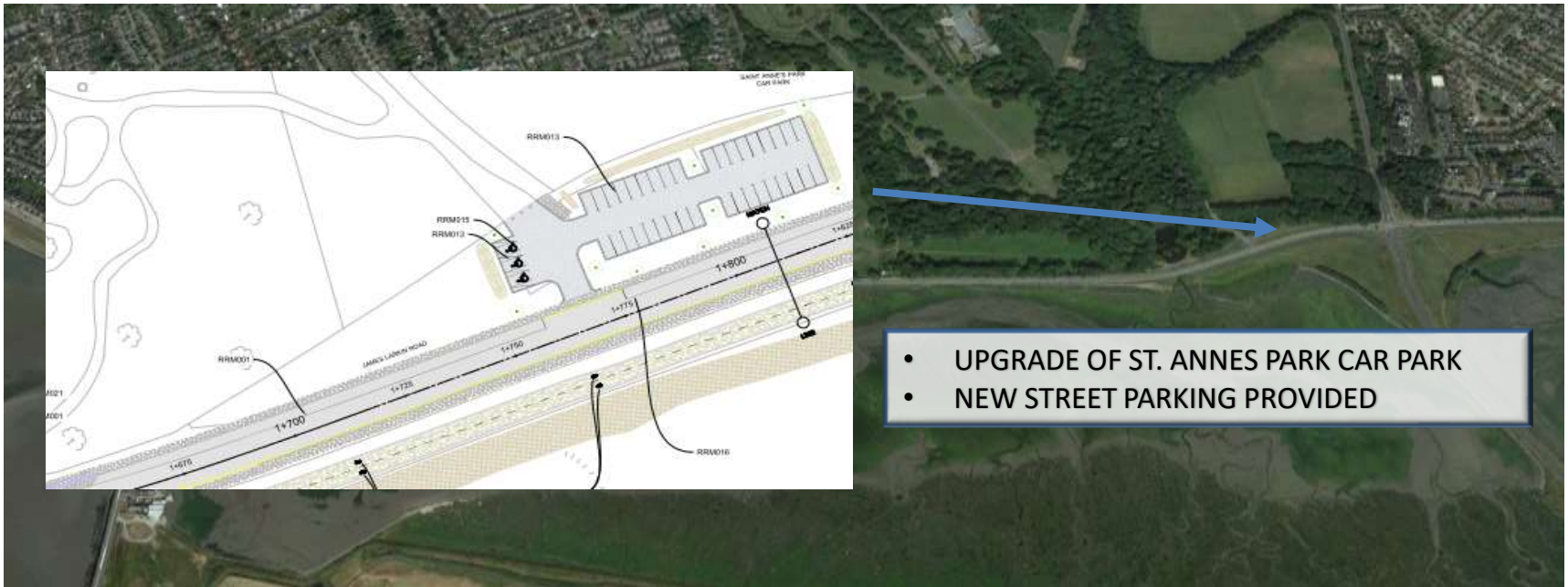




# Reclaiming and Reusing Space



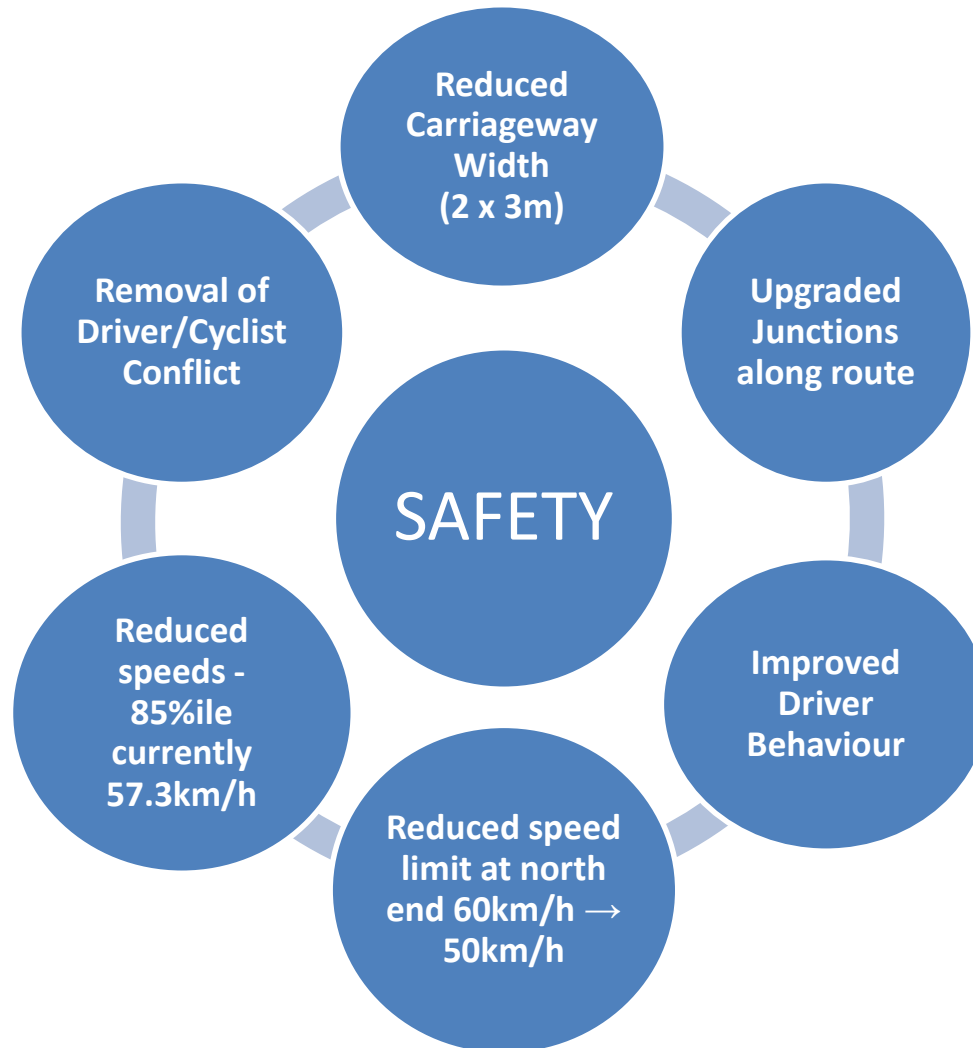
# Improved Parking Provisions







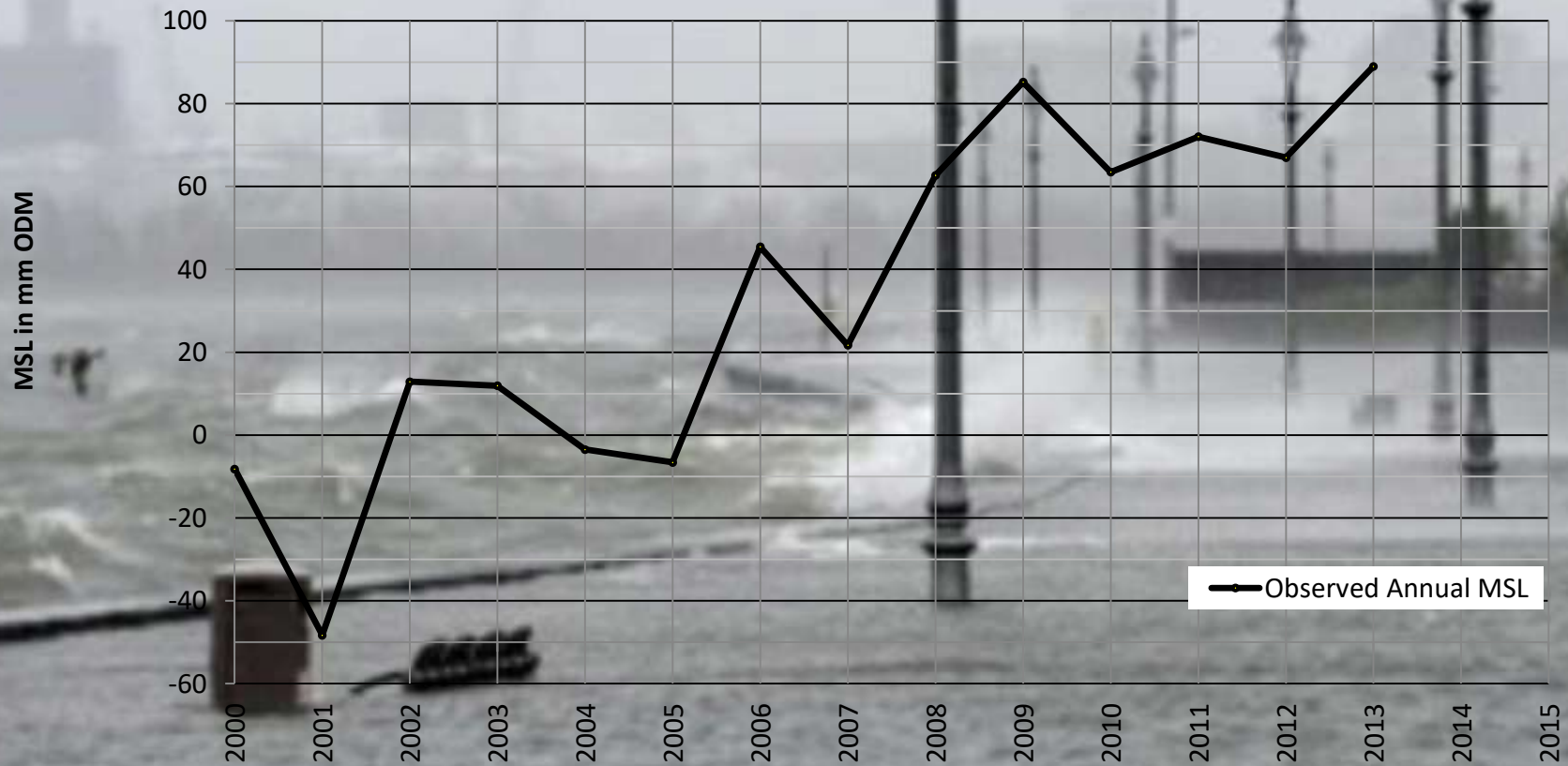
# Safety Benefits





# Impacts of Climate Change

Dublin Annual Mean Sea Level 2000 – 2013  
(Provisional)



# Bull Island

(Extract from Draft Development Plan Strategic Flood Risk Assessment SFRA)



Flood Zone A Dark Green; no wave action modelled.

Flood Zone B Lighter Green; no wave action modelled.

# Environmental Assessment

- Environmental Impact Statement including proposed mitigation measures submitted in June 2009
- Additional mitigation measures submitted in June, 2010



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# Environmental Conditions

- Compliance with the EIS and the mitigation measures set out therein
- Construction Methodology Plan
- Environmental Management Plan
- Engagement of a suitably qualified Project Ecologist
- Setting up of Environmental Management Liaison Committee (EMLC)



# Role of the Ecologist

The Ecologist shall have access to the Construction Methodology Plan and shall, where he/she considers it appropriate in regard to the Environmental Management Plan, have an input into that plan.

The ecologist shall:

- i. Monitor all construction works likely to impact on key species of birds within the lagoon,
- ii. Identify the avoidance zone for each species,
- iii. Liaise with the contractor in regard to the restrictions on works in terms of time, duration and location of such works,
- iv. Advise in regard to the implementation of associated mitigation measures,
- v. Advise on the duration, scale and extent of any vehicular movements, deemed necessary for construction purposes only, which may be permitted across the mudflats of the lagoon. Where vehicle ingress onto the mudflats is unavoidable for purposes of construction, the manner and route of such ingress shall be determined by the ecologist,



# Role of the Ecologist

The ecologist shall:

- vi.** Advise the National Parks and Wildlife Service (NPWS) on an ongoing basis of all monitoring and mitigation measures required to be implemented prior to, during, and post construction works,
- vii.** Identify the maximum area of the Lagoon which may be affected at any given time by construction works,
- viii.** Monitor any clearing and grading of construction areas to ensure that such processes are minimised and phased in a manner which limits exposure of and disturbance to sediment, and
- ix.** In the event of construction works being delayed for a significant period of time a further pre-construction survey shall be carried out by the ecologist in conjunction with the National Parks and Wildlife Service (NPWS) in order to record potential changes in overall bird populations or local physical conditions.





# Environmental Measures

- Appropriate Assessment carried out for the scheme
- Environmental Clerk of Works appointed by DCC
- Project Ecologist engaged by Contractor
  - Environmental Management Plan
  - Grassland Management Plan
  - Method Statements for Works on Lagoon
  - Ongoing environmental monitoring
- Liaison with NPWS and BirdWatch Ireland
- Mitigation Measures Implemented
  - Screen erected between Works and Lagoon
  - No Lagoon Works during winter to facilitate wintering birds





# Works on Foreshore

Prohibition of certain works from 1<sup>st</sup> November to 31<sup>st</sup> March

- No construction of the Flood Defense Wall
- No access to the foreshore



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# Grassland Management Mitigation

An existing approx. 7,000m<sup>2</sup> grassed area was made available for grassland management on the northern side of the scheme (where Causeway Road adjoins James Larkin Road) as a feeding area for wintering birds during the construction period.



# Screening Erected along Foreshore



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# Works carried out Behind Screening



# Information Panels on Site Hoarding

## DUBLIN BAY BIOSPHERE

The Origins of the island. Bull Island, which is just over 200 years old, began as a sand bank covered by the tides. When the harbour walls were built for Dublin Port the sand bank developed into an island. Beach grasses stabilized the loose sand and soft marsh plants invaded the mudflats. The island grew steadily in its first 100 years and by 1900 had reached a length of 4.5km. Since then it has gone on increasing in width, specifically at the southern end, and grown a little in length to the north towards Howth. The island is a little over 5km in length and continues to increase in size. In addition to its ecological uniqueness the island, and Dollymounth beach in particular, is a popular recreational resource and an amenity valued by generations of Dubliners.



BITHSFÉIR  
Chuan Bhaile Átha Cliath

Dublin Bay  
BIOSPHERE

COMHLACHT CHALAFORT  
ÁTHA CLIAITH  
DUBLIN PORT COMPANY

dlr  
An tAire Dála

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# Information Panel – Dublin Bay Biosphere

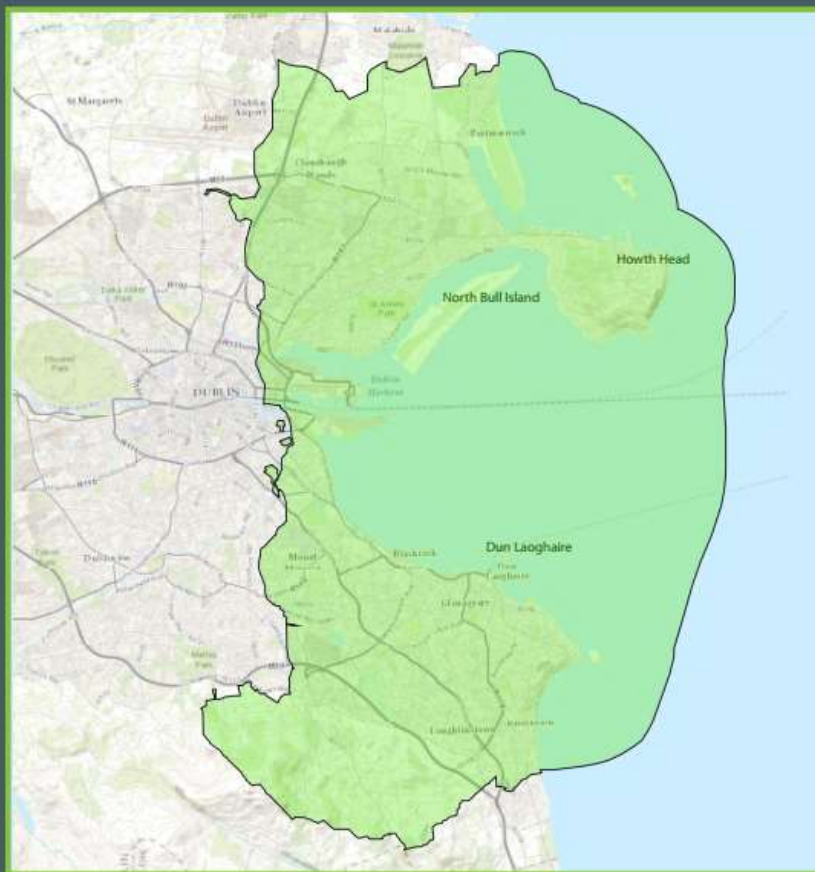
## WHAT IS A BIOSPHERE

Biospheres are places where nature and culture connect. They are internationally recognised for their biological diversity yet also actively managed to promote a balanced relationship between man and nature.

A Biosphere is a special designation awarded by the United Nations Educational, Scientific and Cultural Organisation (UNESCO) but managed in partnership by communities, NGOs and local and national governments.

## WHY DUBLIN BAY

North Bull Island was designated as a Biosphere in 1981 because of the rare and internationally important habitats and wildlife species that can be found there. In 2015 the Biosphere was expanded to cover Dublin Bay, reflecting its significant environmental, economic, cultural and tourism importance. The newly enlarged Biosphere incorporates scenic and ecologically important landscapes as well as areas where people can relax and enjoy nature, take part in cultural and leisure activities and do business.



## Discover Dublin Bay! Experience your Biosphere

Key parts of Dublin Bay Biosphere which are of high natural value include the Tolka and Baldoyle Estuaries, Booterstown Marsh, Howth Head, North Bull Island, Dalkey Island and Ireland's Eye. The Biosphere is managed by the Dublin Bay Biosphere Partnership, which includes Dublin City Council, Dublin Port Company, Dún Laoghaire-Rathdown County Council, Fingal County Council and the National Parks & Wildlife Service. The partnership works with community groups, NGOs, local businesses and schools.

W : [www.dublinbaybiosphere.ie](http://www.dublinbaybiosphere.ie)

E : [biosphere@dublincity.ie](mailto:biosphere@dublincity.ie)

 [@dublinbiosphere](https://twitter.com/dublinbiosphere)

 [www.facebook.com/dublinbaybiosphere](https://www.facebook.com/dublinbaybiosphere)



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# Information Panel – Brent Geese

## LIGHT-BELLIED BRENT GEESE

### *Branta bernicla horta*

The brent goose, a winter visitor to the island, nests in Arctic Canada on islands such as Bathurst and Ellesmere. When the snows come the geese move south and east making the trip to Ireland (3,000 strong) in early October via Greenland and sometimes Iceland. The geese may be found in Dublin Bay by January. The brent goose is the smallest Irish goose. Its diet consists of the eel grass and zostera found growing on the mudflats.



Panels were donated to local scout hall (5<sup>th</sup> Port Scouts) when hoarding was removed.



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# Working Site Constraints

- Ongoing liaison with residents and stakeholders.
- Works schedule published and updated on Clontarf.ie website to keep residents informed.



# Installation of New Watermain



# Shotcreting on Existing Sea Defence Wall

- Basket used to minimize access to the foreshore by workmen



# Placement of Bog Mats in the Lagoon prior to Installing Temporary Sheet Piles





# Installation of Seaward Temporary Sheet Piles at Southern Sea Defence Wall



# Laying of Polythene Sheets and Timber Boards to Protect Lagoon Bed in advance of Excavation Works for Southern Sea Defence Wall



# Construction of Sections of Flood Defence Wall

- Sandbags used to prevent flooding and soil washing onto the foreshore.
- Pooled water pumped out of excavation.





# Silt Bag to Clean Water being Pumped From Southern Sea Defence Wall Excavation



# Repointing of Section of Existing Sea Defence Wall

- Shelf areas behind wall filled with soil and planted with grasses and wildflowers (instead of concrete finish)
- Spaces left for vegetation to grow on the stone wall.



# Old Disused Tram Shelter

## Dollymount to Nelson's Pillar Tramline - 1873



# Renovated Tram Shelter

- Some of old brickwork retained, cleaned and reused
- Old railings removed to improve view and provide more space for pedestrians and cyclists.
- Sections of tram tracks installed next to tram shelter (arrow).
- Tons of excavated old tramline cobblestones retained for use in future public realm and streetscape improvement projects.





# Improved Drainage to Prevent Flooding by St. Anne's Park

- New drainage system installed, number of gullies trebled.
- New culvert installed under carriageway.



# Ariel View of Lagoon – New Culvert from Nanekin River under Road to improve Drainage



# North end of Scheme around St. Anne's Park and Causeway Road

- New car park built at compound site.
- Grassland feeding area at Causeway Road junction.





# South End of Scheme looking towards Wooden Bridge

- Clean foreshore after construction of wall

