3. CONSIDERATION OF REASONABLE ALTERNATIVES

3.1 Introduction

Article 5(1)(d) of Directive 2011/92/EU of the European Parliament and of the Council of 13 December 2011 on the assessment of the effects of certain public and private projects on the environment (codification) as amended by Directive 2014/52/EU (the EIA Directive) requires that the Environmental Impact Assessment Report (EIAR) prepared by the developer contains *"a description of the reasonable alternatives studied by the developer, which are relevant to the project and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the project on the environment."*

Article 5(1)(f) of the EIA Directive requires that the EIAR contains *"any additional information specified in Annex IV relevant to the specific characteristics of a particular project or type of project and to the environmental features likely to be affected."*

Annex IV of the EIA Directive states that the information provided in an EIAR should include a *"description of the reasonable alternatives (for example in terms of project design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects."*

This chapter of the EIAR presents a description of the reasonable alternatives studied by the developer, relevant to the Proposed Development and its specific characteristics, including site location, layout, design and layouts, land uses, processes and the project's mitigation measures.

The consideration of alternatives is an effective means of avoiding environmental impacts. As set out in the *Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EIAR)* (EPA 2022)[1], the presentation and consideration of reasonable alternatives investigated is an important part of the overall EIA process.

It is important to acknowledge that although the consideration of alternatives is an effective means of avoiding environmental impacts, there are difficulties and limitations when considering alternatives. These include hierarchy, non-environmental factors and certain site-specific issues as outlined below.

Hierarchy

EIA is concerned with projects. The EPA guidelines (EPA, 2022) state that, in some instances, neither the applicant nor the competent authority can realistically be expected to examine options that have already been previously determined by a higher authority, such as a national plan or regional programme for infrastructure which are examined by means of a Strategic Environmental Assessment (SEA), the higher tier form of environmental assessment.

Non-environmental Factors

EIA is confined to the potential significant environmental effects and that influences consideration of alternatives. However, other non-environmental factors will be important to the developer of a project, for example project economics, land availability, engineering feasibility or planning considerations.

[1] *Environmental Protection Agency (EPA), 2022. Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EIAR). [online] Available at: https://www.epa.ie/publications/monitoring--assessment/assessment/EIAR_Guidelines_2022_Web.pdf*

Site Specific Issues

The consideration of alternatives also needs to be set within the parameters of the availability of the land, i.e. the site may be the only suitable land available to the developer, or the need for the project to accommodate demands or opportunities that are site-specific. Such considerations should be on the basis of alternatives within a site itself, such as variations in design and layout.

3.2 Consideration of Alternatives

3.2.1 Methodology

The European Union Guidance Document[2] (EU, 2017) on the preparation of EIAR outlines the requirements of the EIA Directive and states that, in order to address the assessment of reasonable alternatives, the developer needs to provide the following:

- A description of the reasonable alternatives studied; and,
- An indication of the main reasons for selecting the chosen option with regards to their environmental impacts.

There is limited European and National guidance on what constitutes a 'reasonable alternative' however the EU Guidance Document[2] (EU, 2017) states that reasonable alternatives "*must be relevant to the proposed project and its specific characteristics, and resources should only be spent assessing these alternatives.*"

The guidance also acknowledges that *"the selection of alternatives is limited in terms of feasibility. On the one hand, an alternative should not be ruled out simply because it would cause inconvenience or cost to the developer. At the same time, if an alternative is very expensive or technically or legally difficult, it would be unreasonable to consider it a feasible alternative."*

The EPA Guidelines[1] (EPA, 2022) state that "*It is generally sufficient to provide a broad description of each main alternative and the key issues associated with each, showing how environmental considerations were taken into account in deciding on the selected option. A detailed assessment (or 'mini-EIA') of each alternative is not required.*"

Consequently, taking consideration of the legislative and guidance requirements into account, this chapter addresses alternatives under the following headings:

- 'Do-Nothing' Alternative;
- Alternative Locations;
- Alternative Design and Layouts;
- Alternative Land Uses;
- Alternative Processes; and
- Alternative Mitigation Measures.

Each of these is addressed in the following sections.

3.2.2 Environmental Constraints-led Approach

The design of the Proposed Development has been an informed and collaborative process from the outset, involving the designers, developers, engineers, environmental, ecological, hydrological and geotechnical, archaeological specialists and traffic consultants. The design process has also taken account of the recommendations and comments of the relevant statutory and non-statutory organisations, near neighbours / the local community and local authorities as detailed in Section 2.5 of Chapter 2 of this EIAR. The aim of the process being to reduce the potential for environmental effects while designing a project capable of being constructed and viable.

Throughout the preparation of the EIAR, the layout of the Proposed Development site has been revised and refined to take account of the findings of all site investigations, baseline assessments and external

feedback received from the local community, which have brought the design from its first initial layout to the current proposed layout.

The constraints mapping process involved identification of different types of environmental constraints so as to inform design and identify clearly the areas within which no development works will take place. The constraints mapping for the site took account of the following key constraints:

- Residential dwellings located in proximity to the Proposed Development (Refer to Chapter 5 Population &Human Health of EIAR);
- Key tourism assets in the area and their key seasonal and operational times (Refer to Chapter 5 Population &Human Health of EIAR);
- Accessibility for all visitors to the Proposed Development site and prioritising visitor safety (Refer to Chapter 5 Population &Human Health of EIAR);
- Location of designated sites in relation to the Proposed Development and their relevant qualifying interests (QIs) (Refer to Chapter 6 Biodiversity of EIAR);
- Proximity to surface-water hydrological features and flood risk zones (Refer to Chapter 8 Hydrology & Hydrogeology of EIAR);
- Recorded Archaeological Sites and Monuments/Protected Structures (Refer to Chapter 12 Cultural Heritage of EIAR);
- Landscape Character Area and Landscape Sensitivity (Refer to Chapter 13 Landscape & Visual of EIAR);
- Traffic and Transport constraints (Refer to Chapter 14 Material Assets of EIAR).

3.3 Key Objectives of the Proposed Development

The following are the key objectives of Roscommon County Council (RCC) which have informed the design of the Proposed Development and the consideration of design alternatives.

- Creating a visitor experience at Hodson Bay: address capacity constraints at the existing marina, improve the visitor experience and dwell time through the provision of the high-quality facilities proposed.
- Providing a redeveloped water sports/activity centre and additional facilities to provide a unique immersive play experience at Hodson Bay.
- Enhancing opportunities to be active in nature and improve both physical and visual connectivity with the River Shannon and Lough Ree.
- Creating a better interface with the Hodson Bay waterfront and improvement of the quality of the buildings and public space.

Additional Key Criteria Considered by the Design Team

As well as the above objectives, RCC and the design team also considered the following key design criteria including

- Sustainability and minimising potential for environmental effects,
- Visitor safety and accessibility,
- Cost, and
- Minimising disturbance to existing businesses and residents in the area.

3.4 "Do-Nothing Alternative"

Article IV, Part 3 of the Directive 2014/52/EU states that the description of reasonable alternatives studied by the developer should include *"an outline of the likely evolution thereof without implementation of the project as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge."* This is referred to as the 'Do-nothing' Alternative. The *Environmental Impact Assessment of Projects:*

Guidance on the preparation of the Environmental Impact Assessment Report (EC, 2017)[2] states that this should involve the assessment of "*an outline of what is likely to happen to the environment should the project not be implemented – the so-called 'do-nothing' scenario."*

If the Proposed Development was not to proceed, the opportunity to construct a new Water Sports Pavilion, redevelop an existing marina, provide an upgraded safer active travel corridor, redevelop a landscaped public realm area with a continuous promenade along the shore of Lough Ree, and all ancillary works at this appropriately zoned site would be lost. In addition, the potential to support regional economic growth, enhance tourism and recreational activity in the midlands and wider catchment, and generate both direct and indirect employment during the construction and operational phases would not be realised.

A comparison of the potential environment Table 3-1 below.

Table 3-1 Comparison of environmental effects when compared against the chosen option (upgrades)

Environmental Consideration	Do Nothing Alternative	Chosen Option (Redevelopment of Hodson Bay Waterfront)
Population & Human Health	No new Water Sports Pavilion, redeveloped and extended marina, upgraded public realm and continuous promenade or active travel corridor upgrades will be constructed to be availed of by the public. Additional boat spaces and improved access and egress for boats in Hodson Bay will not be provided. If the Proposed Development were not to proceed, the opportunity to create an improved, high-quality recreational facility for visitors to the area would be lost. The opportunity to upgrade the existing facilities used by Baysports to a more energy-efficient building and pavilion which is better capable of hosting increased visitor numbers would also be lost. No potential for dust and noise to affect sensitive receptors.	New Water Sports Pavilion, extended marina, upgraded public realm with continuous promenade, and active travel corridor upgrades will be available to be availed of by the public. Additional boat spaces and improved access and egress for boats in Hodson Bay will be provided. The Proposed Development will result in the creation of a high-quality recreational facility for visitors to the area. The Proposed Development will create a boost to the tourism and water sports industry in the midlands and beyond as well as providing direct and indirect employment during the construction and operational phases. Based on the assessment detailed in Chapter 9 Air, Chapter 11 Noise and Vibration and Chapter 14 Material Assets of this EIAR, and the mitigation measures proposed therein, there will be no significant effects related to air quality and noise from the Proposed Development and there will be no significant negative effects relating to traffic disruption and associated residential amenity.
Biodiversity (including Bats and Birds)	No loss of treeline or mature trees. No short-term disturbance to biodiversity due to dust and noise emissions.	Following consideration of the residual effects (post mitigation) it is concluded that the Proposed Development will not result in any significant effects on any of the identified Key Ecological Receptors in

[2] *European Commission, 2017. Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report. Available at: https://ec.europa.eu/environment/eia/pdf/EIA_guidance_EIA_report_final.pdf .*

Environmental Consideration	Do Nothing Alternative	Chosen Option (Redevelopment of Hodson Bay Waterfront)
		the long term. It has been concluded that there will be a temporary residual effect at the local geographic scale in the short to medium term effect (5-15 years) on trees and treeline habitat. No significant effects on receptors of International, National, County Importance or Local importance (higher value) were identified in the long term.
Land, Soils & Geology	No excavation works carried out. No potential for sediment run off associated with the Proposed Development (in the absence of mitigation).	Based on the assessment in Chapter 7 Land, Soils and Geology, no significant effects on soils and subsoils will occur as a result of the Proposed Development provided that the mitigation measures set out in Chapter 7 are implemented.
Hydrology and Hydrogeology	No potential for effects on surface water and groundwater associated with the Proposed Development (in the absence of mitigation).	The Proposed Development is designed to protect the receiving water and general environment. Based on the assessment in Chapter 8 Hydrology and Hydrogeology, no significant effects on surface water or groundwater quality will occur provided that the proposed mitigation measures are implemented.
Air & Climate	No potential for exhaust and dust emissions associated with construction machinery to affect sensitive receptors.	Based on the assessments detailed in Chapter 9 Air and Chapter 10 Climate, and the mitigation proposed, residual impacts of exhaust emissions and dust generation from the construction phase will have a short term imperceptible negative effect. Whilst the operational phases of the Proposed Development will give rise to an increase in vehicle emissions from maintenance workers and increased visitor numbers, the dust and exhaust emissions associated with the operational phase are considered to be imperceptible relative to the baseline. The Proposed Development design incorporates a range of sustainable transport measures, including the provision of new bus set-down areas, improved pedestrian infrastructure, and 30 electric vehicle (EV) parking spaces. These measures are intended to promote and facilitate a shift towards more sustainable forms of transport and, as such, will assist in

Environmental Consideration	Do Nothing Alternative	Chosen Option (Redevelopment of Hodson Bay Waterfront)
		reducing reliance on private fossil fuel-based vehicles over the longer term.
Noise & Vibration	No potential for noise impacts on nearby sensitive receptors.	Based on the assessment detailed in Chapter 11 Noise and Vibration and the mitigation measures proposed, there will be no significant effects on sensitive receptors due to an increase in noise and vibration levels from the Proposed Development during the construction and operational phases. Mitigation measures in relation to potential noise impacts during the construction phase are outlined in detail in Chapter 11 and also in the accompanying Construction Environmental Management Plan (CEMP).
Landscape & Visual	No potential for landscape and visual effects. If the Proposed Development were not to proceed, there would be no change to the existing environment of the Proposed Development site.	The EIAR completed for the Proposed Development concluded that likely landscape and visual effects anticipated from the Proposed Development are not deemed to be significant. Considering the existing use and zoning of these lands, residual effects upon the landscape and visual amenity are deemed to be acceptable and in line with the sustainable development of the area The Landscape and Visual Impact Assessment (LVIA) determined that the majority of long-distance views over Lough Ree are preserved and more opportunity to experience views is created by the addition of the Proposed Development infrastructure. The LVIA also determined that visual aesthetics will be improved compared to the current baseline conditions, along with benefits to landscape character and integration into the lakeshore environment of Lough Ree.
Cultural Heritage & Archaeology	No potential for impacts on unrecorded, subsurface archaeology.	As detailed in the assessment in Chapter 12 Cultural Heritage, no direct or indirect effects to the recorded cultural heritage resource as a result of the Proposed Development have been identified. Mitigation measures to minimise the potential for unrecorded subsurface archaeology have been proposed and are outlined in Chapter 12.

Environmental Consideration	Do Nothing Alternative	Chosen Option (Redevelopment of Hodson Bay Waterfront)
Material Assets	No additional traffic generated and therefore no direct or indirect effects on roads and road users.	As detailed in Chapter 14 Material Assets, there will be a short term slight negative effect on traffic volumes during the construction phase of the Proposed Development. A detailed Traffic Management Plan incorporating all the mitigation measures will be agreed with the roads authority prior to construction works commencing on site. Taking account of the embedded design measures and proposed mitigation, the operational phase is assessed as resulting in an overall Positive, Significant and Permanent effect on the local traffic and transport environment. No significant adverse residual traffic or transport effects are predicted.

3.5 Alternative Locations

As outlined in the Chapter 2 of the EIAR, the Proposed Development site is partly located on lands identified as "Hodson Bay / Barrymore Area Plan". Policy objective HB1 of the Roscommon County Development Plan 2022-2028 (RCDP 2022-2028) sets the vision for the lands and this is outlined in detail in Section 2.4 of Chapter 2 of this EIAR. The vision emphasises facilitating suitable leisure, tourism and amenity developments on lands zoned for leisure tourism / amenity in order to strengthen the significance of Hodson Bay / Barrymore as one of the main tourism / recreational attractions in County Roscommon and regionally.

Under the RCDP 2022-2028, the lands are zoned for "*Leisure Tourism / Amenity"* as well as *"Green Belt"* uses, which permits the Proposed Development as it is considered a leisure tourism / amenity development. This "*Leisure Tourism / Amenity*" zoning presents an opportunity to support the future expansion of existing tourism and leisure facilities while ensuring that access to these facilities continues to be provided for the general public, supporting the development objectives of the RCDP 2022-2028 for the Hodson Bay / Barrymore Area, as set out in Policy HB2.

The lands comprising the site of the Proposed Development are owned by Roscommon County Council, Athlone Golf Club, the Hodson Bay Hotel, Inland Properties Ltd and other parties as outlined in the Planning Statement, with a Waterways Ireland-operated marina located to the southeast and an Uisce Éireann Pumping Station towards the north. Roscommon County Council has an established presence on the site with existing car parking facilities and footpaths, open space, public toilets, and buildings housing Baysports. The existing site is an established tourism destination on the shore of Lough Ree. Consideration of alternative sites is not considered necessary or appropriate

During the design process for the Proposed Development, as set out below, several iterations of the site layout and alternative designs were considered. The documentation submitted with this planning application demonstrates that the Proposed Development site and the surrounding area have the environmental capacity to accommodate the Proposed Development without any significant impacts on the environment.

Further to this, the environmental assessments undertaken as part of this EIAR have proved that there will be no significant effects to the environment, built or archaeological heritage or human health that cannot be prevented or controlled by mitigation measures.

In conclusion, the Proposed Development location is considered to be the preferred/optimum site.

3.6 Alternative Design and Layouts

This section discusses the layout of the Proposed Development, provides an overview as to how the Proposed Development design has evolved and provides an evaluation of the comparable potential for environmental effects.

Extensive consideration was given to alternative site layouts for the Proposed Development and key criteria considered in the decision-making process included avoidance of significant biodiversity impacts particularly the encroachment on lake fringe habitat, existing site features and structures, site elevation and flood risk, landscape and visual impacts, flow of visitors to/from the site, minimising impacts to existing businesses in the area.

The following sections will provide a commentary on alternative designs and alternative layouts considered for each of the main elements of the Proposed Development which include the following:

- Water Sports Pavilion
- Marina Extension
- Public Realm Upgrades
- Active Travel Site Access Improvements

3.6.1 Water Sports Pavilion

3.6.1.1 Alternative Layout and Location

The project design team considered an alternative layout and location for the Proposed Development which would see the Water Sports Pavilion relocated to the northern area of the site as shown in red and white in Plate 3-1 below.

Plate 3-1 Alternative Water Sports Pavilion location indicated by white arrow

Environmental Considerations

Table 3-2 below provides an evaluation of the alternative layout and location which involves relocating the Water Sports Pavilion to the north of the site against the Chosen Design Option.

Table 3-2 Evaluation of Environmental Effects of Relocating the Water Sports Pavilion to the North of the Site against the Chosen Design Option

Environmental Factor	Chosen Layout Option and Location	Relocating the Water Sports Pavilion to the North of the Site
Population & Human Health	Neutral	Neutral
Biodiversity	Following consideration of the residual effects (post mitigation) it is concluded that the Proposed Development will not result in any significant effects on any of the identified Key Ecological Receptors in the long term. It has been concluded that there will be a temporary residual effect at the local geographic scale in the short to medium term effect (5-15 years) on trees and treeline habitat. No significant effects on receptors of International, National, County Importance or Local importance (higher value) were identified in the long term.	This alternative layout results in a larger development footprint on the site which will lead to a greater disturbance on biodiversity and the existing lake fringe habitats in the area which are associated with the Lough Ree Special Protection Area (SPA)/Special Area of Conservation (SAC). The alternative layout design will potentially have a greater impact on sensitive lake fringe habitat when compared to the preferred Proposed Development Design. Noise, dust, and water quality impacts on biodiversity are all expected to be potentially greater in the new location.
Land, Soils & Geology	The proposed location for the Water Sports Pavilion remains in the area of the existing Baysports building which minimises impacts on Land, Soils & Geology. Based on the assessment in Chapter 7 Land, Soils and Geology, no significant effects on soils and subsoils will occur as a result of the Proposed Development provided that the mitigation measures set out in Chapter 7 are implemented.	If the building were to be relocated to the north, the more natural existing land use would change with the construction of the new building. This proposal will potentially see a much greater loss of land, soils and geology resource.
Hydrology & Hydrogeology	The Proposed Development is designed to protect the receiving water and general environment. Based on the assessment in Chapter 8 Hydrology and Hydrogeology, no significant effects on surface water or groundwater quality will occur provided that the proposed mitigation measures are implemented.	While both building locations are within the same medium and high probability CFRAM flood zones, the proposed alternative location for the Water Sports Pavilion will replace an area of permeable land with a hard standing surfacing. This loss of infiltration potential will lead to an increase in flood risk for the wider area.

Environmental Factor	Chosen Layout Option and Location	Relocating the Water Sports Pavilion to the North of the Site
Air Quality	Based on the assessments detailed in Chapter 9 Air and Chapter 10 Climate, and the mitigation proposed, residual impacts of exhaust emissions and dust generation from the construction phase will have a short term imperceptible negative effect. Whilst the operational phases of the Proposed Development will give rise to an increase in vehicle emissions from maintenance workers and increased visitor numbers, the dust and exhaust emissions associated with the operational phase are considered to be imperceptible relative to the baseline. The Proposed Development design incorporates a range of sustainable transport measures, including the provision of new bus stops, improved pedestrian infrastructure, and 30 electric vehicle (EV) charging stations. These measures are intended to promote and facilitate a shift towards more sustainable forms of transport and, as such, will assist in reducing reliance on private fossil fuel-based vehicles over the longer term.	Dust impacts on human and ecological receptors are all expected to be potentially greater during construction in the new location. Constructing a new development in the northern area involves demolition and clearance of the existing Baysports site and the introduction of a new construction area in the alternative area of the site. This creates a much larger construction footprint across the site boundary.
Noise and Vibration	Based on the assessment detailed in Chapter 11 Noise and Vibration and the mitigation measures proposed, there will be no significant effects on sensitive receptors due to an increase in noise and vibration levels from the Proposed Development during the construction and operational phases. Mitigation measures in relation to potential noise impacts during the construction phase are outlined in detail in Chapter 11 and also in the accompanying Construction Environmental Management Plan (CEMP).	Noise and Vibration impacts on human and ecological receptors are all expected to be potentially greater during construction in the new location. Constructing a new development in the northern area involves demolition and clearance of the existing Baysports site and the introduction of a new construction area in the alternative area of the site. This creates a much larger construction footprint across the site boundary, giving rise to a greater level of Noise and Vibration impacts across a larger area.
Cultural Heritage & Archaeology [3]	As detailed in the assessment in Chapter 12 Cultural Heritage, no direct or indirect effects to the	Given a larger site footprint which includes undeveloped greenfield areas, excavation within the open grass area in the north of the

[3] *Limited potential for impacts on known cultural heritage and archaeology on either option provided a 20m buffer is in place from the causeway listed on the Sites and Monuments Record.*

Environmental Factor	Chosen Layout Option and Location	Relocating the Water Sports Pavilion to the North of the Site
	recorded cultural heritage resource as a result of the Proposed Development have been identified. Mitigation measures to minimise the potential for unrecorded subsurface archaeology have been proposed and are outlined in Chapter 12.	site carries a greater likelihood of discovering sub-surface archaeological material compared to constructing much of the Water Sports Pavilion in the footprint of the existing Baysports building and operations.
Landscape & Visual	The EIAR completed for the Proposed Development concluded that likely landscape and visual effects anticipated from the Proposed Development are not deemed to be significant. Considering the zoning of these lands, residual effects upon the landscape and visual amenity are deemed to be acceptable and in line with the sustainable development of the area The Landscape and Visual Impact Assessment (LVIA) determined that the majority of long-distance views over Lough Ree are preserved and more opportunity to experience views is created by the addition of the proposed infrastructure. The LVIA also determined that visual aesthetics will be improved compared to the current baseline conditions, along with benefits to landscape character and integration into the lakeshore environment of Lough Ree.	Introducing a large Water Sports Pavilion into an untouched natural area along the lakefront has a greater landscape and visual impact on the area.
Material Assets (Traffic & Transportation)	As detailed in Chapter 14 Material Assets, there will be a short term slight negative effect on traffic volumes during the construction phase of the Proposed Development. A detailed Traffic Management Plan incorporating all the mitigation measures will be agreed with the roads authority prior to construction works commencing on site. Taking account of the embedded design measures and proposed mitigation, the operational phase is assessed as resulting in an overall Positive, Significant and Permanent effect on the local	If the Water Sports Pavilion is relocated further north, the construction phase of the development would see the removal of the existing northern car park in tandem with the demolition of the existing Baysports buildings and the unavailability of these spaces. There would likely be a significant shortage of parking for the duration of the construction phase which would negatively affect all businesses in the area. Furthermore, it would extend the construction phase works across a larger area. This would cause an increase in plant and machinery movements and as a result, increase associated noise and dust emissions.

Environmental Factor	Chosen Layout Option and Location	Relocating the Water Sports Pavilion to the North of the Site
	traffic and transport environment. No significant adverse residual traffic or transport effects are predicted.	

For the reasons set out above, the chosen layout option and location was considered to have a lower potential for significant environmental effects than the alternative proposal of relocating the Water Sports Pavilion to the north of the site.

3.6.2 Marina Extension

Alternative Marina Design Option

A 'cast-in-situ' concrete breakwater/marina extension design was considered for the proposed marina extension. Such a structure would be similar to the existing breakwater in place at the Hodson Bay marina as shown in Plate 3-2 below. However, the ecological and hydrological impacts from constructing such a design are considered to be too intrusive given the ecological sensitivity of the site, which is located in the Lough Ree SPA and SAC.

Plate 3-2 The existing Marina at Hodson Bay is a 'cast-in-situ' concrete structure.

A comparison of the potential environmental effects of the chosen design option (floating breakwater and jetty) against the option of constructing a cast-in-situ concrete marina are presented in Table 3-3 below.

Table 3-3 Evaluation of Environmental Effects of a 'Cast-in' Concrete Marina Design against the Chosen Design Option

Environmental Factor	Chosen Design Option (Floating Breakwaters and Jetties)	Construction of a 'Cast-in-situ' Concrete Marina Design
Population & Human Health	Based on the assessment detailed in Chapter 9 Air, Chapter 11 Noise and Vibration and Chapter 14 Material Assets of this EIAR, and the mitigation measures proposed therein, there will be no significant effects related to air quality and noise from the Proposed Development and there will be no significant negative effects relating to traffic disruption and associated residential amenity.	Greater disturbance to the existing tourism assets in the vicinity of the site due to more intrusive and lengthy construction phase for marina construction.
Biodiversity	Following consideration of the residual effects (post mitigation) it is concluded that the Proposed Development will not result in any significant effects on any of the identified Key Ecological Receptors in the long term. It has been concluded that there will be a temporary residual effect at the local geographic scale in the short to medium term effect (5-15 years) on trees and treeline habitat. No significant effects on receptors of International, National, County Importance or Local importance (higher value) were identified in the long term.	Constructing a 'cast-in-situ' marina structure would give rise to much greater disturbance to lake sediments as it is a more intrusive and lengthy construction methodology. Greater risk to water quality effects and effects to aquatic flora and fauna due to the need for an extensive de-watered zone which has the potential to impact on biodiversity.
Land, Soils & Geology	Neutral	Neutral
Hydrology & Hydrogeology	The Proposed Development is designed to protect the receiving water and general environment. Based on the assessment in Chapter 8 Hydrology and Hydrogeology, no significant effects on surface water or groundwater quality will occur provided that the proposed mitigation measures are implemented.	Constructing a 'cast-in-situ' marina structure would give rise to much greater disturbance to lake sediments as it is a more intrusive and lengthy construction methodology. Greater risk to water quality effects during the construction phase.
Air Quality,	Based on the assessments detailed in Chapter 9 Air and Chapter 10 Climate, and the mitigation proposed, residual impacts of exhaust emissions and dust generation from the construction phase will have a short term imperceptible negative effect.	No significant effects on Air Quality are likely from constructing a 'cast-in-situ' marina structure. However, a longer duration construction phase would be required for the marina construction giving rise to potentially more dust and exhaust emissions.

Environmental Factor	Chosen Design Option (Floating Breakwaters and Jetties)	Construction of a 'Cast-in-situ' Concrete Marina Design
	Whilst the operational phases of the Proposed Development will give rise to an increase in vehicle emissions from maintenance workers and increased visitor numbers, the dust and exhaust emissions associated with the operational phase are considered to be imperceptible relative to the baseline. The Proposed Development design incorporates a range of sustainable transport measures, including the provision of new bus stops, improved pedestrian infrastructure, and 30 electric vehicle (EV) charging stations. These measures are intended to promote and facilitate a shift towards more sustainable forms of transport and, as such, will assist in reducing reliance on private fossil fuel-based vehicles over the longer term.	
Noise and Vibration	Based on the assessment detailed in Chapter 11 Noise and Vibration and the mitigation measures proposed, there will be no significant effects on sensitive receptors due to an increase in noise and vibration levels from the Proposed Development during the construction and operational phases. Mitigation measures in relation to potential noise impacts during the construction phase are outlined in detail in Chapter 11 and also in the accompanying Construction Environmental Management Plan (CEMP).	Constructing a 'cast-in-situ' marina structure would give rise to much greater disturbance from noise and vibration emissions due to a more intrusive construction methodology including sheet piling required to create an extensive de-watered works area. Constructing a 'cast-in-situ' marina structure would require a longer duration construction phase giving rise to more noise and vibration emissions and greater impacts on human and ecological receptors.
Cultural Heritage & Archaeology	As detailed in the assessment in Chapter 12 Cultural Heritage, no direct or indirect effects to the recorded cultural heritage resource as a result of the Proposed Development have been identified. Mitigation measures to minimise the potential for unrecorded subsurface archaeology have been proposed and are outlined in Chapter 12.	Neutral
Landscape & Visual	The EIAR completed for the Proposed Development concluded that likely landscape and visual	Constructing a 'cast-in-situ' marina structure would give rise to greater Landscape & Visual effects as it requires a more intrusive

Environmental Factor	Chosen Design Option (Floating Breakwaters and Jetties)	Construction of a 'Cast-in-situ' Concrete Marina Design
	effects anticipated from the Proposed Development are not deemed to be significant. Considering the zoning of these lands, residual effects upon the landscape and visual amenity are deemed to be acceptable and in line with the sustainable development of the area The Landscape and Visual Impact Assessment (LVIA) determined that the majority of long-distance views over Lough Ree are preserved and more opportunity to experience views is created by the addition of the proposed infrastructure. The LVIA also determined that visual aesthetics will be improved compared to the current baseline conditions, along with benefits to landscape character and integration into the lakeshore environment of Lough Ree.	and lengthy construction methodology when compared with construction of a floating jetty and breakwater. The need for an extensive de-watered works area also causes much greater visual disturbance during construction. When constructed a 'cast-in-situ' marina structure is also more visually intrusive when compared with a floating jetty and breakwater marina extension which assimilated with the lake setting more effectively.
Material Assets (Traffic & Transportation)	As detailed in Chapter 14 Material Assets, there will be a short term slight negative effect on traffic volumes during the construction phase of the Proposed Development. A detailed Traffic Management Plan incorporating all the mitigation measures will be agreed with the roads authority prior to construction works commencing on site. Taking account of the embedded design measures and proposed mitigation, the operational phase is assessed as resulting in an overall Positive, Significant and Permanent effect on the local traffic and transport environment. No significant adverse residual traffic or transport effects are predicted.	Neutral

For the reasons set out above, the chosen option of constructing a floating breakwater and jetty has a lower potential for significant environmental effects when compared to the option of constructing a 'cast-in-situ' concrete marina.

Drawing Title
Initial Hodson Bay Design Concept

Project Title
Hodson Bay Waterfront Park Redevelopment

Adapted By	Checked By
FL	EOS
Project No.	**Drawing No.**
241220	Figure 3-1
	Date
	31/07/2026

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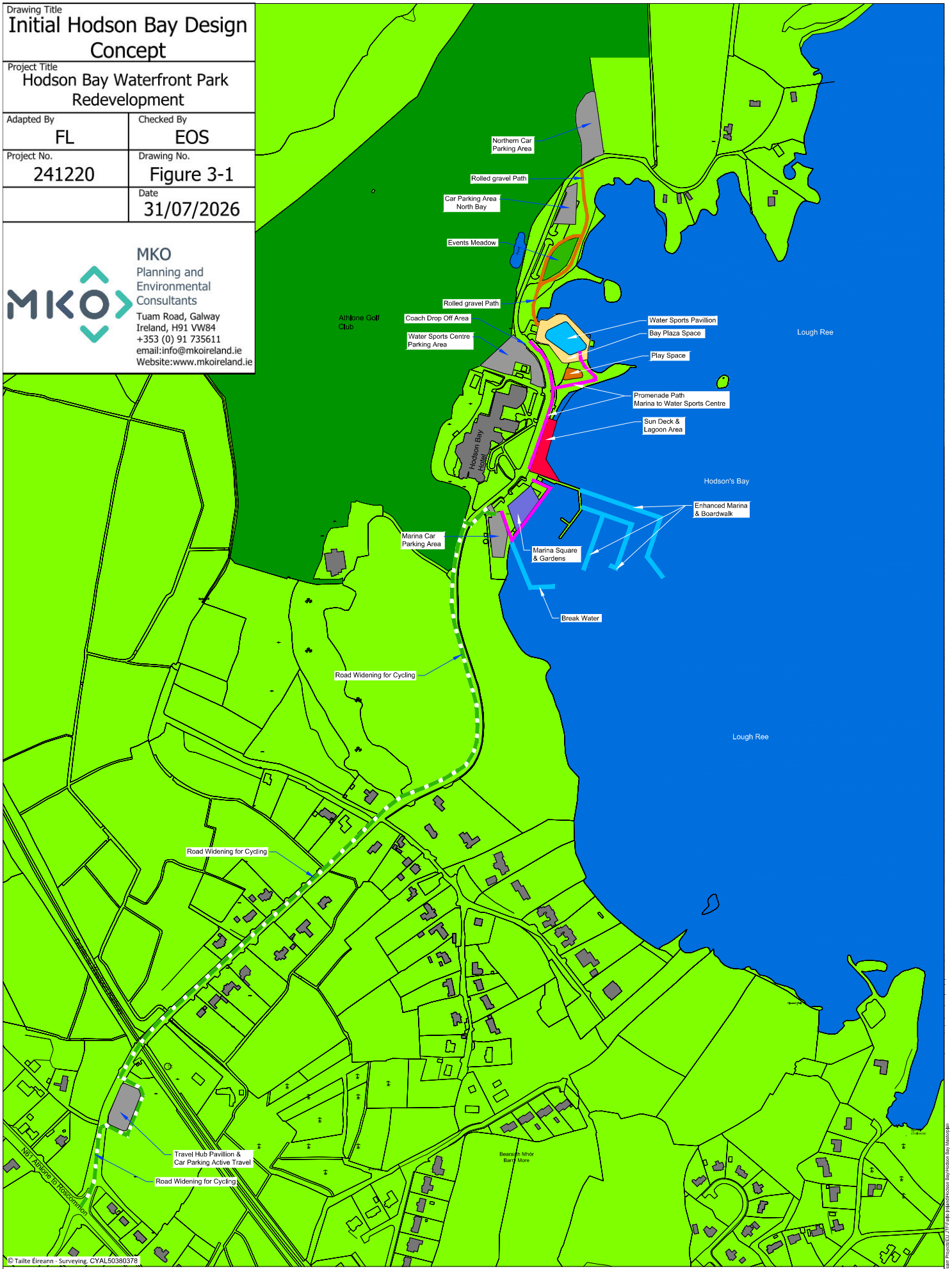


ROSCOMMON COUNTY COUNCIL
Community & Enterprise Team,
Aras an Chontae, Roscommon.
Phone 090 66 37100

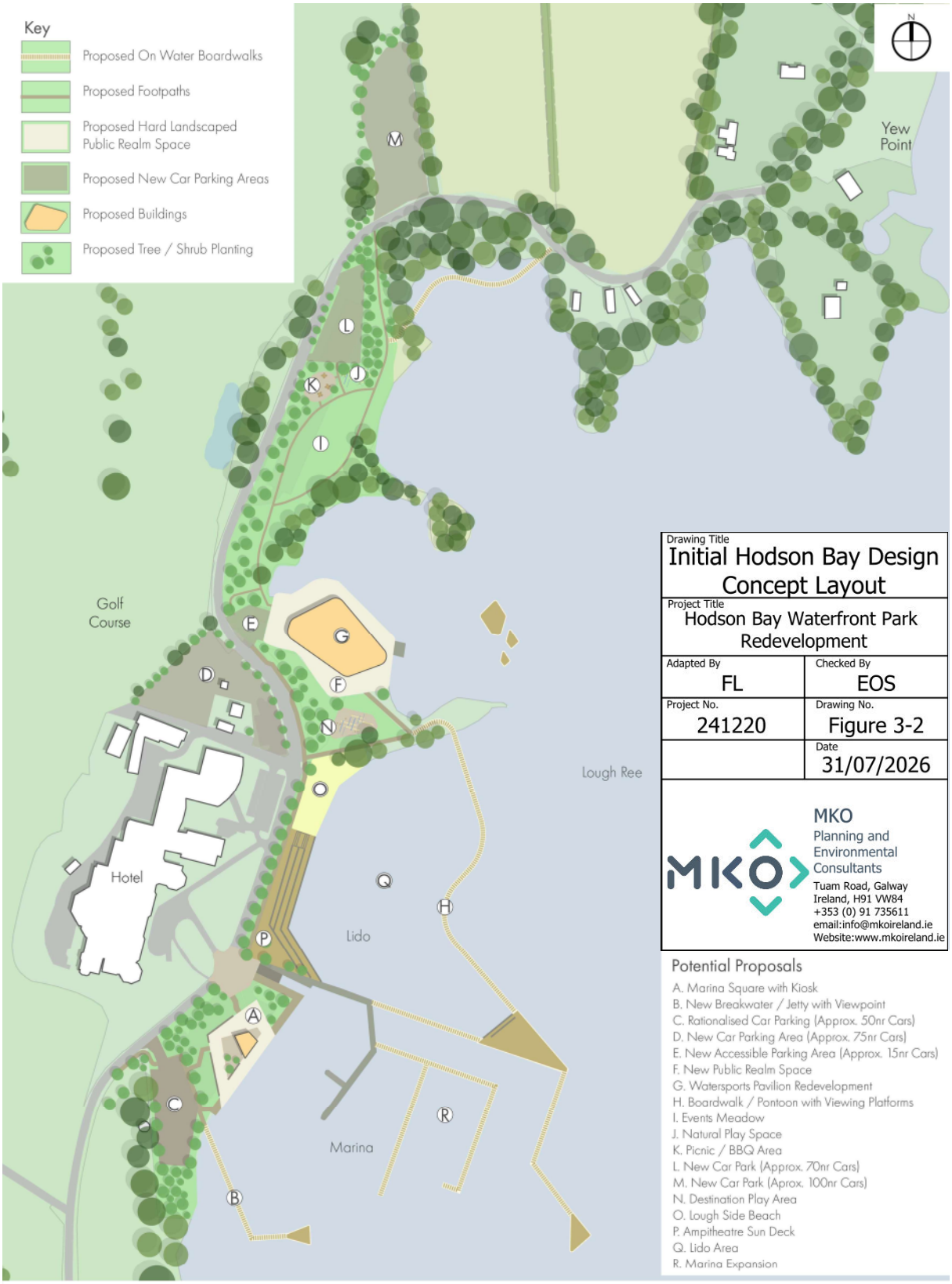
Date	By	Revision
25.06.2024	D.L.	Application Amended - Elements Removed

Project: Hodson Bay Waterfront Park
Title: EU Just Transition Application
Proposed Project Elements

Scale	Not to Scale	Date	28.02.2024	Drawing No.:
Design	E. Mulryan	Drawn	D. Loughnane	Checked: M. Keaveney	002

Filename: Hodson Bay - Submission Layout.dwg

File Location: C:\Cadd\Projects\Roscommon\EU JTF\Athlone\Hodson Bay\Hodson Bay Masterplan



Hodson Bay Concept Masterplan - 12.08.2022
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3.6.3 Public Realm Upgrades

In 2024, SLR Consultants produced a report for RCC titled *Hodson Bay Constraints Study and Preferred Options Report - 2023 - 2040*. Figures 3-1 and 3-2 (which are extracted from the *Hodson Bay Constraints Study and Preferred Options Report - 2023 – 2040)* show the initial design concept of the Proposed Development site which was first assessed by the design team.

As described below, upon undertaking further studies at the site, the following public realm features included in the initial design concept were not advanced in the final design:

- Floating boardwalk; and
- In-lake floating lido.

Floating Boardwalk and In-Lake Floating Lido

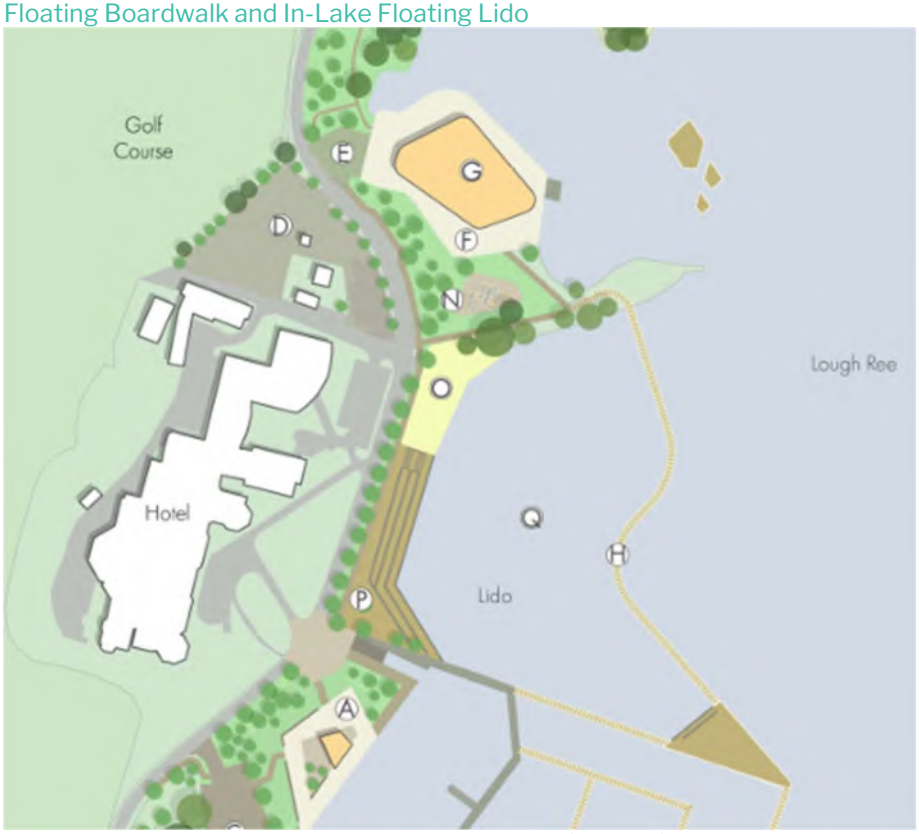

Plate 3-3 Initial Floating Boardwalk and In-Lake Floating Lido Design (not to scale)

[4] *SLR 2024 Hodson Bay Constraints Study and Preferred Options Report 2023-2040. Available at: 2040https://www.roscommoncoco.ie/en/services/tourism/eujtf-projects/hodson-bay-waterfront-park/publications/appendix-1-hodson-bay-constraints-study-and-preferred-options-report-2023-2040.pdf*

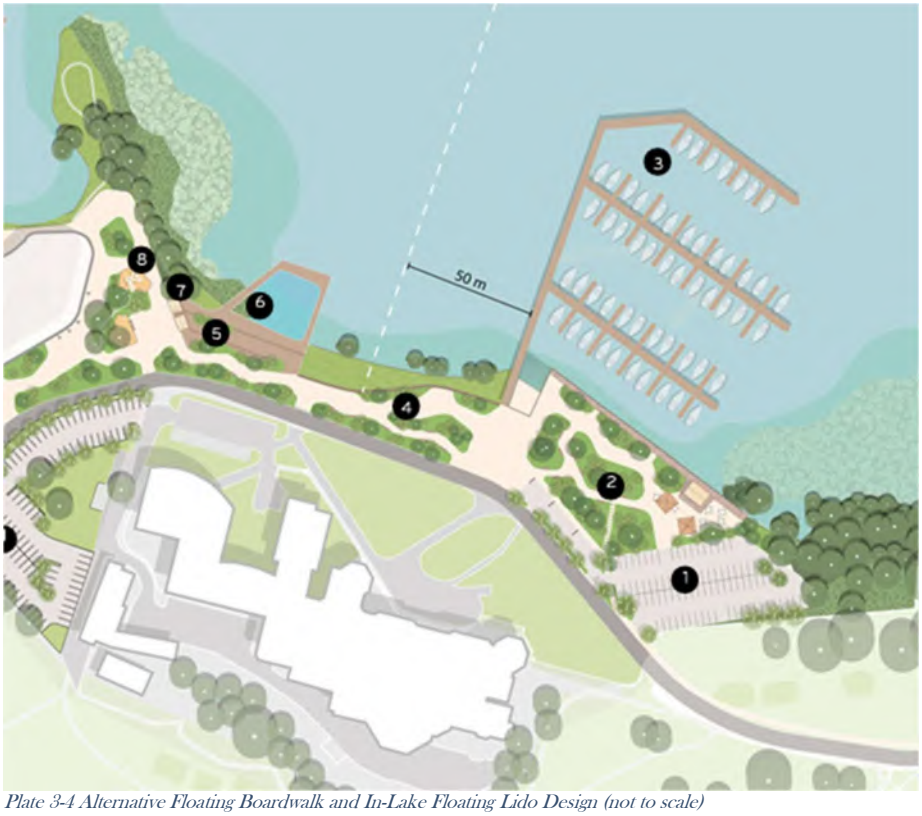

Plate 3-4 Alternative Floating Boardwalk and In-Lake Floating Lido Design (not to scale)

A comparison of the potential environmental effects of the chosen design option against the construction of a floating boardwalk and lido are presented in Table 3-4 below.

Table 3-4 Evaluation of Environmental Effects of a Floating Boardwalk and In-Lake Floating Lido Design against the Chosen Design Option

Environmental Factor	Chosen Design Option	Construction of a Floating Boardwalk and In-Lake Floating Lido Design
Population & Human Health	Based on the assessment detailed in Chapter 9 Air, Chapter 11 Noise and Vibration and Chapter 14 Material Assets of this EIAR, and the mitigation measures proposed therein, there will be no significant effects related to air quality and noise from the Proposed Development and there will be no significant negative effects relating to traffic disruption and associated residential amenity.	Construction of a floating boardwalk and in-lake floating lido design would have provided an additional attraction for visitors to the area. Analysis of the prevailing wind and concerns about wave action on Lough Ree showed that there were potential health and safety risks to users of this infrastructure due to frequent winds and wave action in the area.
Biodiversity	Following consideration of the residual effects (post mitigation) it is concluded that the Proposed Development will not result in any significant effects on any of the identified Key Ecological Receptors in the long term. It has been concluded that there will be a temporary residual effect at the	Having an extensive floating boardwalk and lido structure in Lough Ree is considered less favourable from an ecological perspective due to greater disturbance of wildlife in the area and more intrusive construction within the lake. Wild swimming currently take place from the northern shore of the Proposed Development site.

Environmental Factor	Chosen Design Option	Construction of a Floating Boardwalk and In-Lake Floating Lido Design
	local geographic scale in the short to medium term effect (5-15 years) on trees and treeline habitat. No significant effects on receptors of International, National, County Importance or Local importance (higher value) were identified in the long term.	The floating boardwalk structure could restrict access to the lake shore for some species including bird species which nest in the reedbeds at Hodson Bay. The lido structure would result in the permanent loss of some of the natural beach type habitat areas found along the lakeshore. The preferred Proposed Development design ensures that existing beach areas of the lake shore remain unaltered.
Land, Soils & Geology	Based on the assessment in Chapter 7 Land, Soils and Geology, no significant effects on soils and subsoils will occur as a result of the Proposed Development provided that the mitigation measures set out in Chapter 7 are implemented.	No significant effects on Land, Soils and Geology are likely from constructing a floating boardwalk and lido structure.
Hydrology & Hydrogeology	The Proposed Development is designed to protect the receiving water and general environment. Based on the assessment in Chapter 8 Hydrology and Hydrogeology, no significant effects on surface water or groundwater quality will occur provided that the proposed mitigation measures are implemented.	Constructing a floating boardwalk and lido structure would require a greater level of in-water works in Lough Ree which has the potential to give rise to much greater disturbance to lake sediments. Greater risk to water quality effects during the construction phase.
Air Quality	Based on the assessments detailed in Chapter 9 Air and Chapter 10 Climate, and the mitigation proposed, residual impacts of exhaust emissions and dust generation from the construction phase will have a short term imperceptible negative effect. Whilst the operational phases of the Proposed Development will give rise to an increase in vehicle emissions from maintenance workers and increased visitor numbers, the dust and exhaust emissions associated with the operational phase are considered to be imperceptible relative to the baseline. The Proposed Development design incorporates a range of sustainable transport measures, including the provision of new bus set-down areas,	No significant effects on Air Quality are likely from constructing a floating boardwalk and lido structure. However, a longer duration construction phase would be required for the construction giving rise to potentially more dust and exhaust emissions.

Environmental Factor	Chosen Design Option	Construction of a Floating Boardwalk and In-Lake Floating Lido Design
	improved pedestrian infrastructure, and 30 electric vehicle (EV) parking spaces. These measures are intended to promote and facilitate a shift towards more sustainable forms of transport and, as such, will assist in reducing reliance on private fossil fuel-based vehicles over the longer term.	
Noise and Vibration	Based on the assessment detailed in Chapter 11 Noise and Vibration and the mitigation measures proposed, there will be no significant effects on sensitive receptors due to an increase in noise and vibration levels from the Proposed Development during the construction and operational phases. Mitigation measures in relation to potential noise impacts during the construction phase are outlined in detail in Chapter 11 and also in the accompanying Construction Environmental Management Plan (CEMP).	Constructing a floating boardwalk and lido structure would require a longer duration construction phase giving rise to more noise and vibration emissions and greater impacts on human and ecological receptors.
Cultural Heritage & Archaeology	As detailed in the assessment in Chapter 12 Cultural Heritage, no direct or indirect effects to the recorded cultural heritage resource as a result of the Proposed Development have been identified. Mitigation measures to minimise the potential for unrecorded subsurface archaeology have been proposed and are outlined in Chapter 12.	The construction of a floating boardwalk and lido structure. Would increase the likelihood for potential underwater archaeological impacts.
Landscape & Visual	The EIAR completed for the Proposed Development concluded that likely landscape and visual effects anticipated from the Proposed Development are not deemed to be significant. Considering the zoning of these lands, residual effects upon the landscape and visual amenity are deemed to be acceptable and in line with the sustainable development of the area The Landscape and Visual Impact Assessment (LVIA) determined that the majority of long-distance views over Lough Ree are preserved and more opportunity to	Constructing a floating boardwalk and lido structure would give rise to greater Landscape & Visual effects as it requires a more intrusive and lengthy construction methodology Whilst a floating boardwalk and lido structure located in Lough Ree could be seen as a more visually intrusive design, it would also allow visitors to enjoy the views of Lough Ree from an excellent vantage point.

Environmental Factor	Chosen Design Option	Construction of a Floating Boardwalk and In-Lake Floating Lido Design
	experience views is created by the addition of the proposed infrastructure. The LVIA also determined that visual aesthetics will be improved compared to the current baseline conditions, along with benefits to landscape character and integration into the lakeshore environment of Lough Ree.	
Material Assets (Traffic & Transportation)	As detailed in Chapter 14 Material Assets, there will be a short term slight negative effect on traffic volumes during the construction phase of the Proposed Development. A detailed Traffic Management Plan incorporating all the mitigation measures will be agreed with the roads authority prior to construction works commencing on site. Taking account of the embedded design measures and proposed mitigation, the operational phase is assessed as resulting in an overall Positive, Significant and Permanent effect on the local traffic and transport environment. No significant adverse residual traffic or transport effects are predicted.	No significant effects on Material Assets are likely from constructing a floating boardwalk and lido structure.

The floating boardwalk and in-lake floating lido designs shown above were not included in the final design. Analysis of the prevailing wind and concerns about wave action on Lough Ree showed that ensuring the constructability, durability and maintenance of such structures is very complex and costly. The potential health and safety risk to users due to frequent winds and wave action in the area has also been considered. Having an extensive floating boardwalk and lido structure in Lough Ree is considered less favourable from an ecological perspective due to greater disturbance of wildlife in the area.

The floating boardwalk structure would restrict access to the lake shore for some species including bird species which nest in the reedbeds at Hodson Bay. The lido structure would result in the permanent loss of some of the natural beach type habitat areas found along the lakeshore. The preferred Proposed Development design ensures that existing beach areas of the lake shore remain unaltered.

For the reasons set out above, the chosen design option has a lower potential for significant environmental effects when compared to the option of constructing a floating boardwalk and lido structure.

3.6.4 Active Travel and Parking

The *Hodson Bay Constraints Study and Preferred Options Report - 2023 - 2040*[5] prepared by SLR Consultants in 2024 also included the following design features which were assessed by the design team and ultimately excluded from the proposed design.

- A transport mobility hub near the N61 National Road to the south of the site; and
- An overflow car parking area in the north of the site

Transport Mobility Hub near the N61 National Road

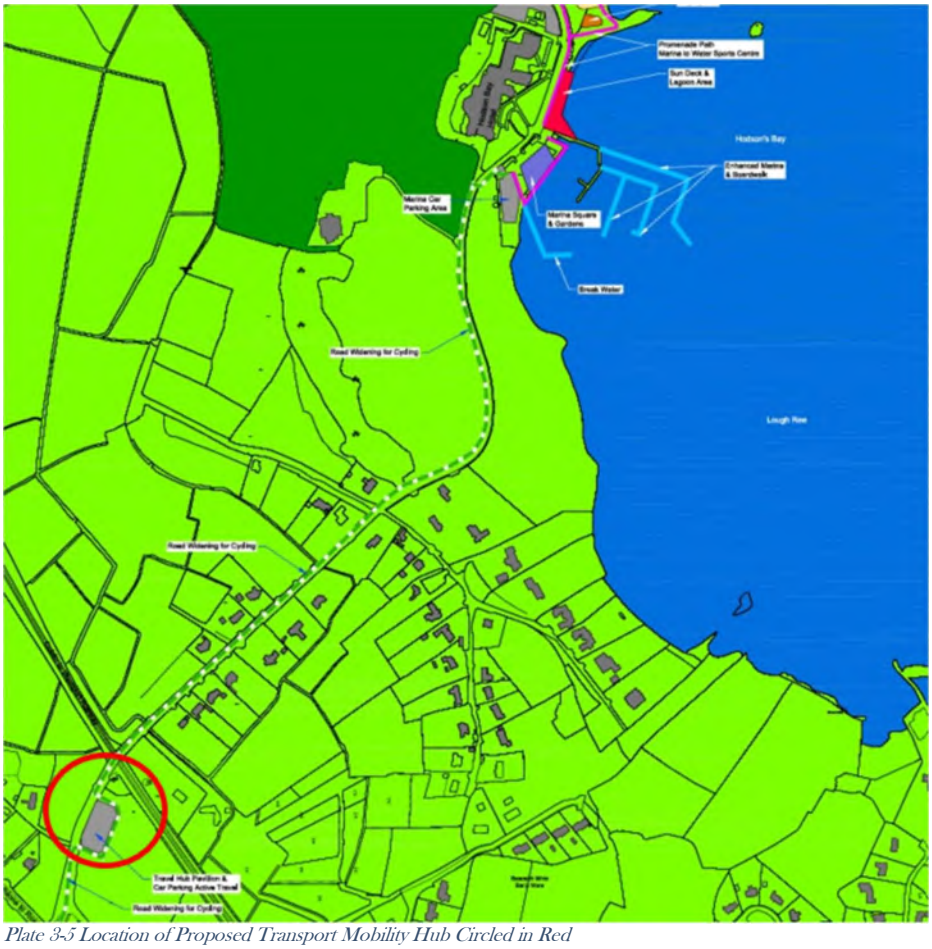

Plate 3-5 Location of Proposed Transport Mobility Hub Circled in Red

[5] *SLR 2024 Hodson Bay Constraints Study and Preferred Options Report 2023-2040. Available at: 2040https://www.roscommoncoco.ie/en/services/tourism/eujtf-projects/hodson-bay-waterfront-park/publications/appendix-1-hodson-bay-constraints-study-and-preferred-options-report-2023-2040.pdf*

Plate 3-6 Visualisation of Proposed Mobility Hub Concept

The initial design concept included a proposed Transport Mobility Hub located to the southern end of the Proposed Development site. The proposed Transport Mobility Hub would function as a location where visitors could park their cars and continue their journey to the site via either active travel methods or via a shuttle bus. The Transport Mobility Hub was not progressed considering its distance from the waterfront area and the scale of the Hub proposal, it was deemed to be unnecessary to the delivery of the Proposed Development.

Overflow Northern Car Parking Area

Plate 3-7 Location of Proposed Overflow Car Park Circled in Red

The overflow northern car park area shown at point M in Plate 3-7 is not included in the final design due to flood risk considerations, remoteness of the site from the waterfront, and additional impacts on Athlone Golf Club golf course.

It is located particularly far from the marina and the Hodson Bay Hotel and the location is not suitable for those with mobility issues or those carrying luggage or equipment for water sports or boating activities.

Chosen Design (Increase Parking in Strategic Areas & L2020 Active Travel Shared Path)

The Proposed Development will allow for an increase in the overall parking provision from 353 to 504 no. spaces. In addition to increasing capacity, the parking layout has been redesigned to improve the operation and appearance of the waterfront area by relocating existing on-street parking away from the immediate lakeshore, thereby enhancing the visual amenity, landscape setting and pedestrian environment. The layout also seeks to improve the distribution of parking demand across the site through enhanced wayfinding and signage, encouraging greater utilisation of the northern car park, particularly by visitors accessing the water sports facilities and café.

The Proposed Development includes for a 3m wide shared cycle / pedestrian pathway along the length of the L2020 Local Road from the N61 National Road junction to the Hodson Bay Marina. The upgrades to the L2020 Local Road and pathway will involve two elements.

1. Widening of c. 900m of the existing footpath along the western side of the L2020 Local Road from the junction with the N61 National Road and the pedestrian crossing at the Athlone Golf Club lands. The L2020 Local Road will be narrowed to between 5.5m and 6m to facilitate space for the 3m wide pathway in this section.
2. The Active Travel corridor then crosses the L2020 Local Road and the existing footpath along the eastern side of the L2020 Local Road will be widened along a c. 415m section terminating at the Hodson Bay Marina. The existing carriageway widths in this section will be retained, and a portion of land from Athlone Golf Club is required to widen the pathway to 3m.

The crossing of the shared pathway to the eastern side of the L2020 will necessitate the acquisition of land from Athlone Golf Club. The provision of a safe and accessible route for pedestrians and cyclists in this area is not achievable without road widening works. Consequently, the absence of these works would have undermined a key objective of the project. The proposed Active Travel access improvements are designed to support sustainable travel patterns and enhance safety and accessibility for non-motorised users. Furthermore, as there is an existing pathway which will be upgraded, land-take, ground disturbance, and construction related noise, dust and local disturbance will be of a smaller scale than constructing an entirely new path. In addition, continuing the path on the western side would result in a greater impact to Athlone Golf Club on the western side.

Table 3-5 below assesses the preferred design for the Proposed Development compared with the options for a Transport Mobility Hub near the N61 National Road and the construction of an overflow northern car park area.

Table 3-5 Evaluation of Environmental Effects of Transport Mobility Hub near the N61 National Road and Construction of Overflow Northern Car Parking Area against the Chosen Design Option

Environmental Factor	Chosen Design Option (Increase Parking around Lakefront Area & 3m Wide Active Travel Corridor along L2020)	Construction of Transport Mobility Hub near the N61 National Road	Construction of Overflow Northern Car Parking Area
Population & Human Health	Based on the assessment detailed in Chapter 9 Air, Chapter 11 Noise and Vibration and Chapter 14 Material Assets of this EIAR, and the mitigation measures proposed therein, there will be no significant effects related to air quality and noise from the Proposed Development and there will be no significant negative effects relating to traffic disruption and associated residential amenity.	The Transport Mobility Hub was not progressed considering its distance from the waterfront area and the scale of the Hub proposal, it was deemed to be unnecessary to the delivery of the Proposed Development. Additional disturbance to local residents during construction and operation due to development in an area which is currently undeveloped.	The overflow northern car parking area is judged to be a considerable distance from the waterfront. It is located particularly far from the marina and the Hodson Bay Hotel and the location is less suitable for those with mobility issues or those carrying luggage or equipment for water sports or boating activities.
Biodiversity	Following consideration of the residual effects (post mitigation) it is concluded that the Proposed Development will not result in any significant effects on any of the identified Key Ecological Receptors in the long term. It has been concluded that there will be a temporary residual effect at the local geographic scale in the short to medium term effect (5-15 years) on trees and treeline habitat. No significant effects on receptors of International, National, County Importance or Local importance (higher value) were identified in the long term.	Additional disturbance to biodiversity during construction and operation, and loss of habitat, due to development in an area which is currently undeveloped.	Additional disturbance to biodiversity during construction and operation. Given the area in question seasonally floods, the likelihood of a high species and habitat diversity in the area is high.
Land, Soils & Geology	Based on the assessment in Chapter 7 Land, Soils and Geology, no significant effects on soils and subsoils will occur as a result of the Proposed Development provided that the	Additional impacts on Land, Soils and Geology due to development in an area which is currently undeveloped.	Additional impacts on Land, Soils and Geology due to development in an area which is currently undeveloped.

Environmental Factor	Chosen Design Option (Increase Parking around Lakefront Area & 3m Wide Active Travel Corridor along L2020)	Construction of Transport Mobility Hub near the N61 National Road	Construction of Overflow Northern Car Parking Area
	mitigation measures set out in Chapter 7 are implemented.		Construction of car parking in this area likely required significant infill material as the area is below the road level and assessed as being in a flood risk area.
Hydrology & Hydrogeology	The Proposed Development is designed to protect the receiving water and general environment. Based on the assessment in Chapter 8 Hydrology and Hydrogeology, no significant effects on surface water or groundwater quality will occur provided that the proposed mitigation measures are implemented.	Potential for impacts on surface hydrology due to development in an area which is currently undeveloped.	The area was deemed less suitable for construction of a car park due to the flood risk in the area. Backfilling the area with suitable material to mitigate flood risk posed further water quality concerns and had the potential to exacerbate local flood impacts in the area.
Air Quality	Based on the assessments detailed in Chapter 9 Air and Chapter 10 Climate, and the mitigation proposed, residual impacts of exhaust emissions and dust generation from the construction phase will have a short term imperceptible negative effect. Whilst the operational phases of the Proposed Development will give rise to an increase in vehicle emissions from maintenance workers and increased visitor numbers, the dust and exhaust emissions associated with the operational phase are considered to be imperceptible relative to the baseline. The Proposed Development design incorporates a range of sustainable	No significant effects on Air Quality are likely from constructing a Transport Mobility Hub. Construction phase impacts of exhaust emissions and dust generation would have a short term imperceptible negative effect.	No significant effects on Air Quality are likely from constructing a floating boardwalk and lido structure. However, a longer duration construction phase would be required for the construction giving rise to potentially more dust and exhaust emissions.

Environmental Factor	Chosen Design Option (Increase Parking around Lakefront Area & 3m Wide Active Travel Corridor along L2020)	Construction of Transport Mobility Hub near the N61 National Road	Construction of Overflow Northern Car Parking Area
	transport measures, including the provision of new bus stops, improved pedestrian infrastructure, and 30 electric vehicle (EV) charging stations. These measures are intended to promote and facilitate a shift towards more sustainable forms of transport and, as such, will assist in reducing reliance on private fossil fuel-based vehicles over the longer term.		
Noise and Vibration	Based on the assessment detailed in Chapter 11 Noise and Vibration and the mitigation measures proposed, there will be no significant effects on sensitive receptors due to an increase in noise and vibration levels from the Proposed Development during the construction and operational phases. Mitigation measures in relation to potential noise impacts during the construction phase are outlined in detail in Chapter 11 and also in the accompanying Construction Environmental Management Plan (CEMP).	No significant effects on Noise and Vibration are likely from constructing a Transport Mobility Hub. Increase in construction phase noise for residents in the vicinity of the Transport Mobility Hub during construction. Increase in noise during the operational phase, however the area is located in close proximity to the N61 National Road and traffic noise dominates the baseline soundscape in the area.	No significant effects on Noise and Vibration are likely from constructing an overflow northern car parking area.
Cultural Heritage & Archaeology	As detailed in the assessment in Chapter 12 Cultural Heritage, no direct or indirect effects to the recorded cultural heritage resource as a result of the Proposed Development have been identified. Mitigation measures to minimise the potential for unrecorded subsurface archaeology have been proposed and are outlined in Chapter 12.	Increasing the footprint of the Proposed Development site with the addition of the Transport Mobility Hub increases the likelihood of the discovery of sub-surface archaeological material.	Increasing the footprint of the Proposed Development site with the addition of the overflow northern car parking area increases the likelihood of the discovery of sub-surface archaeological material.

Environmental Factor	Chosen Design Option (Increase Parking around Lakefront Area & 3m Wide Active Travel Corridor along L2020)	Construction of Transport Mobility Hub near the N61 National Road	Construction of Overflow Northern Car Parking Area
Landscape & Visual	The EIAR completed for the Proposed Development concluded that likely landscape and visual effects anticipated from the Proposed Development are not deemed to be significant. Considering the zoning of these lands, residual effects upon the landscape and visual amenity are deemed to be acceptable and in line with the sustainable development of the area The Landscape and Visual Impact Assessment (LVIA) determined that the majority of long-distance views over Lough Ree are preserved and more opportunity to experience views is created by the addition of the proposed infrastructure. The LVIA also determined that visual aesthetics will be improved compared to the current baseline conditions, along with benefits to landscape character and integration into the lakeshore environment of Lough Ree.	Increasing the footprint of the Proposed Development site with the addition of the Transport Mobility Hub increases the landscape and visual impact due to development in an area which is currently undeveloped.	Increasing the footprint of the Proposed Development site with the addition of the overflow northern car parking area increases the landscape and visual impact due to development in an area which is currently undeveloped. However, there are very few receptors in the vicinity of the area so landscape and visual impacts are minimal.
Material Assets (Traffic & Transportation)	As detailed in Chapter 14 Material Assets, there will be a short term slight negative effect on traffic volumes during the construction phase of the Proposed Development. A detailed Traffic Management Plan incorporating all the mitigation measures will be agreed with the	Developing the Transport Mobility Hub results in less traffic travelling along the L2020 Local Road and would result in less parking demand pressure on the tourism providers around the waterfront during peak times.	Developing the overflow northern car parking area provides additional parking spaces in the area, however given the distance from the waterfront area the location is not considered convenient nor suitable for those with mobility issues or those carrying luggage or equipment for water sports or boating activities.

Environmental Factor	Chosen Design Option (Increase Parking around Lakefront Area & 3m Wide Active Travel Corridor along L2020)	Construction of Transport Mobility Hub near the N61 National Road	Construction of Overflow Northern Car Parking Area
	roads authority prior to construction works commencing on site. Taking account of the embedded design measures and proposed mitigation, the operational phase is assessed as resulting in an overall Positive, Significant and Permanent effect on the local traffic and transport environment. No significant adverse residual traffic or transport effects are predicted.		

3.6.5 Final Proposed Site Layout

The following planning drawings show the preferred Proposed Development site layout.

- HBWP-ZZ-ZZ-DR-OKR-LA-001000
- HBWP-ZZ-ZZ-DR-OKR-LA-001100
- HBWP-ZZ-ZZ-DR-OKR-LA-001101
- HBWP-ZZ-ZZ-DR-OKR-LA-001102
- HBWP-ZZ-ZZ-DR-OKR-LA-001103
- HBWP-ZZ-ZZ-DR-OKR-LA-001104
- HBWP-ZZ-ZZ-DR-OKR-LA-001105
- HBWP-ZZ-ZZ-DR-OKR-LA-001106
- HBWP-ZZ-ZZ-DR-OKR-LA-001107

The design of the Proposed Development addresses environmental resilience through biodiversity and nature-based solutions. Avoidance of encroachment on high biodiversity value lake fringe habitat has been a central principle in informing the design process. Landscape design integrates Sustainable Drainage Systems (SuDS) such as planting zones, integrated filter strips and permeable paving, and the replanting of 240 no. native trees and shrubs to replace trees lost during the construction phase will ensure that the Proposed Development will assimilate within the natural surroundings.

The Proposed Development assessed in this EIAR is informed by a co-design process with a large team informed and guided by current European, National and Local policy regarding design, biodiversity, sustainable drainage, sustainable transport and placemaking. The Proposed Development design takes into account updated guidance and legislation at a local and national level which influences the scheme design.

The preferred Proposed Development site layout takes account of all site constraints as well as feedback from the comprehensive public consultation process and scoping responses received from various statutory consultees.

3.7 Alternative Land Uses

The existing land use at the Proposed Development site is tourism & recreation land uses. With the redevelopment of the Hodson Bay waterfront park and marina extension, the Proposed Development site will remain as tourism & recreation land uses but on a greater scale incorporating a considered design that is environmentally sound and is consistent with the principles of proper planning and sustainable development. The L2020 Local Road will not change from its existing land use of road network with the construction of the Active Travel improvements. It is considered that the proposed land uses are deemed appropriate for these zoned lands as outlined in the RCDP 2022-2028. As such consideration of alternative land uses were not considered necessary.

3.8 Alternative Mitigation

Mitigation by avoidance has been a key aspect of the Proposed Development's evolution through the selection and design process. Avoidance of the most ecologically sensitive areas of the site limits the potential for environmental effects. As noted above, the Proposed Development has been designed to reduce impacts on the more environmentally sensitive areas.

The best practice design and mitigation measures set out in this EIAR will contribute to reducing any risks and have been designed to break the pathway between the site and any identified environmental receptors. The mitigation methods proposed follow the principle of avoidance of impact where possible in the first instance, followed by minimisation of impacts where full avoidance is not possible. The mitigation methods proposed represent best practice in the industry. The alternative is to either not propose these measures or propose measures which are not best practice and effective, neither of which is a sustainable option.

3.8.1 Construction Phase Cofferdam Mitigation Alternatives

A key mitigation measure for the Proposed Development involves the insertion of a cofferdam structure around the area of the existing water sports facilities for the estimated 18-month construction period of the Water Sports Pavilion. This will ensure a dry working area at this sensitive part of the Proposed Development site which is adjacent to Lough Ree. The cofferdam will ensure the avoidance of water quality impacts during construction by preventing potential pluvial runoff from the construction works area from entering directly into the lake untreated. The top-level of the cofferdam will be installed to a minimum of 37.5 metres above ordnance datum (mAOD) to ensure that the cofferdam is not breached during flooding.

Several alternative cofferdam design options were considered for the Proposed Development.

Cofferdam Design 1

Initially, a Portadam[6] structure was considered to create a dry working area. This is an impermeable geotextile that is propped on scaffolding structure. However, the design team felt that it was deemed to be a less robust solution considering the 18-month construction period and the potential for high water levels which can often be seen in Lough Ree in the wetter winter months.

Cofferdam Design 2

An alternative design was assessed comprising a sheet piled cofferdam installation around the lake edge following the entire boundary of the existing concrete hardstand at the Baysports facility (see Plate 3-8 below). However, ecological concerns were raised regarding impacts on alluvial woodland root zones if the sheet piled cofferdam were to be installed within sections of mapped alluvial woodland habitat.

[6] *Portadam | Decades of Water Control Expertise*

Plate 3-8 Indicative location of Cofferdam Design 2 which proposed the installation of a sheet piled cofferdam along the line shown in blue

Preferred and Final Cofferdam Design 3

The most suitable cofferdam design involves a combination of sheet piling and an earth bund structure. Sheet piling works are not proposed in areas of alluvial woodland, and instead an earth bund will be installed in the vicinity of the alluvial woodland. Works will take place outside of the identified root protection zone, as advised by an arboriculturist. In order to avoid disturbance of root structures, the dam structure will be constructed above ground, with an earth bund installed on top of the existing concrete hardstand. The earth bund will connect to the sheet piling at a point outside of the identified areas of alluvial woodland. The top-level of the cofferdam will be installed to a minimum of 37.5mAOD to ensure that the cofferdam is not breached during flooding.

Refer to Section 4.6.2 of the EIAR for further details on the proposed cofferdam design and Drawing 31022-DR-CIV-CE-50001.

Dewatering will be provided as relevant to specific requirements with dewatered discharge pumped using a pump equipped with a silt bag on the discharge outlet. The pumped water will be discharged to either the existing surface water drainage system or to a suitably vegetated area within the site boundary. Where discharge to a vegetated area is required, the area will be enclosed with silt fencing, as necessary, to prevent sediment-laden runoff and ensure compliance with best practice environmental controls.

Table 3-6 below assesses the cofferdam design options considered for the construction phase of the Water Sports Pavilion.

Table 3-6 Evaluation of Cofferdam Designs 1, 2 and 3

Environmental Factor	Cofferdam Design 1	Cofferdam Design 2	Cofferdam Design 3 (Chosen Design)
Population & Human Health	Concern Cofferdam Design 1 may not be suitably robust to remain in place for an 18-month period and be able to withstand the high water levels which can often be seen in Lough Ree in the wetter winter months. Risk of water quality impacts if the design failed resulting in risk to Human Health.	Cofferdam Design 2 would provide a robust design to prevent pollution runoff during the construction of the Water Sports Pavilion ensuring any risks to Human Health are mitigated.	Cofferdam Design 3 will provide a robust design to prevent pollution runoff during the construction of the Water Sports Pavilion ensuring any risks to Human Health are mitigated.
Biodiversity	Cofferdam Design 1 likely involves least intrusive installation and minimal disturbance to reedbed and alluvial woodland habitat. Concern Cofferdam Design 1 was deemed not to be suitably robust to remain in place for an 18-month period and to withstand the high water levels which can often be seen in Lough Ree in the wetter winter months. Risk of water quality impacts if the design failed resulting in risk to Biodiversity.	Cofferdam Design 2 was deemed unsuitable due to ecological concerns regarding impacts on alluvial woodland root zones if the sheet piled cofferdam were to be installed adjacent to, and within, sections of mapped alluvial woodland habitat.	Following consideration of the residual effects (post mitigation) it is concluded that the Proposed Development will not result in any significant effects on any of the identified Key Ecological Receptors in the long term. It has been concluded that there will be a temporary residual effect at the local geographic scale in the short to medium term effect (5-15 years) on trees and treeline habitat. No significant effects on receptors of International, National, County Importance or Local importance (higher value) were identified in the long term.
Land, Soils & Geology	Cofferdam Design 1 likely involves least intrusive installation. No significant effects on soils and subsoils would occur as a result of the installation.	No significant effects on soils and subsoils would occur as a result of the installation of Cofferdam Design 2.	No significant effects on soils and subsoils will occur as a result of the installation of Cofferdam Design 3.
Hydrology & Hydrogeology	Cofferdam Design 1 is expected to involve the least intrusive installation. Concern Cofferdam Design 1 may not be suitably robust to remain in place for an 18-month period and be able to	Cofferdam Design 2 involves sheet piling for installation which would result in a short-term impact on water quality in Lough Ree due to disturbance of lake sediment.	Cofferdam Design 3 involves sheet piling for installation which will result in a short-term impact on water quality in Lough Ree due to disturbance of lake sediment.

Environmental Factor	Cofferdam Design 1	Cofferdam Design 2	Cofferdam Design 3 (Chosen Design)
	withstand the high water levels which can often be seen in Lough Ree in the wetter winter months. Risk of water quality impacts if the design failed.	Once installed, Cofferdam Design 2 would provide a robust design to prevent water pollution from runoff during the construction of the Water Sports Pavilion.	Once installed, Cofferdam Design 3 will provide a robust design to prevent water pollution from runoff during the construction of the Water Sports Pavilion.
Air Quality	No significant effects on Air Quality are likely from proceeding with Cofferdam Design 1.	No significant effects on Air Quality are likely from proceeding with Cofferdam Design 2.	No significant effects on Air Quality are likely from proceeding with Cofferdam Design 3.
Noise and Vibration	No significant effects on Noise and Vibration are likely from constructing Cofferdam Design 1.	The installation of Cofferdam Design 2 involves sheet piling which would result in a short-term Noise and Vibration effect to human and ecological receptors during installation.	The installation of Cofferdam Design 3 involves sheet piling which would result in a short-term Noise and Vibration effect to human and ecological receptors during installation. Based on the assessment detailed in Chapter 11 Noise and Vibration and the mitigation measures proposed, there will be no significant effects on sensitive receptors due to an increase in noise and vibration levels from the Proposed Development during the construction and operational phases. Mitigation measures in relation to potential noise impacts during the construction phase are outlined in detail in Chapter 11 and also in the accompanying Construction Environmental Management Plan (CEMP).
Cultural Heritage & Archaeology	No direct or indirect effects to the recorded cultural heritage resource as a result of proceeding with Cofferdam Design 1.	No direct or indirect effects to the recorded cultural heritage resource as a result of proceeding with Cofferdam Design 2.	As detailed in the assessment in Chapter 12 Cultural Heritage, no direct or indirect effects to the recorded cultural heritage resource as a result of the Proposed Development have been identified. Mitigation measures to minimise the potential for unrecorded subsurface

Environmental Factor	Cofferdam Design 1	Cofferdam Design 2	Cofferdam Design 3 (Chosen Design)
			archaeology have been proposed and are outlined in Chapter 12.
Landscape & Visual	Cofferdam Design 1 would involve a scaffolded structure which would likely be the most prominent design option out of the three considered as it would be the tallest structure. The construction phase for the Water Sports Pavilion is estimated at 18 months, after which point the cofferdam will be removed. Landscape and Visual effects will be short-term.	Cofferdam Design 2 is the least visually prominent of the design options. The construction phase for the Water Sports Pavilion is estimated at 18 months, after which point the cofferdam will be removed. Landscape and Visual effects will be short-term.	Cofferdam Design 3 will be well screened from the L2020 side with hoarding to minimise landscape and visual effects. The construction phase for the Water Sports Pavilion is estimated at 18 months, after which point the cofferdam will be removed. Landscape and Visual effects will be short-term.
Material Assets (Traffic & Transportation)	No significant effects on Material Assets are likely from constructing Cofferdam Design 1.	No significant effects on Material Assets are likely from constructing Cofferdam Design 2.	No significant effects on Material Assets are likely from constructing Cofferdam Design 3.

3.9 Conclusion

Taking account of the key objectives for the Proposed Development set out in Section 3.3 above, the information presented in this chapter, and the information presented in the full EIAR; RCC and the design team consider the final Proposed Development design to be the most suitable design for the redevelopment of the Hodson Bay Waterfront Park.