

Hodson Bay

Engineering Report

July 2026

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Engineering Report

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1. Introduction

This Engineering Report has been prepared by Civic on behalf of Roscommon County Council (RCC) in relation to the proposed Hodson Bay project.

The purpose of this report is to provide a comprehensive description of the proposed interventions which form part of the overall design of the scheme.

1.1. Background and Objectives

The project aims to enhance the Hodson Bay area into a flagship tourism facility. The project's key objectives include improving the visitor experience, developing a continuous promenade, extending the marina, reimagining the water play experience, and creating a sustainable access, parking, and transport strategy.

The project objectives are:

- To provide a world class multi-functional public space, which enhances the adjacent facilities. Fostering civic identity, social interaction and cultural expression.
- To provide a new Water Sports Pavilion and café enhancing visitor experience.
- To support and comply with the binding requirements of the Climate Action Plan by prioritising resilience, adaptation, and greening.
- To upgrade the existing parking zones, designed for longevity and adaptability.
- To redesign the marina to promote expansion and easy access for boating vehicles.
- To support and enhance the local economy, strengthening the vitality of Hodson Bay.
- To provide safe routes for walking and cycling.
- To use the principles of universal design to provide an accessible space for all to enjoy.

The objectives have been developed through the project development process in consultation with key stakeholders in RCC to understand relevant issues and constraints. They are underpinned by the data analysis and insight gathered through the project development process to ensure objectives are realistic and evidence driven. They have also been framed to align with relevant national, regional and local policy.

The purpose of this report is to describe the engineering proposals of the Proposed Development at Hodson Bay, and to demonstrate that the scheme can be designed and implemented in a safe, efficient, and sustainable manner having regard to the surrounding physical, environmental, and infrastructural context.

1.2. Guidance and Legislation

1.2.1. Roscommon County Development Plan (2022–2028)

The CDP supports walking, cycling, tourism, recreation, and sustainable development. Relevant policies include:

- Recreation and Amenity Policy 05
 - Promote walkways, cycleways, and recreational routes, including links to Hodson Bay and Lough Ree.
- Tourism and Recreation Objective 07
 - Support sustainable tourism and recreation infrastructure at Hodson Bay, including marina expansion, waterfront public spaces, and greenway connections.
- Active Travel Policies
 - ITC 7.25: Promote safe walking and cycling infrastructure.
 - ITC 7.26: Develop a connected countywide walking and cycling network.
 - ITC 7.27–7.28: Apply national design standards and improve pedestrian/cyclist safety.
 - ITC 7.29–7.30: Deliver safer routes and retrofit active travel infrastructure.
- Flood Risk and Drainage Policies

- ITC 7.47: Support the improvement of stormwater infrastructure to improve sustainable drainage and reduce flood risk in urban environments.
- ITC 7.48: Ensure development is adequately serviced with surface water drainage infrastructure in accordance with the Water Framework Directive, River Basin Management Plans and CFRAM objectives.
- ITC 7.49: Minimise hard surfacing and require Sustainable Drainage Systems (SuDS) and porous surfacing where practicable.
- ITC 7.50: Require separate foul and surface water drainage systems.
- Hodson Bay / Barrymore Objectives
 - HB1: Support tourism, leisure, and amenity development.
 - HB2: Support expansion of tourism facilities while maintaining public access.
 - HB4: Facilitate low-intensity tourism, walking, and cycling routes near Natura 2000 sites.
 - HB8: Maintain greenbelt lands as environmental and visual buffers.
 - HB9: Protect greenbelt lands, biodiversity, landscape, and amenity value.
- All general objectives of Volume I of the CDP also apply.

1.2.2. County Roscommon Local Authority Climate Action Plan (2024–2029)

The Climate Action Plan establishes a county-level framework for climate mitigation and adaptation and is particularly relevant to the Proposed Development as a public-sector waterfront project. Relevant objectives include:

- Reduce emissions from local authority buildings and operations.
- Promote climate-resilient development.
- Encourage renewable energy generation and electrification of heat.
- Incorporate water conservation measures.
- Deliver low-carbon tourism and recreation infrastructure at established destinations.

The proposed all-electric building strategy, heat-pump systems, heat-recovery ventilation, solar photovoltaic generation, EV charging infrastructure, SuDS and active travel measures support these objectives.

1.2.3. Roscommon Outdoor Recreation Strategy (2023–2028)

Identifies Hodson Bay as a key recreation destination and supports improved walking and cycling access to the Shannon shoreline and wider outdoor recreation network.

1.2.4. Roscommon County Council Corporate Plan (2024–2029)

Relevant objectives include:

- Maintain and enhance public spaces and amenities.
- Protect the natural and built environment.
- Promote sustainable transport.
- Optimise the use of existing infrastructure.

1.2.5. Regional Spatial and Economic Strategy (RSES) 2019–2031

The RSES identifies Athlone as a Regional Centre and supports:

- Expansion of interconnected greenways (RPO 5.18)
- Development of greenways in accordance with best practice
- Collaborative greenway and blueway development with environmental protection
- Enhanced walking, cycling, and public transport
- Tourism linked to natural and cultural assets
- Biodiversity protection and green infrastructure

The Scheme supports these objectives by improving sustainable access between Athlone and Hodson Bay.

1.2.6. National Planning Framework (2025)

The NPF is Ireland's long-term spatial planning strategy to 2040 and, together with the NDP, forms Project Ireland 2040. Relevant National Strategic Outcomes (NSOs) include:

- NSO 2: Enhanced Regional Accessibility
- NSO 5: Sustainable Mobility
- NSO 8: Carbon Neutral and Climate Resilient Society
- NSO 9: Sustainable Management of Environmental Resources

Relevant NPF Objectives include:

- NPO 34: Support sustainable tourism, greenways, blueways, and peatways.
- NPO 37: Prioritise walking and cycling accessibility.
- NPO 51: Support sustainable port and harbour infrastructure.
- NPO 63: Promote tourism, sport, heritage, arts, and culture.
- NPO 66: Ensure development occurs within environmental limits.
- NPO 77–81: Promote sustainable water management, SuDS, flood risk management and nature-based solutions.
- NPO 83: Strengthen green and blue infrastructure networks.
- NPO 86: Seek no net loss of biodiversity.
- NPO 107: Align delivery of NPF and NDP objectives.

The Proposed Development supports these objectives through active travel investment, SuDS integration, flood-resilient design, renewable energy provision and enhancement of the Lough Ree waterfront.

1.2.7. National Development Plan (2021–2030)

The NDP promotes balanced regional growth, climate action, sustainable transport, and quality of life improvements. It supports walking and cycling networks, active travel safety, and tourism connectivity. The Hodson Bay Active Travel Scheme aligns with these objectives by providing a safe walking and cycling route between Athlone and Hodson Bay.

1.2.8. National Investment Framework for Transport in Ireland (NIFTI) (2021)

NIFTI prioritises urban mobility, infrastructure renewal, regional connectivity and transport decarbonisation. The active travel and sustainable access elements of the Proposed Development are consistent with these priorities.

1.2.9. National Sustainable Mobility Policy (2021–2025)

The policy aims to increase daily active travel journeys by 50% by 2030. Relevant objectives include:

- Improving safety across all transport modes (Goal 1)
- Expanding sustainable mobility in regional and rural areas (Goal 4)
- Expanding the greenway network (Core Action 30)
- Encouraging modal shift and cycling facilities (Goal 5; Core Action 41)
- Improving multimodal connectivity through smart solutions (Goal 10)

The Proposed Development contributes through new walking and cycling infrastructure, and improved visitor access.

1.2.10. Our Rural Future (2021–2025)

Supports sustainable tourism, outdoor recreation, accessible public transport, and investment in walking and cycling infrastructure. Relevant measures include:

- Measure 34: Sustainable tourism action plan
- Measure 36: Investment in greenways, blueways, and recreation infrastructure
- Measure 92: Accessible rural public transport

- Measure 102: High-quality walking and cycling infrastructure

1.2.11. Climate Action Plan (2025)

The Scheme supports emissions reduction, active travel, sustainable tourism, and climate resilience. Relevant actions include:

- Expansion of active travel and greenway networks.
- Increased modal shift to walking and cycling.
- Electrification of buildings and transport.
- Increased renewable electricity generation.
- Delivery of climate-resilient infrastructure.

The Proposed Development contributes through active travel infrastructure, an all-electric building strategy, solar PV generation, EV charging provision and climate-resilient drainage and flood design.

1.2.12. National Outdoor Recreation Strategy (2023–2027)

Promotes sustainable outdoor recreation and connected cycling networks integrated with public transport. Relevant Action 4.8 supports development of a coherent national cycling network.

1.2.13. National Cycle Network (2021–2040)

The National Cycle Network aims to connect communities through safe cycling and walking routes. The proposed Hodson Bay–N61 active travel route would connect the project area to this network, improving active travel, health, tourism, and regional connectivity.

1.2.14. Climate Action and Low Carbon Development (Amendment) Act 2021

The Act establishes Ireland's legally binding climate objective, including a 51% reduction in greenhouse-gas emissions by 2030 and a transition to a climate-neutral economy by 2050. The proposed all-electric, heat-pump-led and renewable-energy-supported building strategy supports this transition.

1.2.15. Building Regulations 1997–2024 – Part L and Technical Guidance Document L (2022)

Part L requires new buildings other than dwellings to limit primary energy use and CO₂ emissions, provide energy-efficient building services and achieve Nearly Zero Energy Building (NZEB) performance. The proposed Water Sports Pavilion will be designed to comply with Technical Guidance Document Part L (2022), with detailed compliance demonstrated through NEAP modelling and BER certification at detailed design stage.

1.2.16. European Union (Energy Performance of Buildings) Regulations

The Regulations establish statutory requirements for energy performance assessment and BER certification. The final building will be assessed by an SEAI Registered Non-Domestic BER Assessor.

1.2.17. Uisce Éireann Code of Practice for Wastewater Infrastructure (2025)

The Code of Practice sets out the requirements for wastewater connection assessment, design submission, connection application, construction, commissioning and vesting of wastewater infrastructure intended for adoption by Uisce Éireann. A pre-connection enquiry has been submitted for the Proposed Development.

1.2.18. CIRIA SuDS Manual C753 (2015)

The CIRIA SuDS Manual provides best-practice guidance for sustainable drainage design, including runoff quantity control, water quality treatment, biodiversity enhancement, amenity integration and long-term maintenance. The surface water strategy has been developed in accordance with these principles.

1.2.19. Water Framework Directive and River Basin Management Plan

The Proposed Development has been designed to protect the water quality objectives of Lough Ree using SuDS treatment trains, hydrocarbon interception of vehicular runoff, source control measures and attenuation prior to discharge.

1.2.20. Planning System and Flood Risk Management Guidelines (DoEHLG / OPW)

The Proposed Development has been assessed in accordance with the national flood risk management guidelines. The accompanying Flood Risk Assessment demonstrates that the development avoids inappropriate floodplain development, incorporates climate change allowances, maintains flood conveyance and storage, and provides finished floor levels with appropriate freeboard above the design flood level.

2. Site Location

The study area for the assessment comprises Hodson Bay and its immediate environment, located on the western shore of Lough Ree 7 km northwest of Athlone. The area is accessed principally via the N61 National Secondary Road and the L2020 local road, which forms the primary vehicular access corridor serving the hotel, marina, waterfront recreational facilities, and associated tourism and leisure uses.

The study area is characterised by a rural lakeside setting with a strong focus on tourism, hospitality, and recreation. Key trip-generating land uses include the Hodson Bay Hotel, Athlone Golf Club, Baysports, marina facilities, recreational amenities, lakeshore and water activities, and seasonal leisure attractions. The area also accommodates a degree of residential development and adjoining recreational lands, including golf course and open space uses.

The wider transport context is defined by the proximity of Athlone, which provides regional rail and bus services; however, no regular public transport services currently operate directly within the immediate study area. As a result, access is predominantly car-based, supplemented by coach and organised group travel during peak tourism periods.

The L2020 corridor forms the principal internal access route through the study area, connecting the N61 to Hodson Bay Marina and waterfront facilities. This corridor also incorporates the Hodson Bay Level Crossing (XM038), which rail operations pass through Hodson Bay on the Dublin–Westport/Ballina railway line.

The site location can be seen in Figure 1.



Figure 1: Site Location

3. Proposed Development Description

3.1. Proposed Project Overview

The Proposed Development comprises a comprehensive package of public realm improvements, upgraded Water Sports Pavilion and café buildings, active travel infrastructure, marina enhancements, drainage and utility works, and car parking reconfiguration within the Hodson Bay area. The overall objective of the Proposed Development is to enhance the quality and functionality of the waterfront environment, improve accessibility and connectivity, support sustainable travel, and facilitate the continued operation and growth of Hodson Bay as a regional tourism, recreation, and leisure destination.

The engineering layout has therefore been developed not only to meet existing operational requirements, but also to provide the infrastructure and flexibility required to accommodate future growth in tourism, recreation and community events.

The principal engineering elements of the Proposed Development comprise the construction of a new Water Sports Pavilion and café building; extension and enhancement of the marina infrastructure; reconfiguration and expansion of the existing car parking areas; provision of new pedestrian and cycle infrastructure along the L2020 corridor; public realm, landscape, and waterfront enhancement works; and associated drainage, SuDS, lighting, utility, and site infrastructure improvements. The works also include modifications to internal access arrangements, circulation routes, and servicing areas to improve operational efficiency, accessibility, safety, and the overall functionality of the site.

A key aspect of the Proposed Development is the rationalisation of the existing lakefront car parking areas, with a proportion of parking relocated away from the immediate waterfront to create a more attractive, accessible, and pedestrian-focused lakeside environment. This approach allows for improved visual amenity, enhanced public realm and recreational space, and better integration between the waterfront, marina, and surrounding visitor facilities. The scheme also incorporates wayfinding, circulation, and visitor management measures to support efficient movement throughout the site and to provide a safer and more coherent experience for all users.

The Proposed Development has been intentionally located within an existing developed tourism and leisure area and makes extensive use of established access routes, parking areas, and utility corridors. This approach reduces the need for new infrastructure provision and limits disturbance to undeveloped lands surrounding Hodson Bay. Public realm areas adjacent to the shoreline are designed with an appropriate degree of flood tolerance and resilience, while landscape, drainage, and ecological enhancement measures form an integral part of the overall climate adaptation strategy for the site.

The proposed public realm has been deliberately designed to provide flexible, multi-functional spaces capable of accommodating community events, outdoor performances, markets and seasonal tourism activities, in addition to day-to-day recreational use. This approach supports the objective of increasing visitor dwell time, extending the tourism season and creating a vibrant year-round destination, while maintaining high-quality accessible public spaces when events are not taking place.

3.2. Climate Change, Sustainability and Carbon Responses

The Proposed Development has been developed as a climate-responsive and resource-efficient redevelopment of an existing tourism and recreation site. The design seeks to minimise operational energy demand, reduce operational carbon emissions, improve climate resilience, enhance biodiversity, and support the transition to a low-carbon visitor destination in accordance with the National Planning Framework, the Climate Action Plan 2025, the Roscommon County Development Plan 2022–2028, and the objectives of the EU Just Transition Fund.

The Proposed Development redevelops an established tourism and leisure site, making efficient use of existing access routes, parking areas, utility corridors and developed land while limiting disturbance to undeveloped areas. The redevelopment of an existing brownfield tourism destination also reduces embodied carbon associated with new infrastructure and minimises the need for development on undeveloped land, supporting the efficient use of existing assets and infrastructure.

The active travel proposals provide a continuous, safe and accessible walking and cycling route between the N61 and Hodson Bay, supporting modal shift, improved public health and reduced transport-related emissions.

The drainage strategy integrates SuDS and Nature-Based Solutions, including permeable paving, rain gardens, bioretention areas and vegetated treatment features. These measures reduce peak runoff rates, improve water quality prior to discharge to Lough Ree, provide attenuation storage during extreme rainfall events, enhance biodiversity and visual amenity, and strengthen the site's resilience to projected increases in rainfall intensity associated with climate change.

Climate adaptation has been embedded within the engineering design from the outset. Finished floor levels for the new Water Sports Pavilion are set above the design flood level with an appropriate freeboard allowance, while lower-lying public realm areas have been designed to safely accommodate temporary inundation during extreme flood events without significant damage. This approach maintains the natural floodplain function of the lakeshore, reduces reliance on engineered flood defence structures, and enhances the long-term resilience of the waterfront to future climate change.

The Water Sports Pavilion and café will follow an all-electric, fabric-first energy strategy incorporating heat-pump systems, heat-recovery ventilation, high-efficiency LED lighting, solar PV and EV charging infrastructure, with Part L and NZEB compliance demonstrated at detailed design stage. The building adopts a fabric-first approach incorporating high-performance insulation, airtight construction, efficient building services and renewable energy generation to minimise operational energy demand and carbon emissions throughout its lifecycle.

The Proposed Development also includes electric vehicle charging infrastructure, energy-efficient public lighting designed to minimise energy consumption and ecological impacts, and durable external materials selected to maximise asset life, reduce maintenance requirements and support whole-life carbon reduction. Landscape and planting proposals will enhance the visual quality of the waterfront, strengthen green infrastructure, and support biodiversity and ecological connectivity.

Overall, the Proposed Development represents a climate-responsive, low-carbon, and resilient investment in tourism and recreation infrastructure that aligns with national climate policy and supports the objectives of the EU Just Transition Fund by contributing to sustainable regional development and the transition towards climate neutrality.

The Proposed Development also contributes to wider social sustainability through the creation of inclusive accessible public spaces, improved health and wellbeing outcomes and enhanced recreational opportunities.

4. Existing Conditions

4.1. Data Collection

The following surveys, audits and desktop studies have been conducted to inform the preliminary design of the Proposed Scheme:

- Topographical survey;
- Bathymetric survey;
- Drone and Lidar survey;
- Traffic and Speed surveys;
- Pedestrian and Cyclist counts;
- Parking surveys;
- Desktop Utility survey;
- Tree survey;
- Ecological Constraints mapping;
- Flood Risk Assessment;
- Quality Audit including Road Safety Audit.
- Accessibility Audit

These surveys have been supplemented with secondary record data including:

- Utility record information from statutory providers;
- Office of Public Works Catchment Flood Risk Assessment and Management Flood Models;
- Uisce Éireann drainage maps;
- Waterways Ireland navigation and asset records;
- National Parks and Wildlife Service habitat data.

These surveys have directly informed the evolution of the scheme, including the location of the active travel route, parking strategy, drainage proposals, flood mitigation measures and protection of environmental constraints.

5. Design Standards

The following published design standards and guides have been used to inform the geometrical design of the Proposed Scheme, as listed below:

- **Design Manual for Urban Roads and Streets (DMURS) 2019:** DMURS sets out a national approach for designing urban roads and streets in Ireland with a strong emphasis on creating attractive, safe, and people-centred places. It shifts priority away from vehicle movement alone and instead promotes streets that balance traffic needs with walking, cycling, public transport, and place-making. The guidance introduces principles such as designing for lower vehicle speeds, reducing street dominance by cars, and improving street connectivity and permeability. It is widely used by local authorities to ensure new developments and urban upgrades support liveable, accessible urban environments.
- **NTA Cycle Design Manual 2023:** This manual provides detailed technical standards for designing cycling infrastructure across Ireland, aiming to make cycling safer, more attractive, and more consistent. It covers everything from segregated cycle tracks and junction treatments to rural cycleways and urban streets, with a strong focus on safety, directness, comfort, and coherence. The document aligns with national climate and transport policy by encouraging modal shift from private car use to cycling. It also introduces updated design principles reflecting international best practice, such as prioritising continuous cycle provision and reducing conflict points with motor traffic.
- **Design Manual for Roads and Bridges (DMRB):** DMRB is a comprehensive suite of standards used for the planning, design, assessment, and operation of national roads and motorway projects. It ensures consistency and safety across major road infrastructure by setting out requirements for geometry, pavement design, drainage, structures, and safety features. The manual is highly technical and is used primarily for trunk road schemes and major upgrades rather than urban streets. It also incorporates procedures for environmental assessment, road safety audits, and lifecycle performance considerations.
- **Building for Everyone: A Universal Design Approach:** This guidance promotes universal design principles to ensure that the built environment is usable by all people regardless of age, ability, or background. It provides practical advice on accessibility features such as entrances, circulation spaces, signage, lighting, and facilities. The document is widely used by architects, engineers, and planners to ensure compliance with equality and accessibility objectives. It also emphasises inclusive design as a proactive approach, rather than retrofitting accessibility solutions after construction.
- **Guidance on the use of Tactile Paving:** This guidance explains how tactile paving should be designed and installed to support visually impaired pedestrians in navigating streets safely. It covers different tactile surface types, such as blister paving for crossings and corduroy paving for hazard warnings, and their correct placement in various contexts. The document also stresses consistency in layout to avoid confusion and ensure reliable navigation cues. Proper implementation is essential at pedestrian crossings, transport hubs, and areas of shared space.
- **Transport Infrastructure Ireland Standards, Specifications & Technical Publications:** This is a collection of technical documents that governs the delivery of national road infrastructure

projects in Ireland. It includes detailed specifications for materials, construction methods, design procedures, and maintenance practices. The suite ensures consistency across all Transport Infrastructure Ireland projects and supports compliance with safety, durability, and environmental requirements. It also integrates with broader frameworks such as DMRB and environmental assessment procedures.

- **Traffic Signs Manual:** This manual provides statutory guidance on the design, installation, and use of traffic signs across Ireland. It standardises sign types, layouts, symbols, and dimensions to ensure clear communication with road users. The document also covers regulatory, warning, and directional signage, as well as guidance on placement and visibility. Its purpose is to ensure road safety and consistency nationwide.
- **Department of Transport Traffic Management Guidelines:** These guidelines provide a national framework for planning and evaluating traffic management measures on Ireland's road network. They address both temporary and permanent interventions, such as roadworks, diversions, signal optimisation, and capacity management. The guidance emphasises safety, efficiency, and minimising disruption to all users, including pedestrians and cyclists. It is used by local authorities and engineers when assessing traffic flow and network performance. CIRIA
- **SuDS Manual C753 (2015):** The CIRIA SuDS Manual provides best-practice technical guidance for the planning, hydraulic design, water quality treatment, biodiversity integration and maintenance of SuDS. It promotes a treatment-train approach and the use of multifunctional nature-based drainage features that deliver water quantity, water quality, amenity and biodiversity benefits.
- **Implementation of Urban Nature-Based Solutions – Guidance Document for Planners, Developers and Developer Agents (2025):** This guidance promotes the integration of green infrastructure and nature-based drainage measures within urban development to improve climate resilience, water management, biodiversity and public amenity.
- **OPW Flood Risk Management and Climate Change Guidance:** Office of Public Works guidance has informed the flood risk assessment, finished floor level strategy, freeboard allowances and climate change allowances applied to the drainage design.
- **Uisce Éireann Code of Practice for Wastewater Infrastructure (2025):** This document sets out the technical requirements for wastewater connection assessment, hydraulic loading, network design, construction, testing and commissioning.
- **National Roads Authority / Transport Infrastructure Ireland Road Safety Audit Guidelines:** The Proposed Development has been subject to Road Safety Audit review in accordance with current TII guidance to identify potential safety issues affecting all road users, including pedestrians, cyclists, public transport users and motorists, and to inform the development of mitigation measures.
- **TII Traffic and Transport Assessment Guidelines (2014):** These guidelines have informed the assessment of traffic generation, parking demand, access arrangements and network performance associated with the Proposed Development and provide the national framework for transport assessment methodology.

6. Design Development

6.1. Design Development Parameters

The Proposed Development has been designed in accordance with the principles and dimensional requirements set out in the Design Manual for Urban Roads and Streets (DMURS) 2019, the NTA Cycle Design Manual 2023, relevant Transport Infrastructure Ireland (TII) standards and associated accessibility guidance. The dimensional parameters below establish the minimum design standards applied throughout the scheme and have informed the development of the access, parking, active travel and public realm proposals.

The engineering design has evolved through an iterative design process involving the engineering, architecture, landscape architecture, ecology, planning and environmental teams. Environmental considerations have informed the development of the scheme from the outset, allowing potential impacts to be avoided through design wherever practicable rather than relying solely on mitigation measures.

6.1.1. Footways

New footways have been designed with a minimum clear width of 1.8 m, measured free of obstructions such as lighting columns, signs, planting and street furniture. This dimension accords with the accessibility and pedestrian movement principles set out in DMURS and Building for Everyone: A Universal Design Approach, enabling two wheelchair users or pushchairs to pass comfortably and supporting inclusive pedestrian movement.



Figure 2: DMURS Footway Widths

6.1.2. Shared Pedestrian and Cycle Routes

Shared pedestrian and cycle routes have been designed with a minimum width of 3.0m in accordance with the NTA Cycle Design Manual 2023. Wider sections are provided where local constraints permit and where higher pedestrian and cycle activity is anticipated. The route has been designed to provide a continuous, coherent and accessible active travel connection between the N61 and Hodson Bay waterfront.

6.1.3. Carriageway Widths

Carriageways and access roads within the Proposed Development have generally been designed to a minimum width of 5.5m, consistent with the low-speed, place-based approach for local streets defined by DMURS. These widths provide for two-way vehicle operation while discouraging excessive vehicle speeds and maintaining a pedestrian-focused environment.

Swept-path analysis has been undertaken for all sections where reduced carriageway widths occur to verify that the relevant maximum sized design vehicles can safely pass one another and manoeuvre within the proposed layout. Localised widening has been incorporated at bends, junctions and constrained locations where required to accommodate vehicle tracking and maintain satisfactory operational performance.

6.1.4. Parking Bay Dimensions

Standard parking spaces have been designed with minimum dimensions of 2.5m x 5.0m. Accessible parking spaces have been designed in accordance with Building for Everyone and current accessibility guidance, comprising a 2.4m x 4.8m parking bay with a minimum 1.2m access zone provided around the bay to facilitate wheelchair transfer and circulation.

Electric vehicle accessible spaces have been designed to comply with the requirements of the ZEVI National EV Charging Infrastructure Strategy and associated accessibility guidance, including enlarged transfer zones, accessible charging equipment locations and step-free access between the parking space and adjacent pedestrian routes.

6.1.5. Pedestrian Crossings

Pedestrian crossing facilities have been designed to provide accessible movement across vehicular routes and to align with the desire lines generated by the waterfront, marina, pavilion, café and parking

areas. Crossing widths have been selected to accommodate expected pedestrian demand and to provide comfortable two-way pedestrian movement, with tactile paving and dropped kerbs provided in accordance with the Guidance on the Use of Tactile Paving and Building for Everyone.

6.1.6. Raised Tables

Raised table crossing features have been designed with a minimum platform length of 6.0m along bus routes. This dimension has been adopted in response to the recommendation contained within the Road Safety Audit and reflects the requirement to accommodate bus operations on the local route while maintaining passenger comfort and vehicle stability across the raised feature.

6.1.7. Vehicle Tracking

Swept-path analysis has been undertaken using AutoCAD Vehicle Tracking to verify the operation of the proposed road network, parking areas and servicing arrangements. The assessment has included:

- Simultaneous operation of two 15m coaches within the principal internal circulation routes and coach parking areas.
- Marina parking bays assessed using representative boat and trailer vehicle combinations.
- Servicing access at the wastewater pumping station assessed using an appropriate rigid goods vehicle representative of maintenance and operational requirements.
- Emergency access routes around the proposed Water Sports Pavilion and associated facilities assessed using an appropriate fire appliance template.

The swept-path analysis confirms that the proposed layout provides adequate manoeuvring space, turning facilities and operational access for the design vehicles identified above. Full details regarding vehicle tracking are provided in the **Swept Path Analysis Drawings 31022-DR-CIV-CE-00401 to 00413 (July 2026)** accompanying this submission.

6.1.8. Emergency Access

Emergency vehicle access has been incorporated into the layout of the Proposed Development in consultation with Roscommon County Council Fire Service requirements. Access routes around the proposed Water Sports Pavilion and associated facilities have been designed to provide suitable approach, circulation and operational access for fire service vehicles, with tracking analysis undertaken to demonstrate that emergency vehicles can reach the building perimeter in accordance with the requirements advised by the fire authority.

These design development parameters establish the minimum dimensional and operational standards applied across the Proposed Development and have informed the detailed design of the active travel infrastructure, carriageways, parking areas, servicing arrangements, public realm and emergency access strategy.

6.1.9. DMURS Compliance Statement

A DMURS Compliance Statement has been prepared to demonstrate that the Proposed Development has been designed in accordance with the principles of the Design Manual for Urban Roads and Streets. The assessment confirms that the proposed carriageways, footways, crossings, parking layout and public realm have been designed to prioritise pedestrian movement, accessibility, safety and place-making within a low-speed waterfront environment.

Full details regarding the DMURS compliance review are provided in the **DMURS Compliance Statement (June 2026)** accompanying this submission.

6.2. Active Travel Optioneering and Development

The proposed active travel route extends approximately 1700m along the L2020 Local Road, connecting the N61 National Road to the Hodson Bay waterfront area. The primary objective is to transition the current vehicle-dominant road into a sustainable transport corridor that improves safety and supports a long-term shift towards more sustainable travel patterns, encouraging cycling and

walking while enhancing the physical and visual connectivity to Lough Ree. The proposed route also safeguards future connectivity to the wider Lough Ree Greenway proposals.



Figure 3: Active Travel Route to the Site

6.2.1. Optioneering Process

Four distinct infrastructure options were developed in accordance with the National Transport Authority (NTA) Cycle Design Manual (CDM) and DMURS standards. These options were evaluated based on the site's varying cross-sectional widths and environmental sensitivities:

- **Option 1: Two-way Segregated Cycle Track:** A 3m wide cycle track with a 0.5m buffer, segregating cyclists from vehicles and pedestrians. This option provides a high level of service but is constrained throughout the route, requiring significant land acquisition to obtain the required corridor width.
- **Option 2: Shared Path:** A shared pedestrian and cycle path minimum 3m wide. This option provides a high level of service but is constrained in the northern section of the route, requiring land acquisition from Athlone Golf Club to obtain the required corridor width.
- **Option 3: Mixed Traffic Street:** Focuses on retaining pedestrian footways and providing on-road cyclist priority within the existing carriageway, by utilising horizontal and vertical traffic calming to reduce vehicle speeds, as well as road markings and signage to warn drivers of cyclists.
- **Option 4: Combined Shared Space and Mixed Traffic Street:** A hybrid approach providing a shared pedestrian and cyclist path in the wider southern section and a low-speed mixed traffic street with cyclist priority in the constrained northern section.

6.2.2. Multi-Criteria Analysis (MCA)

In alignment with the Transport Appraisal Framework (TAF), a Multi-Criteria Analysis was conducted to score each option across seven core criteria: Economy, Integration, Accessibility and Social Inclusion, Safety, Physical Activity, Environment, and Climate.

Option 2 emerged as the highest-scoring solution. It was selected for its ability to provide an intervention which separates cycling from vehicles, while minimising the amount of land acquisition required.

6.2.3. Preferred Option Design

Following an evaluation of the available routes and design constraints, Option 2 was selected as the preferred design. This option provides a continuous, high-quality 3.0m minimum width shared pedestrian and cycle facility connecting the N61 to the waterfront. The design is divided into two distinct character zones to reflect the varying road widths and environmental contexts:

- **South Section (N61 to Athlone Golf Club Boundary):** The existing footway on the western side of the L2020 is widened to provide a consistent 3.0m minimum width shared cycle and pedestrian pathway. To facilitate this widening within the existing road corridor, the carriageway is narrowed to between 5.5m and 6.0m. This physical narrowing serves to naturally reduce vehicle speeds while providing a safe, dedicated space for active travel.
- **North Section (Golf Club Boundary to Waterfront):** In this section, the footway on the eastern side of the road is widened to 3.0m to continue the shared active travel route. To maintain the existing carriageway width of approximately 5.5m and protect mature treelines where possible, this section requires localised land acquisition from Athlone Golf Club.
- **Traffic Calming & Speed Reduction:** To ensure the safety of all users and support a low-speed environment, the design incorporates a suite of traffic calming measures:
 - **Vertical Deflections:** The installation of raised tables at key pedestrian crossing points and speed humps at approximately 150m intervals to self-enforce reduced vehicle speeds. Visibility splays were undertaken at all crossing points.
 - **Horizontal Narrowing:** Reducing the road widths will force vehicles to drive slower and shorten crossing distances for pedestrians.
 - **Reduced Speed Limit:** Proposing to reduce speed limit to 30km/h at southern point of golf club lands (just north of residential area).

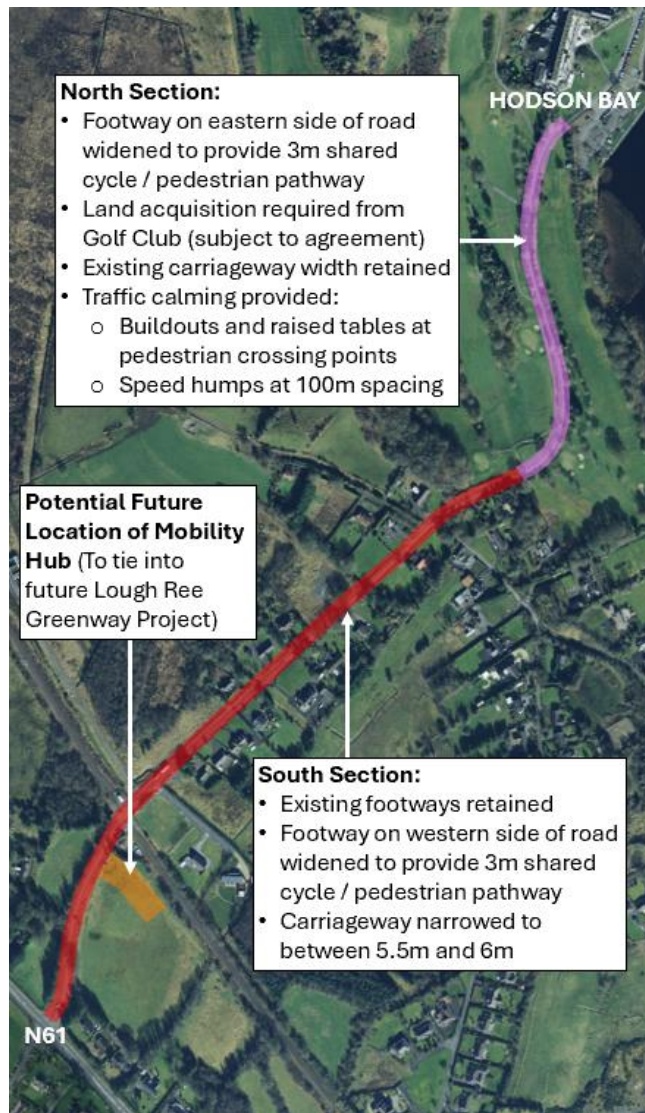


Figure 4: Preferred Active Travel Option

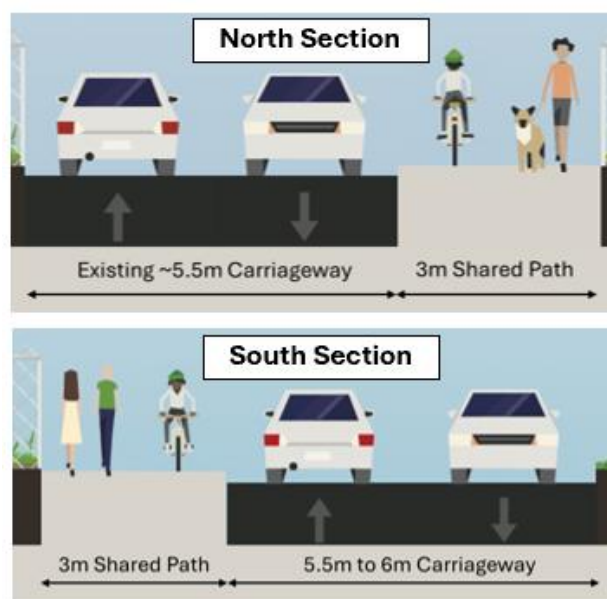


Figure 5: Preferred Option Typical Cross Sections

In addition to improving safety and accessibility, the proposed active travel corridor supports the decarbonisation objectives of the Climate Action Plan 2025 by encouraging a modal shift from private car use to walking and cycling for local and recreational trips. The provision of a continuous, attractive, and safe route between the N61 and the waterfront is expected to reduce transport-related emissions, improve public health outcomes, and strengthen sustainable connectivity within the wider Athlone–Hodson Bay area. These measures also contribute to healthier lifestyles, reduced transport-related emissions and improved access to recreation and tourism opportunities.

6.3. Traffic and Transport

6.3.1. Existing Conditions and Baseline Findings

The existing transport environment within Hodson Bay has been established through Automatic Traffic Counts (ATC) and parking surveys undertaken in August 2025. The baseline data reveals several operational challenges:

- **Excessive Vehicle Speeds:** ATC data recorded 85th percentile speeds consistently above the posted 50 km/h limit, with values reaching as high as 67.3 km/h. These findings corroborate significant concerns raised during public consultation, where local residents frequently identified speeding along the L2020 as a primary safety issue.
- **Parking Capacity Stresses:** Surveys confirmed that existing parking facilities (353 spaces) regularly operate near capacity during peak summer periods. An assessment of current demand identifies a shortfall of spaces during peak activity, leading to informal parking on verges and localised congestion.

For further detailed data on baseline traffic flows and speeds, please refer to Section 4.0 of the **Traffic and Transport Report (July 2026)** accompanying this submission.

6.3.2. Traffic Calming Rationale and Measures

To address the recorded speeding issues and support the delivery of a new 3.0-metre-wide active travel shared surface, a comprehensive traffic calming strategy is integrated into the design. The primary objective is to reduce prevailing vehicle speeds to a level compatible with a high-amenity tourism and recreational destination.

Key measures include:

- **Carriageway Narrowing:** Reducing the existing L2020 carriageway width to between 5.5m and 6.0m. This creates a tighter driving environment that naturally encourages lower speeds while providing the necessary space for the new shared pedestrian and cycle path.
- **Vertical Deflections:** The installation of approximately 10 speed cushions and raised tables at roughly 150-metre intervals to provide physical speed control.
- **Raised Pedestrian Crossings:** The introduction of raised tables at key desire lines to prioritise pedestrian movement and improve visibility at crossing points.
- **Reduced Speed Limit:** The report recommends a review and reduction of the current 50 km/h posted speed limit to 30km/h at the southern point of the Athlon Golf Club lands (just north of residential area), to reflect the increased pedestrian and cyclist activity and the revised function of the road.

6.3.3. Impact Assessment and Traffic Generation

The impact of the Proposed Development on the local and national road network has been rigorously assessed. The project is forecast to generate a modest increase in traffic, estimated at approximately 44 two-way vehicle trips during the peak hour.

Key findings of the assessment include:

- **Network Capacity:** The additional traffic represents an increase of 12–25% over existing peak volumes. This increase is considered minor in the context of the L2020's carrying capacity and will not result in operational issues at the N61/L2020 junction.
- **Level Crossing Interface:** The impact on the Hodson Bay Level Crossing (XM038) has been evaluated. Under a worst-case 8-minute barrier closure, the cumulative queue is predicted to increase by only three vehicles compared to existing conditions. The predicted queue remains well within the available 250-metre storage capacity, ensuring that traffic will not "block back" onto the N61 National Road.
- **Parking Provision:** The scheme increases overall provision to 504 spaces. This 44% increase addresses the identified shortfall, caters for additional demand from the proposed development and allows for the removal of problematic on-street parking along the immediate lakeshore.

The proposed development has intentionally been designed to accommodate future visitor growth identified through the wider tourism strategy while maintaining acceptable network performance. Full details regarding the trip generation methodology, junction analysis, and level crossing storage calculations are provided in the **Traffic and Transport Report (July 2026)** accompanying this submission.

6.4. Car Parking Optioneering and Development

6.4.1. Strategic Rationale

Parking plays a vital role in the overall project, supporting existing businesses, effective access, movement, and functionality of the space. The strategic rationale for the parking reconfiguration is driven by several key design principles:

- **Reclaiming the Waterfront:** Relocating existing on-street parking away from the immediate lakeshore to enhance public areas and improve access to and views of Lough Ree.
- **Reducing Vehicle Dominance:** Addressing the existing situation where the car park creates a visual and physical barrier to the waterfront, prioritising vehicles over pedestrians.
- **Increasing Capacity:** Ensuring the project increases significantly upon the current number of car parking spaces in the central area to support the commercial and operational requirements of the Hodson Bay Hotel and local amenities.

6.4.2. Existing Parking Provisions

Baseline parking conditions were established through detailed occupancy surveys, the findings of which are provided in the accompanying Traffic and Transport Report. The existing provision comprises a total of 353 spaces distributed across four primary zones:

- **Promenade:** 57 (on road).
- **Central Carpark:** 73 (including 5 accessible spaces).
- **Marina Carpark:** 114 (including 6 accessible spaces).
- **North Carpark:** 109 (including 4 accessible spaces).

6.4.3. Optioneering and Preferred Option Selection

A Multi-Criteria Analysis (MCA) was undertaken to appraise four distinct parking layouts (Options A to D). Option D was selected as the preferred design for its superior land-use efficiency and its ability to meet the strategic objectives of the project.

The final parking capacity was informed by the demand requirement calculations detailed in the accompanying Traffic and Transport Report. Following a significant programme of consultation with local stakeholders and businesses, the design was further refined to provide a total of 504 spaces. This

provision ensures a robust operational reserve that exceeds the minimum calculated requirement, specifically to accommodate extreme seasonal peaks and provide futureproofing for the area.

The selected layout focuses on consolidating parking into strategic clusters. This approach successfully removes vehicular dominance from the sensitive waterfront environment, improving visual amenity and pedestrian priority while maintaining convenient, close-proximity access to Hodson Bay Hotel, the marina, and the new Water Sports Pavilion.

While the Proposed Development increases the overall parking provision to meet existing and future visitor demand, the parking strategy has been developed to enhance the quality of the waterfront environment rather than encourage increased car dependency. Existing parking has been consolidated into strategic clusters, increasing total capacity to 504 spaces while removing parking from the immediate lakeshore. This creates additional space for pedestrians, landscaping and high-quality public realm, reduces vehicle dominance, enhances waterfront amenity and visitor experience, and continues to support local businesses and tourism.

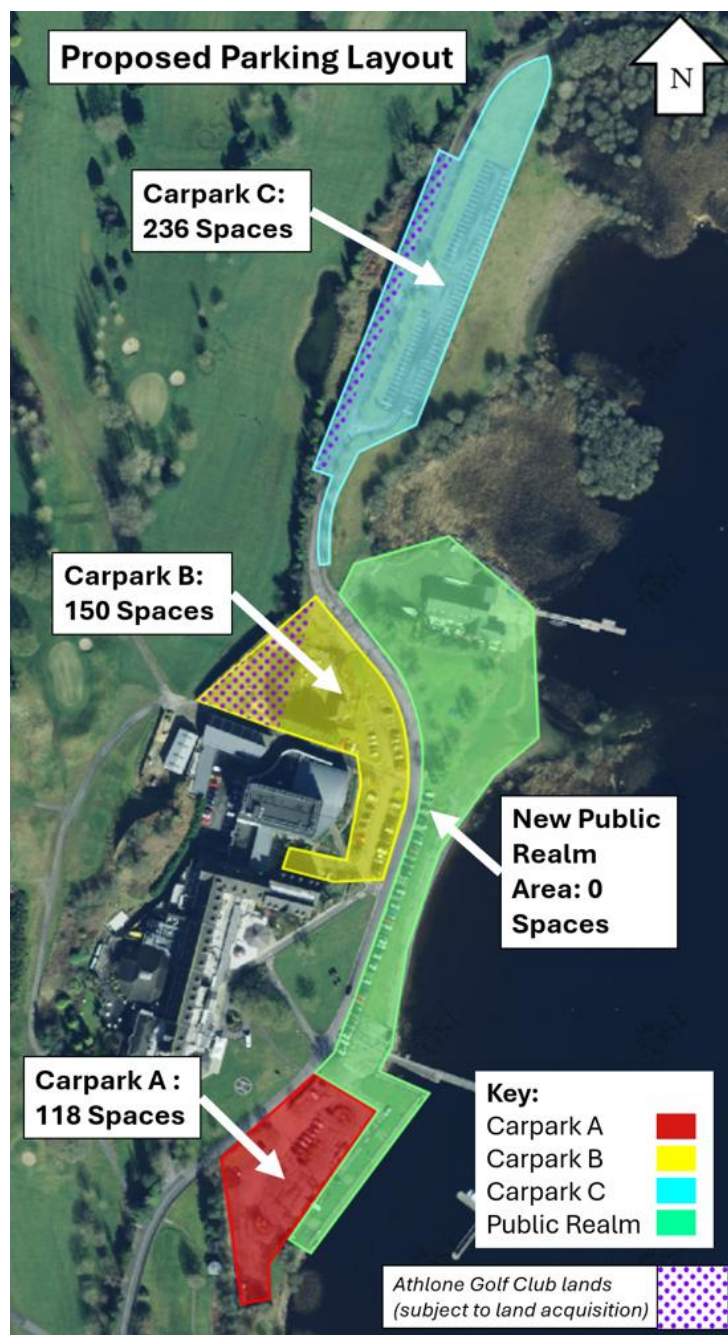


Figure 6: Preferred Parking Option

6.4.4. Capacity and Zonal Distribution

The proposed layout consolidates parking into three primary zones, increasing the total site capacity to **504 spaces**. This represents a net increase of **151 spaces** over existing conditions. A fundamental focus of the design was to ensure that the central activity area maintained at least the same quantum of parking as the existing provision to support the high-frequency requirements of established facilities.

The distribution of the proposed parking is as follows:

- **Car Park A (Marina Carpark):** 118 spaces.
- **Car Park B (Central Carpark):** 150 spaces.
- **Car Park C (North Carpark):** 236 spaces.

6.4.5. Specialised Parking and Infrastructure

To meet modern transport standards and support the diverse user groups at the bay, the development includes high-specification specialised provision:

- **Sustainability:** 30 dedicated Electric Vehicle (EV) charging spaces are provided to support the transition to low-carbon transport. This number equates to 20% of proposed 151 new parking spaces. Four EV spaces are accessible - ZEV compliant.
- **Universal Design:** 28 accessible parking spaces are distributed across the site, positioned at the shortest possible travel distances to primary facilities. This equates to over 5% of total car parking spaces in line with current guidance.
- **Coach & Tourism Support:** The design introduces formal bus and coach facilities to manage group travel, which is not currently provided for on-site. This includes three dedicated coach parking bays within the North Carpark and two dedicated bus set-down (pick-up/drop-off) areas located on either side of the road directly in front of the Water Sports Pavilion.
- **Marine Logistics:** Three dedicated boat trailer parking bays are proposed within the marina zone. As there is currently no formalised provision for trailers, these new bays ensure that marine-related logistics are accommodated safely without impeding general traffic flow or pedestrian priority areas.

6.4.6. Engineering for Environmental Sensitivity (SuDS)

Consistent with the project's environmental commitments within the SAC and SPA, all new and reconfigured parking areas will utilise Nature-Based Solutions for surface water management. Refer to the Drainage Strategy Report for more detailed information regarding SuDS on this project.

- **Permeable Surfaces:** New parking bays will utilise porous asphalt to promote natural infiltration.
- **Treatment Train:** Runoff will be directed into integrated rain gardens and bioswales located between parking rows. These features utilise engineered bioretention soils to treat and attenuate water at the source, ensuring that any discharge into Lough Ree is free from hydrocarbons and suspended solids.

Beyond their hydraulic function, the proposed SuDS measures provide wider sustainability and climate adaptation benefits. The rain gardens, permeable surfaces, and bioretention areas in the carpark will increase on-site attenuation capacity, reduce downstream runoff rates during extreme rainfall events, promote infiltration where feasible, improve water quality, contribute to urban greening and local cooling, and enhance the overall environmental quality of the waterfront setting. The drainage strategy has been developed in close coordination with the landscape architect to maximise the use of Nature-Based Solutions and to deliver multifunctional public realm infrastructure that performs hydraulic, ecological, and recreational functions simultaneously.

6.5. Mobility Management Plan

A Mobility Management Plan has been prepared to support the operation of the Proposed Development and encourage sustainable travel by visitors, staff and service users. The plan includes measures relating to active travel wayfinding, cycle parking, parking management, coach management and visitor travel information and forms part of the overall sustainable transport strategy for Hodson Bay.

Full details regarding wayfinding, sustainable travel measures, parking management arrangements and operational proposals are provided in the **Mobility Management Plan (July 2026)** accompanying this submission.

6.6. Civils Design Package

The civil engineering design for the Proposed Development is presented in the Civils Design Package accompanying this submission. The drawings should be read in conjunction with this Engineering Report, the Architectural Design Statement and associated drawings, the Landscape Architect Statement and associated drawings, the Light Design Report and associated drawings, the Drainage Strategy, the Flood Risk Assessment, the Utilities Report and the Energy Statement.

The civils drawing package comprises the following principal drawing groups:

- General Arrangement Drawings: 31022-DR-CIV-CE-00100 to 00111
- Kerbs, Road Markings, Traffic Signs and Surface Finishes: 31022-DR-CIV-CE-00201 to 00209
- Visibility Splays: 31022-DR-CIV-CE-00301 to 00305
- Vehicle Tracking Drawings: 31022-DR-CIV-CE-00401 to 00413
- Sections: 31022-DR-CIV-CE-00501 & 00502
- Standard Details: 31022-DR-CIV-CE-00601 & 00602
- Drainage Details: 31022-DR-CIV-CE-30001 & 30002
- Existing Utilities: 31022-DR-CIV-CE-00801 to 00806

For all architectural, building layout, floor plan, elevation, roof plan and associated building information, reference should be made to the Architects' layout drawings accompanying the application.

The above drawings collectively define the proposed access arrangements, active travel infrastructure, parking layout, road geometry, visibility requirements, vehicle manoeuvring, drainage strategy, and standard construction details forming the civil engineering design package for the Proposed Development.

7. Marina Redevelopment and Extension

The Proposed Development will include for the redevelopment of the existing Waterways Ireland-operated marina at Hodson Bay comprising an extension to the existing breakwater and the creation of a new jetty extension for boats to berth.

The existing marina structure will remain in place. A gangway will connect the existing breakwater structure to a new extended breakwater. The breakwater extension will be a floating breakwater of up to 6m in width and it will be secured in place by guided vertical piles. The new jetty will be comprised of a series of floating pontoons which will also be secured in place by guided vertical piles. A canoe step launch platform will be included in the new jetty design. The marina extension will have a footprint of approximately 130m x 110m in the lake. The length of the floating breakwater will total approximately 218m.

The new floating breakwater will comprise of a series of concrete platforms finished with timber or plastic and connected together by stainless steel wire rope and rubber buffers. The new jetty will be comprised of a series of steel and concrete floating pontoons likely finished in glass fibre reinforced concrete or glass fibre reinforced plastic. The vertical piles which will secure the floating breakwater and jetty in place will be made of steel.

The marina redevelopment and extension will provide approximately 29 no. additional boat berths, ensuring that the extended marina will be capable of hosting approximately 59 no. berths for cruisers and visiting watercraft. The redevelopment will also include for the provision of services for boat users including potable water, electricity and foul water pump-out facilities. A new marina service block building covering an area of 74m² will be constructed as part of the Proposed Development adjacent to the marina which will provide shower and toilet facilities for marina users. The marina service block building will be constructed with concrete and steel and finished with concrete terracotta tiles similar to the Water Sports Pavilion buildings. A sewerage pump out system is proposed on the marina which will convey via a pressure network to a break chamber at the marina service block.

The marina will be an integral part of the public realm and promenade design, and it will have adequate provision for drop off and short-term parking alongside the jetty.

Low-level convenience lighting will be provided on the proposed marina service pedestals to assist marina users during periods of low light and to support safe access to berths and servicing points. The lighting will be integrated within the pedestal units and directed downward onto the immediate pontoon surface, thereby avoiding unnecessary light spill onto the lake or surrounding public realm areas. The lighting strategy has been developed to provide functional illumination only, minimise visual impact, and reduce potential effects on the surrounding environment and night-time character of Hodson Bay.

Full details of the proposed marina redevelopment, including the layout of the marina extension, breakwater, gangway connection, berth arrangements, and pedestal locations, are provided on Marina Drawing ICMS/2611/00/01 prepared by Inland and Coastal, which accompanies this application.

8. Lighting

8.1. Overview

The lighting strategy has been developed to balance user safety, environmental protection and energy efficiency. Warm-colour LED luminaires, directional optics, shielding and dimming controls minimise energy consumption and light spill into sensitive ecological habitats while maintaining appropriate illumination for public safety and accessibility. The lighting design supports the overall sustainability objectives of the Proposed Development by reducing operational energy demand and protecting the ecological integrity of the Lough Ree waterfront.

The public lighting design for the Hodson Bay Waterfront Project has been developed by specialist lighting consultants, Dlight Concepts Ltd. The design is being treated as a priority workstream to ensure full integration with the Environmental Impact Assessment Report (EIAR) and to meet the statutory planning submission deadline.

8.2. Design Standards and Compliance

The lighting design has been developed in accordance with recognised industry standards, including:

- IS EN 13201 – Road Lighting;
- BS 5489 – Code of Practice for the Design of Road Lighting;
- BS EN 12464-2 – Lighting of Outdoor Workplaces;
- CIBSE Lighting Guide LG6 – The Outdoor Environment;
- CIE 150 – Guide on the Limitation of the Effects of Obtrusive Light;
- Institution of Lighting Professionals (ILP) Guidance Notes for the Reduction of Obtrusive Light;
- Bat Conservation Trust / ILP Guidance Note 08/23 – Bats and Artificial Lighting at Night; and
- Technical Guidance Document Part M – Access and Use.

8.3. Summary

The proposed external lighting design provides a coordinated, efficient and environmentally responsible lighting solution that has been specifically developed to meet the operational requirements of the development while minimising unnecessary artificial lighting.

The design incorporates a consistent 2700 K lighting specification throughout the development, a site-wide U23 intelligent dimming profile, precision optical control and a minimum maintained overall uniformity (U_0) of 0.40, providing a balanced lighting solution that supports safe movement, reduces operational energy consumption and minimises potential disturbance to surrounding ecological receptors.

The lighting strategy has been prepared in accordance with recognised engineering principles and current industry guidance and is considered suitable to support the planning, detailed design and construction stages of the project. Subject to the implementation of the lighting installation in accordance with the accompanying drawings, luminaire schedule, control philosophy and design assumptions contained within this report, the proposed scheme will provide a robust, maintainable and sustainable external lighting installation capable of satisfying both the operational and environmental objectives of the development.

The Lighting Design Report and layout drawings can be seen in the **Lighting Design Report (August 2026)** accompanying this submission.

9. Utilities and Energy

9.1. Overview

The servicing strategy for the Hodson Bay Waterfront Project provides an all-electric infrastructure to support the proposed Water Sports Pavilion, café, marina redevelopment, and associated public realm. The strategy incorporates air-source heat pump systems, mechanical ventilation with heat recovery, a roof-mounted solar photovoltaic array, energy-efficient lighting, and electric vehicle charging infrastructure in accordance with the accompanying Energy Statement.

Electrical load assessments have been completed, and a new on-site substation has been sized to accommodate both the building demand and a significant provision for Electric Vehicle charging. Formal pre-connection enquiries have been submitted to Uisce Éireann (foul water and potable supply), ESB (electricity), and Eir (telecommunications) to confirm network capacity and connection points.

For full details regarding the utilities and energy strategies, please refer to the **Utilities Statement (July 2026)** and the **Energy Statement (July 2026)** accompanying this submission.

9.2. Energy

The energy strategy for the Proposed Development has been developed in accordance with Technical Guidance Document Part L (2022) – Buildings Other Than Dwellings and the principles of Nearly Zero Energy Buildings (NZEB). The Water Sports Pavilion and café are proposed as an all-electric development with no gas or oil-fired space-heating or domestic hot-water plant.

The planning-stage servicing strategy comprises:

- Space heating and cooling provided by air-source heat pump (ASHP) variable refrigerant flow (VRF) systems, capable of simultaneous heating and cooling through fan coil units where required.
- Heating-only provision to selected back-of-house areas using direct electric panel heaters, where the intermittent use and low design heat loss make a simple local solution appropriate.
- Mechanical ventilation with heat recovery. The final arrangement, including whether systems are centralised or local/decentralised, will be confirmed at detailed design.

- Central domestic hot-water generation using dedicated air-source heat pumps and insulated hot-water storage tanks. The system will be sized to address the relatively high and variable shower demand.
- A central, pressurised cold-water storage tank and booster arrangement to provide potable-water resilience.
- Low-flow fittings will be provided; greywater and rainwater harvesting are not proposed.
- High-efficiency LED lighting with daylight dimming and occupancy sensing appropriate to each space.
- A roof-mounted photovoltaic array maximised to the suitable available roof area.
- A high-performance thermal envelope, low air permeability and controlled solar gain to reduce heating, cooling and ventilation energy demand.
- Initial EV charging provisions with electrical capacity to allow for future expansion.

The energy strategy follows a fabric-first approach, seeking first to minimise energy demand through enhanced insulation, double glazing, controlled airtightness, reduced thermal bridging, solar control, and effective use of daylight before applying efficient building services and renewable energy generation.

At planning stage, the proposed target fabric performance includes:

- Ground floor: 0.10 W/m²K
- Roof: 0.12 W/m²K
- External walls: 0.13 W/m²K
- Glazing/roof lights: 1.2 W/m²K (double glazing)
- Air permeability: 3.0 m³/(h·m²) @ 50 Pa

The proposed building has been designed to comply with the requirements of Building Regulations Part L (Buildings Other Than Dwellings) and achieve the Nearly Zero Energy Building (NZEB) standard. An initial planning-stage NEAP assessment has been undertaken and indicates compliance with the applicable Part L criteria. The assessment will be reviewed and updated during detailed design, and final BER certification will be completed by an SEAI Registered Non-Domestic BER Assessor prior to occupation.

9.3. Utilities

Existing utility infrastructure has been identified through a combination of statutory record maps and a detailed site survey, please refer to (Drawings 31022-DR-CIV-CE-00801 to 00806).

- **Electricity & Telecommunications:** Existing ESB records identify medium-voltage underground cables, overhead medium-voltage infrastructure, and a pole-mounted transformer within the site boundary and in proximity to buildings proposed for demolition. These assets are likely to require diversion or relocation prior to construction. Eir infrastructure is also present within the wider area, and an underground telecommunications cable adjacent to the demolition area may require diversion.
- **Water Supply:** Uisce Éireann records indicate a uPVC water distribution main beneath the L2020 Local Road together with a single branch connection extending into the marina car park. Subject to agreement with Uisce Éireann, the branch connection may potentially be retained and repurposed to serve part of the proposed development.
- **Foul and Surface Water Drainage:** Public wastewater and surface water networks terminate at the southern end of the golf club. A topographical manhole survey was undertaken to record cover and invert levels of drainage manholes. An Uisce Éireann wastewater pumping station is

located within the site boundary, which currently removes foul effluent from the wider Hodson Bay area.

- **Gas Infrastructure:** Gas Networks Ireland has confirmed that no recorded gas infrastructure exists within or in the immediate vicinity of the site, and no new gas connection is proposed as part of the development.

The utility strategy has been developed to maximise the use of existing infrastructure corridors wherever practicable while recognising that further statutory undertaker engagement is required to confirm final connection arrangements, available network capacity, and diversion requirements. Existing utility infrastructure within the immediate development area is relatively limited, and no significant constraints have been identified that would be expected to prevent delivery of the Proposed Development. However, an underground Eir telecommunications cable adjacent to buildings proposed for demolition may require diversion, and medium-voltage underground and overhead electricity infrastructure within the site boundary is expected to require diversion, relocation, or incorporation into a wider network reinforcement strategy. Formal engagement with ESB Networks is ongoing to determine diversion requirements, assess available network capacity, establish substation requirements, and identify associated programme and cost implications.

10. Drainage

The drainage strategy provides separate foul and surface water systems and has been developed around the principles of Nature-Based Solutions and SuDS. In addition to meeting hydraulic and water quality requirements, the strategy contributes to climate change adaptation, biodiversity enhancement, landscape integration and sustainable placemaking by mimicking natural drainage processes, reducing runoff rates, providing on-site attenuation storage and integrating green infrastructure throughout the waterfront redevelopment. The design protects the water quality of Lough Ree and accords with the Roscommon County Development Plan 2022–2028, the National Planning Framework objectives for sustainable water management, and current SuDS best practice.

10.1. Existing Drainage

Baseline conditions were established via TST Engineering topographic surveys and Uisce Éireann asset records:

- **Foul Water:** Uisce Éireann records identify an existing gravity foul sewer network serving the Hodson Bay area and draining southwards toward the N61 wastewater treatment system. An existing Uisce Éireann Wastewater Pump Station is located within the site boundary. Existing hotel drainage drawings identify manholes MHF34 and MHF33 connecting to this pumping station. Further survey information on pipe sizes, cover levels, invert levels and network condition is required to confirm capacity and connection feasibility.
- **Surface Water:** Existing surface water drainage discharges directly to Lough Ree. Existing drainage records identify two 225 mm diameter outfalls, one adjacent to the marina car park and one adjacent to the marina ramp. Additional outfalls are assumed based on historic survey information, giving a total of five assumed outfall locations pending detailed foreshore survey confirmation.
- **Topography:** Ground levels range from approximately 45.0 m OD along the inland road corridor to approximately 35.0 m OD at the shoreline. Surface water runoff naturally drains toward Lough Ree, with the promenade and marina representing the lowest points within the catchment.

10.2. Proposed Drainage Design

The design utilises a SuDS hierarchy to manage runoff at source before controlled discharge:

- **Surface Water:** The strategy incorporates permeable and porous surfacing, rain gardens, bioretention depressions and tree pits with structural cells. Surface levels are graded to direct runoff toward these SuDS features, thereby maximising interception, attenuation and water quality treatment before discharge to Lough Ree. Rainwater downpipes are proposed to discharge externally to adjacent SuDS features where practicable.
- **Discharge Strategy:** Residual runoff from the developed area will discharge to Lough Ree via the existing outfalls, subject to confirmation of their condition and capacity. Non-return valves are proposed on all outfalls to prevent backflow during periods of elevated lake level.
- **Water Quality:** All runoff from car parking and vehicular areas will pass through hydrocarbon interceptors incorporating full-retention silt and suspended solids separation prior to discharge.
- **Foul Water:** Foul drainage from the Water Sports Pavilion and café will connect to existing foul manhole MHF34, which discharges to the Uisce Éireann Wastewater Pump Station. A marina sewerage pump-out system will discharge via a pressure main to a break chamber adjacent to the marina washroom facilities before gravity discharge via manhole MHF33 to the pumping station. A pre-connection enquiry has been submitted to Uisce Éireann under reference **CDS26004773**.

The drainage proposals have been developed in close coordination with the landscape architect so that rain gardens, bioretention areas, permeable surfaces and tree pits provide attenuation, filtration, urban greening, biodiversity and amenity benefits within the same footprint, thereby reducing reliance on conventional underground drainage infrastructure.

10.3. Surface Water Quantity

Surface water modelling has been undertaken using Causeway Flow in accordance with GSDSDS criteria.

- Pipe sizing has been based on a 1 in 5 year return period.
- Network performance has been checked for a 1 in 100 year event with a 20% climate change allowance.
- The calculated greenfield runoff rate for the contributing catchment is approximately 20 l/s.

The strategy provides significant betterment relative to the existing developed condition. The total critical storm discharge is reduced from approximately 889 l/s pre-development to approximately 249 l/s post-development, representing an overall reduction of approximately 72%. While this remains above the calculated greenfield runoff rate of 20 l/s, achieving full greenfield rates was not considered practicable given the site's topography and reliance on gravity drainage.

Attenuation is provided through distributed SuDS features rather than underground tanks. The drainage model includes approximately 1,470m³ of attenuation storage from rain gardens and permeable surfacing, with an additional estimated 606m³ available from tree pits and bioretention systems.

Finished Floor Levels for the new pavilion and café are set at 38.0m OD, providing a 0.5m freeboard above the 37.5m OD design flood level derived from the site-specific Flood Risk Assessment.

10.4. Drainage Catchment Details

The hydraulic assessment relates to the developed waterfront and marina catchment only.

- **Total contributing catchment:** approximately 3.73 ha.
- **Pre-development contributing area:** approximately 3.24 ha.
- **Post-development contributing area:** approximately 3.73 ha.
- **Change in contributing area:** approximately +0.49 ha (15%).

- **SuDS provision:** approximately 9,390 m² of rain gardens, permeable surfacing, bioretention systems and tree pits.
- **Modelled attenuation storage:** approximately 1,470 m³.
- **Additional estimated storage:** approximately 606 m³.

The wider active travel corridor, approximately 5.07 ha, retains its existing drainage regime and is not included within the hydraulic modelling assessment.

10.5. Climate Change and Sustainability Benefits

The drainage strategy delivers a range of wider environmental and sustainability benefits beyond flood management, including:

- Improved resilience to future extreme rainfall events associated with climate change.
- Significant reduction in peak runoff rates.
- Enhanced protection of Lough Ree through a treatment-train SuDS approach.
- Increased biodiversity and habitat opportunity through vegetated drainage features.
- Integration of green infrastructure within the public realm and waterfront setting.
- Reduced reliance on conventional underground attenuation infrastructure and associated embodied carbon.
- Improved landscape character, urban cooling and visitor amenity through increased planting and permeable surfaces.
- Retention of gravity drainage outfalls, thereby avoiding energy-intensive pumped surface water systems.

These measures support national climate adaptation objectives, Water Framework Directive requirements, local climate action policy and the sustainability objectives of the EU Just Transition Fund-supported project.

10.6. Operation, Maintenance and Construction Measures

The SuDS and drainage infrastructure will be subject to routine inspection and maintenance, including vegetation management, sediment removal, interceptor desludging, inspection of outfalls and non-return valves, and periodic review of SuDS performance. Maintenance activities will be informed by the SuDS Maintenance Schedule included within the Drainage Strategy.

During construction, measures will be implemented to prevent siltation and pollution of the drainage system and Lough Ree, including protection of permeable pavement sub-bases, controlled material storage, bunded fuel storage and the preparation of a Construction Environmental Management Plan (CEMP) incorporating drainage and pollution prevention measures.

10.7. Summary

The proposed drainage strategy is sustainable, climate resilient and policy compliant, combining hydraulic performance with Nature-Based Solutions, biodiversity enhancement and public realm integration. The strategy provides approximately 9,390m² of SuDS features and approximately 1,470m³ of modelled attenuation storage, with additional storage available within tree pits and bioretention systems. Peak discharge to Lough Ree is reduced by approximately 72% during the critical design storm event while also improving water quality treatment and enhancing resilience to future climate change rainfall scenarios.

Further survey work will be undertaken to confirm the location, condition, levels and capacity of existing drainage infrastructure and outfalls, and the drainage design will be refined accordingly during detailed design.

For full details regarding the Drainage Strategy and Design, please refer to the **Drainage Strategy Report (July 2026)** accompanying this submission.

11. Flood Risk Assessment

A site-specific Flood Risk Assessment (FRA) has been undertaken to support the Proposed Development at Hodson Bay. The assessment was conducted in accordance with the 'The Planning System and Flood Risk Management – Guidelines for Planning Authorities' (2009), published by the Office of Public Works (OPW) and the Department of the Environment, Heritage and Local Government (DoEHLG). The assessment establishes the baseline flood risk context, evaluates the potential impact of the development on the surrounding floodplain, and details the necessary mitigation measures to ensure the long-term safety and resilience of the site.

11.1. Flood Risk

The primary source of flood risk to the site is fluvial, originating from elevated water levels within Lough Ree during extreme, catchment-wide rainfall events. Due to the significant storage capacity and shallow hydraulic gradient of the River Shannon system, flooding at Hodson Bay is characterised by a gradual rise in lake levels rather than high-velocity or rapid-onset events, providing substantial lead-in time for monitoring and emergency response.

A detailed analysis of CFRAM (Catchment Flood Risk Assessment and Management) predictive modelling and historical hydrometric data from the OPW Hodson Bay gauge station was performed:

- **Flood Zoning:** Based on extrapolated CFRAM data, portions of the site's shoreline and promenade are situated within Flood Zones A (High Probability) and B (Moderate Probability).
- **Design Flood Level:** A conservative 0.1% Annual Exceedance Probability (AEP) design flood level of **37.5 metres OD** has been adopted. This level includes a 30% sensitivity uplift applied to historic flood differentials to account for potential climate change impacts.
- **Vulnerability:** The proposed Water Sports Pavilion and café are classified as 'Less Vulnerable' developments. As these are functionally water-dependent uses requiring direct shoreline access, they satisfy the criteria for the Sequential Approach and the Justification Test.
- **Flood Storage and Conveyance:** The proposed building footprint involves raising an area of approximately 300 square metres. This represents less than 0.0003% of the Lough Ree surface area; consequently, the displacement of flood storage is negligible and will not increase flood risk elsewhere.
- **Residual Risk:** Whilst sections of the existing promenade (with levels as low as 36.5 metres OD) may be subject to periodic inundation during extreme events, the building itself is protected via passive design measures. The Finished Floor Level (FFL) is set at **38.0 metres OD**, providing a robust **0.5 metre freeboard** above the design flood level to account for wave action and modelling uncertainties.

The Flood Risk Assessment confirms that flood risk at the site is primarily associated with elevated lake levels in Lough Ree during extreme catchment-wide rainfall events. The proposed Finished Floor Level of 38.0m OD incorporates a 0.5m freeboard above the design flood level of 37.5m OD and provides resilience to the 0.1% Annual Exceedance Probability event. The Proposed Development does not encroach upon functional floodplain storage, does not obstruct flood conveyance, and will not increase flood risk elsewhere. Public realm areas below 38.0m OD are designed to be flood resilient and capable of accommodating temporary inundation without significant damage, thereby reducing residual flood risk and improving long-term climate resilience.

The flood strategy has been developed in close coordination with the drainage, landscape and architectural design teams to ensure an integrated climate adaptation response. For full details regarding flood risk, please refer to the **Flood Risk Assessment (July 2026)** accompanying this submission.

12. Construction Management

A Construction and Environmental Management Plan (CEMP) has been prepared to provide a framework for the safe and efficient delivery of the Hodson Bay Waterfront Project. The works are anticipated to take approximately 30 months, beginning in Q3 2027, and will be delivered via a "capacity-first" phasing strategy to ensure public parking remains available throughout the construction duration.

The strategy incorporates rigorous environmental and logistical controls, including restricted working hours, HGV delivery scheduling to avoid peak commuter times, and a strict 15 km/h site speed limit. To safeguard the Lough Ree Special Area of Conservation (SAC) and Special Protection Area (SPA), specific mitigation measures such as cofferdams, earth bunds, and double-lined silt curtains will be utilised. The appointed contractor will be responsible for finalising these protocols into a comprehensive Construction Stage Management Plan (CSMP).

Construction activities will seek to minimise waste generation, maximise reuse of suitable excavated materials where practicable, protect existing trees and watercourses, prevent pollution through appropriate construction environmental controls, and minimise disruption to surrounding businesses, residents and visitors. Construction activities will be phased, where practicable, to maintain access to existing businesses, recreational facilities and marina operations, while minimising waste, protecting environmental receptors and reducing disruption to residents, visitors and local businesses throughout the construction programme.

For full details regarding site logistics, phasing, traffic management, and environmental mitigation strategies, please refer to the **Construction and Environmental Management Plan (July 2026)** accompanying this submission.

13. Audits

13.1. Road Safety Audit and Quality Audit

A combined Stage 1 Road Safety Audit (RSA) and Quality Audit (incorporating Walking and Cycle Audits) has been undertaken by NRB Consulting Engineers to evaluate the proposed Waterfront Project. The audits were conducted in accordance with TII Standard GE-STY-01024 and the Design Manual for Urban Roads and Streets (DMURS) to ensure the safety and accessibility of the scheme for all road users.

The audit process identified several key areas for refinement, including the optimisation of road carriageway widths for bus swept paths, the standardisation of pedestrian crossing treatments, and the enhancement of wayfinding signage. Specific attention was also given to the continuity of the active travel shared surface and the placement of Electric Vehicle (EV) charging infrastructure to ensure footways remain unobstructed.

The Design Team has reviewed all items raised in the audit and provided formal responses within the Audit Feedback Form. Where appropriate, the design has been amended to incorporate the auditors' recommendations—such as widening raised crossing tables and improving bus circulation routes—to safeguard pedestrians, cyclists, and motorists alike.

For a comprehensive record of the identified items, recommendations, and the Design Team's responses, please refer to the **Stage 1 Road Safety Audit & Quality Audit (July 2026)** prepared by NRB Consulting Engineers.

13.2. Accessibility Audit

A Universal Access Statement has been prepared by O'Herlihy Access Consultancy to ensure that the Hodson Bay Waterfront Park is inclusive and accessible to all users, regardless of ability. The design methodology is rooted in Universal Design principles and strictly complies with Part M of the Second

Schedule of the Building Regulations and the guidance within Technical Guidance Document M (TGD M) 2022.

The strategy ensures that all project elements—including the Water Sports Pavilion, café, marina, and public realm—are independently accessible. Key provisions include the allocation of a minimum of 5% accessible parking spaces, the implementation of 1,800mm turning areas in communal zones, and the provision of level landings at all building entrances. Notably, the Water Sports Pavilion will include a specialised 'Changing Places' toilet facility to support users with high support needs.

For a comprehensive breakdown of the accessibility features, including circulation routes, sanitary provision, and communication aids, please refer to the **Universal Access Statement (July 2026)** accompanying this submission, prepared by O'Herlihy Access Consultancy.

14. Climate, Sustainability and Energy Summary

The Proposed Development has been designed as a climate-responsive, low-carbon, and resilient tourism and recreation project. The principal sustainability outcomes of the scheme are summarised below:

- Redevelopment of an existing tourism and leisure site.
- Efficient use of existing access, parking, and utility infrastructure.
- Significant investment in walking and cycling infrastructure to support modal shift.
- Reduction of vehicle dominance along the waterfront and enhancement of the public realm.
- Integration of Sustainable Urban Drainage Systems and Nature-Based Solutions.
- Reduction in peak surface water discharge and improved climate resilience.
- Flood-resilient building design with finished floor levels above the design flood level.
- Public realm areas designed to accommodate occasional flooding without significant damage.
- All-electric building strategy with air-source heat pumps and renewable energy generation.
- Compliance with Part L and NZEB energy performance requirements.
- Energy-efficient LED lighting and intelligent control systems.
- Provision of electric vehicle charging infrastructure.
- Landscape and biodiversity enhancement measures.
- Resource-efficient utility and infrastructure strategy.
- Sustainable construction and waste management measures.

The Proposed Development therefore demonstrates an integrated approach to engineering, sustainability and climate resilience. Through the reuse of an established tourism destination, investment in active travel, implementation of nature based solutions, delivery of an all-electric NZEB building, biodiversity enhancements and flood-resilient public realm design, the scheme supports national climate policy, the Roscommon County Development Plan and the objectives of the EU Just Transition Fund while delivering long-term environmental, social and economic benefits for the region.

15. Conclusion

This Engineering Report has been prepared by Civic in support of the planning application for the Proposed Development at Hodson Bay Waterfront Park, Lough Ree, County Roscommon. The report describes the civil engineering, transport, drainage, flood risk, utilities, energy and public realm proposals and demonstrates that the scheme can be delivered in a safe, accessible, sustainable and technically appropriate manner.

The Proposed Development comprises a coordinated package of waterfront public realm improvements, active travel infrastructure, marina enhancement works, parking reconfiguration, and a new Water Sports Pavilion and café within an established tourism and recreation setting. The design has been developed having regard to the National Planning Framework, the Roscommon County Development Plan, national active travel guidance, flood risk management guidance, SuDS best practice and current energy and accessibility standards.

The transport and movement strategy prioritises walking, cycling and universal accessibility while maintaining appropriate vehicular access, servicing and emergency access arrangements. New footways, shared active travel routes, crossing facilities, parking areas and internal circulation roads have been designed in accordance with DMURS, the NTA Cycle Design Manual and relevant TII standards. Swept-path analysis has confirmed that the proposed layout can accommodate coaches, servicing vehicles, boat-and-trailer movements and emergency fire service access in accordance with the operational requirements of the site.

The drainage strategy incorporates a comprehensive SuDS approach, including rain gardens, bioretention systems, permeable surfacing, tree pits and filter strips integrated within the landscape design. The proposed SuDS features and associated attenuation storage deliver improved runoff management, water quality treatment, biodiversity enhancement and climate resilience compared with the existing site condition.

The accompanying Flood Risk Assessment demonstrates that the Proposed Development can be accommodated without increasing flood risk elsewhere. Finished floor levels have been set above the design flood level with an appropriate freeboard allowance, while lower-lying public realm areas have been designed to be flood resilient and capable of tolerating temporary inundation during extreme events.

The utilities and energy strategies demonstrate that the development can be serviced by an all-electric infrastructure incorporating air-source heat pump systems, heat-recovery ventilation, solar photovoltaic generation, energy-efficient lighting and electric vehicle charging infrastructure. The proposed building will be designed to achieve compliance with Part L of the Building Regulations and Nearly Zero Energy Building (NZEB) requirements at detailed design stage.

From a sustainability perspective, the Proposed Development represents the regeneration of an existing tourism and leisure destination through the efficient use of established infrastructure, the promotion of active travel, the integration of nature-based drainage measures, the enhancement of landscape and biodiversity value, and the adoption of a low-operational-energy building strategy. The scheme therefore supports national and local climate action objectives and the wider aims of the EU Just Transition Fund.

Subject to detailed design and statutory approvals, Civic are satisfied that the Proposed Development is technically feasible and can be delivered in accordance with relevant engineering standards, environmental requirements and planning policy. The scheme represents a significant investment in sustainable tourism infrastructure and will deliver lasting environmental, economic and social benefits through improved accessibility, climate resilience, biodiversity enhancement, active travel and high-quality public realm within Hodson Bay and the wider Lough Ree area.