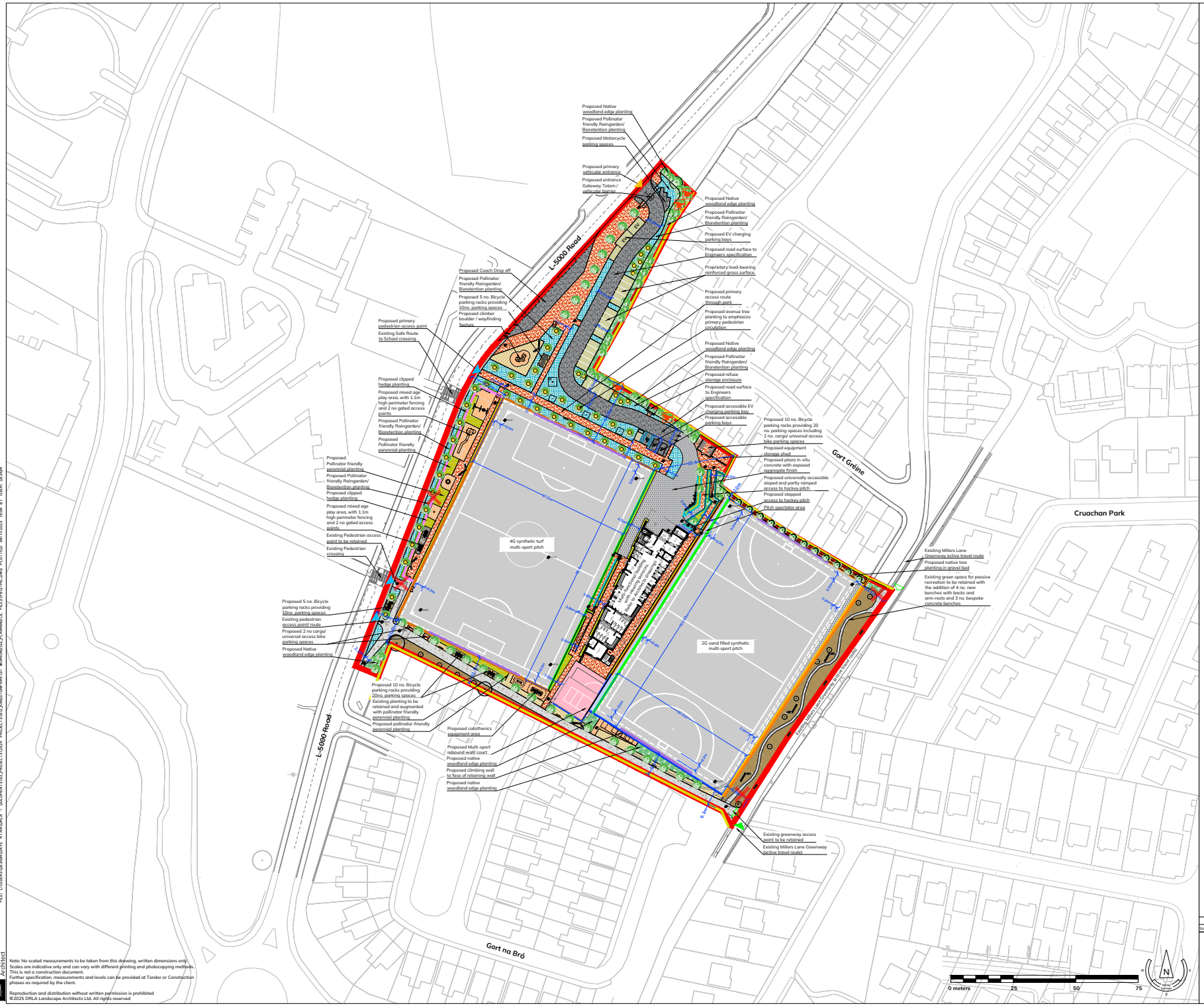
APPENDIX 1

SITE LAYOUT



Legend

Site Notice Location

Site Boundary

Existing Trees to be retained

CIRCULATION & SURFACES

- Public Building Entrance (Primary / Secondary)
- Pedestrian Site Entrance (Primary / Secondary)
- Active Travel Site Entrance (Primary / Secondary)
- Vehicular Site Entrance

PROPOSED SURFACES (REFER TO HL SERIES FOR DETAILS)

S1 - Road Surface
For motorised traffic including coaches
Refer to Engineer's Design & Specification

S2 - Parking Bays
Proprietary load-bearing reinforced grass surface. Detail design to stabilise growing medium and support healthy grass growth in parking bays. System to provide structural support, prevent rutting and compaction, and allow free infiltration of surface water in accordance with SuDS principles.

S3 - Plaza
In-situ concrete surfacing with exposed aggregate finish

S4 - Multi-Use Gaming Areas
Proprietary seamless sports surfacing system. Poured, coloured acrylic- or polyurethane-based surface designed for multi-use games and informal play.

S5 - Soft-Pour Rubber Safety Surfacing
Seamless poured rubber surface with certified impact attenuation for playground use. Installed to critical fall height requirements in accordance with EN 1177.

S6 - Certified Play Sand
Clean, washed, fine-grain silica sand for use in sand play features and loose material play. Not intended for impact attenuation.

S7 - Pedestrian paths
Stone Mastic Asphalt (SMA) 6mm grade finish with clear polymer modified binder, 'Light Buff' colour pigment and colour-matched aggregates

S8 - Artificial Grass Playing Surface
4G synthetic turf Multi-sport pitch (Designed to Soccer pitch dimensions)
2G Sand filled synthetic Multi-sport pitch (Designed to Hockey pitch dimensions) with associated fencing and 6 no. floodlights per pitch

S9 - Self-binding Gravel
Compacted, permeable gravel with fines for firm, stable finish. Laid to max gradient of 1:12 (8%)
Requires edge restraint.

PROPOSED PLANTING (REFER TO PL SERIES FOR DETAILS)

Standard Trees
Semi-Mature Standard Trees, clearstem to 2m, rootballed, 3-4 times transplanted

Multistem Trees
Multistem Trees, 3-4 stems, 3.5-4.5 m height, container/rootballed

Bioretention Raingarden Trees
Tree species chosen for their water tolerance planted within Bioretention Raingardens.

PL1 – Woodland Edge Planting
Native trees and shrubs in layered structure for habitat transition, seasonal interest, and edge definition.

PL2 – Pollinator-Friendly Perennials & Shrubs Mix
Matrix planting of herbaceous perennials, sub-shrubs and ornamental grasses. Designed for texture, pollinators, and seasonal colour.

PL3 – Raingarden Mix
Matrix planting of herbaceous perennials, sub-shrubs and ornamental grasses. Designed for texture, pollinators, and seasonal colour and to tolerate occasional inundation and drought.

PL4 – Short-flowering Meadow
Short height grass meadow mix, cut every 6 weeks from April for path edges to provide habitat biodiversity

PL6 – Screening Hedge
Clipped hedge to provide softening to proposed boundaries

PROPOSED BOUNDARIES & SITE FURNITURE (REFER TO BD SERIES FOR DETAILS)

B1 - Retaining wall
Varying height, to Engineers specification, Block wall, rendered on both sides

B2 – Soccer Pitch Boundary Fence
Twin Bar Welded Mesh (TBVM) panel fence , 50x200mm aperture, powder coated, RAL colour black with kickboards to control migration of pitch infill material.

B3 – Hockey Pitch Boundary Fence
Roll Form Welded Mesh (RFVM) panel fence , 50x50mm aperture, powder coated, RAL colour black with kickboards to control migration of pitch infill material.

B4 – Play Area Boundary Fence
Timber post, pale and rail fence to 1.1m height to include two gates. Posts 120mm square, pales and rails 95x35 mm.

B5 – Bespoke Low Wall to Provide Seat / Planter / Ramp Edge
Bespoke construction details to Engineer's Design and Specification and Landscape Architect's Finishes.

B6 - Ball-Stop Netting (Vertical extension to fence)
Ball catch netting to rear of soccer pitch goals 3m height extension x 40m in length centered behind goals. Details subject to health and safety assessment

B7 – Spectator Fence Location
Refer to B2 for soccer Pitch spectator railing
Refer to B3 for hockey Pitch spectator railing

B8 – Reinforced Concrete Retaining Wall
Reinforced concrete retaining wall to Engineer's Specification. Details subject to detailed site investigations. Exposed concrete face with integrated artist-designed relief/photo-engraved finish. Artwork to be commissioned under the *Percent for Art Scheme* and developed in collaboration with the design team.

B9 – Existing block wall
Existing block boundary wall to residential units to be retained

BIODIVERSITY SUPPORT, EDUCATION & WAYFINDING

Bird Box
Approximate location of proposed bird boxes to support ecology. Bird boxes to be secured to trees using strap, minimum 2m above ground level, facing north to south-east.

- **M** Location Map
- **P** Plant / Tree identification plate
- **H** Bug hotel
- **F** Fingerpost
- **T** Totem Gateway

Issue/Rev. no.	Description	Date	Sign	Ctk'd

Client: **Galway City Council**
Project: Kingston Park and Millers Lane Public Park and Urban Realm Project

Drg Title: Site Layout Map
Stage: Planning

Drg. No.: P612-MIL-LD-GA- 101
Scale: 1:500@ A0
Date: 11th November 2025
Drawn By: JC Checked by: DR

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Registered Landscape Architect

Note: No scaled measurements to be taken from this drawing, written dimensions only. Scales are indicative only and can vary with different printing and photocopying methods. This is not a construction document. Further specification, measurements and levels can be provided at Tender or Construction phases as required by the client.

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Registered Landscape Architect

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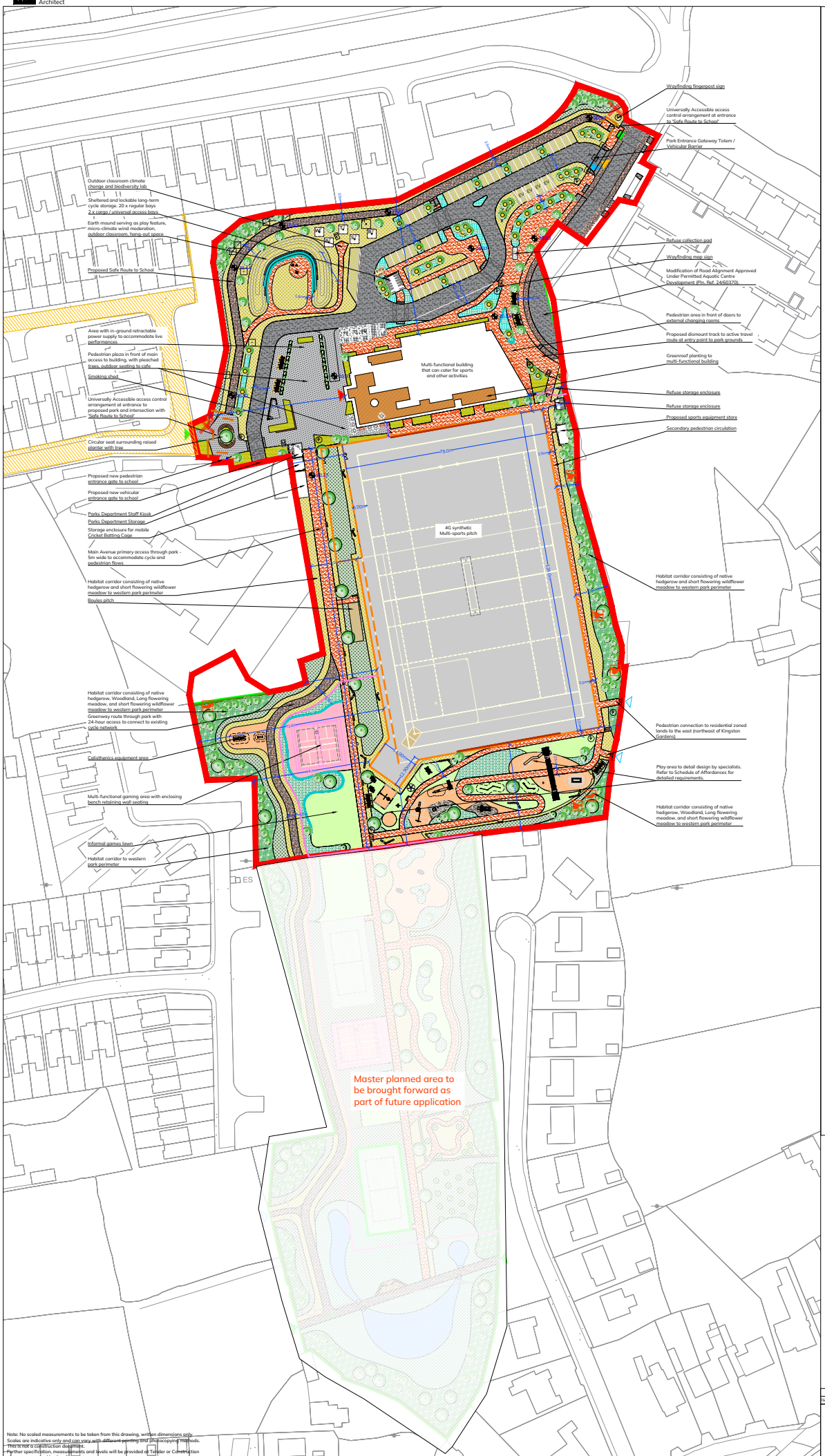

Legend

Site Notice Location

Site Boundary

CIRCULATION & SURFACES

Public Building Entrance (Primary/ Secondary)

Pedestrian Site Entrance (Primary/ Secondary)

Active Travel Site Entrance (Primary/ Secondary)

Vehicular Site Entrance

S1 - Motorised Traffic including coaches
Refer to Engineer's for Specification

S2 - Permeable reinforced grass Parking Bays
Proprietary load-bearing reinforced grass surface. Detail design to stabilise growing medium and support healthy grass growth in parking bays. System to provide structural support, prevent rutting and compaction, and allow free infiltration of surface water in accordance with SuDS principles.

S2B - Permeable block paving accessible Parking Bays
Proprietary permeable block paving, colour to match plaza surface finish. Compliant to SuDS requirements. refer to Engineers design and specification

S3 - Plaza & Main Avenue
In-situ concrete surfacing with exposed aggregate finish comprising a mix of locally sourced granite and limestone aggregate (6–10 mm). Surface to be acid-etched or washed to expose aggregate.

S4 - Multi-Use Gaming Areas
Proprietary seamless sports surfacing system. Poured, coloured acrylic- or polyurethane-based surface designed for multi-use games and informal play.

S5 - Cycleway
Stone Mastic Asphalt (SMA) 6mm grade finish with clear polymer modified binder, 'Terracotta' colour pigment and colour-matched aggregates

S6 - Soft-Pour Rubber Safety Surfacing
Seamless poured rubber surface with certified impact attenuation for playground use. Colour and pattern to be confirmed at detailed design stage. Installed to critical fall height requirements in accordance with EN 1177.

S7 - Certified Play Sand
Clean, washed, fine-grain silica sand for use in sand play features and loose material play. Not intended for impact attenuation. Install over free-draining base t specified depth with suitable edging to contain material.

S8 - Self-binding Gravel
Compacted, permeable gravel with fines for firm, stable finish. Laid to max gradient of 1:12 (8%) Requires edge restraint.

S9 - Pedestrian paths
Stone Mastic Asphalt (SMA) 6mm grade finish with clear polymer modified binder, 'Light Buff' colour pigment and colour-matched aggregates

S10 - Artificial Grass Playing Surface
4G synthetic turf pitch (Designed to Rugby pitch dimensions) with associated fencing and 6 no. floodlights

PLANTING

T1 - Large-Scale Standard Trees
Ultimate height 20 m+, canopy spread 15 m+. Structural native trees suitable for large open spaces, parks, and woodland frameworks, e.g. Quercus robur, Pinus sylvestris

T2 – Moderate-Scale Standard Trees
Ultimate height 10–20 m, canopy spread 8–15 m. For spatial definition, greenways, buffer planting, and woodland edge e.g. Betula pendula, Alnus glutinosa

T3 – Multistem Trees
Ultimate height 3-3.5 m, canopy spread 8–15m. For, buffer planting, open green spaces, and woodland edge e.g. Betula jaquemontii, Alnus glutinosa, Amelanchier

T4 – Pleached Trees
Ultimate height 3-3.5 m, canopy spread 1 x 3 m. For spatial definition and micro-climatic comfort at entrance plaza

T5 – Bioretention Tree Pit with filter / liner at 1m depth
Ultimate height 10–20 m, canopy spread 8–15 m. For spatial definition, greenways, buffer planting, and woodland edge e.g. Betula pendula, Alnus glutinosa

PL1 - Native Woodland Planting
Mixed native trees and understorey for biodiversity, screening, and long-term canopy development. Naturalistic layout.

PL2 – Biodiversity-Friendly Shrub Planting
Mixed flowering shrubs and subshrubs for year-round nectar and structure. Species selection to support biodiversity.

PL3 – Pollinator-Friendly Perennials & Shrubs Mix
Matrix planting of herbaceous perennials, sub-shrubs and ornamental grasses. Designed for texture, pollinators, and seasonal colour.

PL4 – Raingarden Mix
Matrix planting of herbaceous perennials, sub-shrubs and ornamental grasses. Designed for texture, pollinators, and seasonal colour and to tolerate occasional inundation and drought

PL5 – Long Wildflower Meadow
Medium-height grass meadow mix, 2 to 3 cus annually, for large meadow areas to provide habitat biodiversity

PL6 – Short-flowering Meadow
Short height grass meadow mix, cut every 6 weeks from April for path edges to provide habitat biodiversity

PL7 – Riparian/ Wetland Meadow
large Riparian/ wetland meadow areas to provide habitat biodiversity

PL8 – Amenity Sports Turf
Hard-wearing grass mix for informal kickabout and lawn areas

PL9 – Native Hedge
Mixed Native hedge

BOUNDARIES & WAYFINDING

B1 – Bespoke in-situ concrete seating / planter wall
Height: 380–470 mm, Width: 450–500 mm. Finish: Exposed aggregate finish comprising a mix of locally sourced granite and limestone aggregate (6–10 mm). Surface to be acid-etched or washed to expose aggregate.

B2 – Active travel access control
Granite faced block wall, as per TII CC-CSD-02404 600mm height, with piers to 1.2m

B3 – Rugby Pitch Boundary Fence/ Spectator rail fence
Twin Bar Welded Mesh (TBWM) panel fence, 50x200mm aperture, powder coated, RAL colour black with kickboards to control migration of pitch infill material. TBWM fence to spectator railing - 1.1m height. TBWM fence to perimeter - 3m height. Kickboards fixed to all fences field of play side - 200 mm height, Gate to match fence with minimum clearance of 1.2m x 2. Gate to match fence with minimum clearance of 2.4 m x 1.Details to specialists design and specification

B4 – Restricted access perimeter fencing
2.0m high steel mesh fence, powder coated, RAL colour black. Include for 1 no 2.4m wide double leaf matching gate and 3 no single leaf matching gates

B5 – Ballstop fence
Ball catch netting to rear of rugby pitch goals
12m height extension x 40m in length centered behind goals
Details subject to health and safety assessment

B6 – Rendered Block-work Wall
Piers, capping and finish to match existing boundary to Knocknacarra National School.

Bird Box
Approximate location of proposed bird boxes to support ecology. Bird boxes to be secured to trees using strap, minimum 2m above ground level, facing north to south-east.

Bat Box
Approximate location of proposed bat boxes to support ecology. Bat boxes to ecologist's specification.

Biodiversity support and outdoor classroom
B Bee post
T Thermometer for Outdoor Classroom Climate Lab
W Wind vanes for Outdoor Classroom Climate Lab
R Rain gauge for Outdoor Classroom Climate Lab
S Sun dial for Outdoor Classroom Climate Lab

Wayfinding & Biodiversity Education
M Location Map
I Information panel
K Blackboard
P Plant / Tree identification plate
H Bug hotel
F Fingerpost
T Totem Gateway

N

0 meters 25 50 75

Issue/Rev. no.	Description	Date	Sign	Ckd

Client: Galway City Council
Project: Kingston Park and Millers Lane Public Park and Urban Realm Project

Drg Title: Site Layout Plan
Stage: Planning

Drg. No.: P612-KIN-LD-GA-101
Scale: 1:500 @ A0
Date: 11th November 2025
Drawn By:LF Checked by: DR

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www.DRLA.ie

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Further specification, measurements and levels will be provided at Tender or Construction phases as required by the client.

APPENDIX 2

ENGINEERING PLANNING REPORT

(WITHOUT APPENDICES)

Kingston Park and Miller's Lane Public Park and Urban Realm Project

Engineering Planning Report

233114-PUNCH-XX-XX-RP-C-00013

November 2025

Document Control

Document Number: **233114-PUNCH-XX-XX-RP-C**-00013

Status	Revision	Description	Date	Prepared	Checked	Approved
S0	P01	Draft Issue	06/10/2025	D. Madden	M. Ncube	M. Greene
A0	C01	Planning Issue	29/10/2025	M. Ncube	M. Greene	M. Greene
A0	C02	Planning Issue	06/11/2025	M. Ncube	M. Greene	M. Greene

Table of Contents

Kingston Park

1 Introduction

PUNCH Consulting Engineers have been commissioned by the client, Galway City Council, to provide civil and structural engineering consultancy services for the proposed Kingston Park and Miller's Lane developments which are currently at planning stage.

1.1 Site Location

The Kingston Park portion of this application is approximately 3.34 hectares in area, located on the Western Distributor Road, Knocknacarra. The entire master planned Kingston Park site, including the standalone southern half which is to be progressed under a separate application is 4.8 hectares. The site is bounded by the L10111 road to the North, residential development and land designated for future residential developments to the east, south, and west. St. John the Apostle, Knocknacarra National School is located at the Northwest of the site. The site is accessed from the Western Distributor Road via the school's access road (L10111), which is not a through route for vehicular traffic, as shown in Figure 1-1. The site's topography varies from a high point of approximately 24mAOD located in the southeast of the site to a low point of approximately 19mAOD in the centre of the site, as seen in Figure 1-2.

The proposed development is specifically provided for within the Galway City Development Plan, with the site being zoned as Recreational and Amenity as well as being planned for in Policy 5.1 and Chapter 5: Specific Objectives 10, 37 and 40.

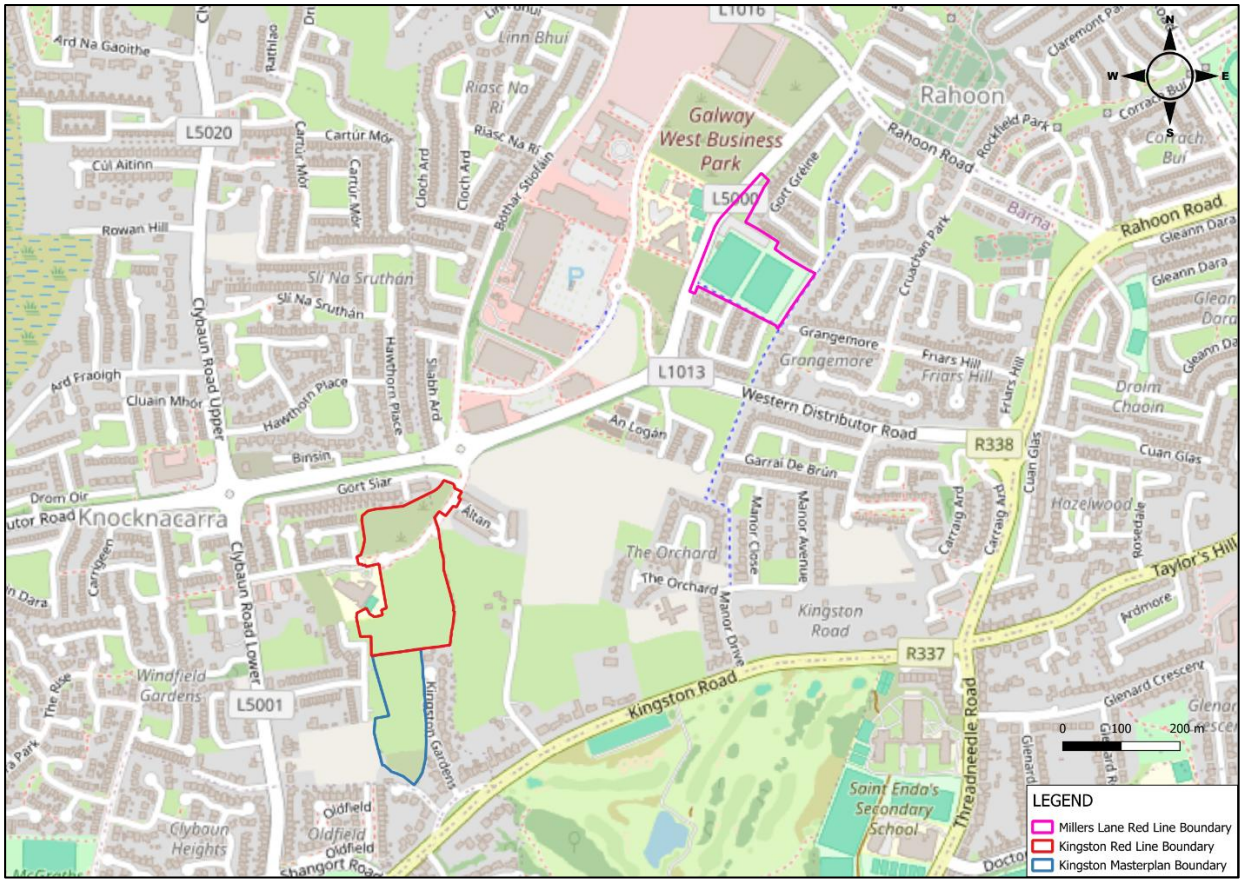


Figure 1-1 Location of the Proposed Developments (Source: QGIS)

cnv c

Figure 1-2 Ground elevations of the subject site (Source: QGIS)

1.2 Nature of the Proposed Development

The proposed development consists of:

The development of the northern half of the proposed Kingston Park (site area 3.43Ha), including:

- The development of 1 no. 4G synthetic turf multi-sport pitch (designed to 4G synthetic turf multi-sport pitch dimensions) with associated fencing and 6 no. floodlights.
- New two-storey, multi-functional building which includes public and sports team changing rooms, toilets, and showers (standard and accessible); double-height general purpose community hall

including retractable bleacher seating; multi-purpose activity rooms (including 3 no. rooms offering direct views onto the playing pitch); commentary booth; café and servery; sensory room; first-aid room; store room; plant room; reception area; and roof-mounted solar panels.

- New public spaces and amenities including all-ages play area, outdoor classroom / amphitheatre; internal paths; multi-functional gaming area; informal games lawn; boules pitch; calisthenics area; performance space; pedestrian gateway plaza; parks department staff kiosk; refuse store; sports equipment sheds; public lighting; and public seating.
- Extensive landscape planting (including native genus and species) and nature-based drainage measures including pollinator-friendly raingarden/ bioretention areas; reinforced grass paving; native hedgerows; short- and long-flowering meadows; wildflower gardens; native and naturalised wooded areas; and pollinator-friendly perennials and shrubs.
- Replacement of the existing vehicular site access / junction on the Altan Road, and modification of the new access road approved under permitted Aquatic Centre Development (Pln. Ref. 24/60370) to account for the layout of this proposed development.
- Improvement of existing active travel entrance from Doire Gheal, improved links to the St. John the Apostle, Knocknacarra National School (via a Safe Routes to School), new active travel accesses from the Altan Road, and provision for 2 no. potential future accesses to lands to the east (northeast of Kingston Gardens).
- 50 no. car parking spaces (including 4 no. standard EV charging spaces, 3 no. accessible spaces, 1 no. combined EV and accessible space, and 1 no. age-friendly space), 1 no. coach parking space, 1 no. set-down area, 82 no. bicycle spaces (60 no. standard short-term spaces, and a secure bike shed with 20 no. standard and 2 no. cargo-bike spaces) and 2 no. motorcycle spaces.
- All other associated and ancillary works.

Figure 1-3 shows the proposed new layout for the development.

Figure 1-3 Proposed Site Layout
***Extract from DRLA Site Plan Drawing 250819_P612K-XXX-A0-Site Plan**

2 Surveys

2.1 Topographical Survey

A topographical survey of the application site was commissioned for the project and completed by NCW Surveys in April 2025. The survey covered the part of the Kingston Park site owned by Galway City Council. However, due to the third-party land issues, the southern portion of the masterplan area , outside the other portion within the red-line boundary of this application (private land), could not be surveyed.

The area covered by the survey contained spot levels (all to Malin Head datum), road and kerb lines as well as visible manholes, chambers, and additional services within the site.

2.2 Ground Penetrating Radar (GPR) Survey

A Ground Penetrating Radar (GPR) survey of the subject site has not been procured. Procurement is currently ongoing and will be actioned during the detailed design phase.

2.3 CCTV Survey

The CCTV survey was commissioned for the project and completed in August 2025 by Cahir Environmental Services (CES). The CCTV report analysis shows that the inspected surface water pipes are in an acceptable structural condition. However, some pipes were found to be improperly protruding into the manholes.

The foul sewer pipes and manholes inspected have numerous defects, with joints displaced in the network, fractures, roots and mass reducing the hydraulic radius of the network in certain sections. There is a pipe that is at risk of collapse, as roots and mass have reduced its cross-sectional area by 20%. It will be prudent to consider, rehabilitation of the foul sewer network.

2.4 Geophysical Survey

A geophysical survey of the Kingston Park and Miller's Lane sites was commissioned for the project, with a seismic refraction survey completed by Minerex Geophysics Limited in June 2025. The survey established the profile of soil and rock layers across the survey areas.

The results identified two main subsurface layers. The upper layer, between 1–4.6m thick (average 2.5m), consists of soft to loose soils with low seismic velocities (200–700 m/s). This material is considered diggable using standard excavation methods. Beneath this, competent granite bedrock was encountered at depths ranging from 1–4.6m below ground level, with high seismic velocities (4,500–4,600 m/s). This layer is strong and will require mechanical breaking or blasting for removal. The granite surface generally falls in elevation from southeast to northwest, with shallower rock in the southeast and deeper profiles in the northwest. While the granite is of good quality, localised weathering may produce either large boulders close to surface or deep zones of weakened, gravelly material. These findings indicate variable excavation conditions that should be considered during design and construction planning.

2.5 Site Services

Available in Appendix A are the existing service records for the site. From the assessment of these records, it has been identified that a water main, telecom lines, a gas line, and a road, pass through the footprint of the proposed new building. These existing service lines will need to be diverted in a service corridor. Additionally, infrastructure related to the existing road that lies within the proposed building footprint will be decommissioned and integrated into the proposed site drainage system.

3 Stormwater Drainage Design

3.1 Existing Stormwater Drainage

PUNCH undertook a detailed assessment of the existing stormwater drainage system through a combination of Closed-Circuit Television (CCTV) survey, topographical survey, review of existing record drawings, and analysis of data obtained from https://mobilegis.water.ie/arcgis/rest/services accessible via QGIS, enabled a greater understanding of the infrastructure in place.. A Ground Penetrating Radar (GPR) survey remains in procurement to further confirm the existing services. The assessment identified a channel located northeast of the site, shown in Figure 3-1, which was investigated to determine whether it constituted a stream or watercourse, and if a Section 50 application would therefore be required. The topographical survey did not record a headwall on the southern embankment or an inlet pipe on the northern embankment, and no water levels were recorded within the channel, with only top and bottom embankment levels noted.

A review of the EPA River Network GIS database suggested that a stream previously existed within Kingston Park, as illustrated in Figure 3-2. Historical mapping, including the six-inch and twenty-five-inch series, was subsequently reviewed and confirmed the presence of a stream coinciding with the EPA dataset. Both maps depict the stream, identified as the Clybaun Stream, as indicated by directional flow arrows in Figures 3-3 and 3-4.

The earliest aerial imagery available on the GeoHive platform, dating from 1995, together with subsequent imagery from 1996, 2001, 2006 and 2013, demonstrates the rapid residential and commercial development of the Knocknacarra area of Galway City. The 1995 and 1996 imagery confirms the existence of the Clybaun Stream, with the 1995 imagery showing the southern section adjacent to Clybaun Road and extending towards Shangort Road already piped to facilitate development. The 1996 imagery further indicates that piping works had commenced north of Kingston Park, south of the Western Distributor Road, and through the Clybaun Court residential development. Notably, the 1996 imagery clearly shows the watercourse as an open channel in the northeastern section of Kingston Park and across the site where Knocknacarra National School now stands, as illustrated in Figures 3-5 and 3-6.

The 2001 aerial imagery records the Clybaun Stream as being piped underground upstream of the Kingston Park red line boundary, extending along the northern boundary with Gort Siar and through Clybaun Court, though it remains visible as an open channel south of Gort Siar, as shown in Figure 3-7. Between 2001 and 2006, construction of Knocknacarra National School and the associated access road from Áltan Apartments was completed, during which time the Clybaun Stream appears to have been fully culverted underground. Figure 3-8 illustrates the culverted alignment as of 2006.

A review of the surface water drainage assets GIS database confirmed the presence of a 1800mm diameter pipe coinciding with the historical route of the Clybaun Stream and consistent with the EPA River Network dataset, as shown in Figure 3-8. A query submitted to Galway City Council engineers resulted in a response dated 25 July 2025, confirming that the 1800mm diameter pipe is almost certainly conveying the former stream.

On this basis, it is concluded that the stream located to the northwest of the subject site has been diverted into a 1800mm diameter piped surface water system, thereby removing the requirement for a Section 50 application. The assessment further indicates that surface water from the subject site ultimately discharges to this 1800mm diameter pipeline.

Figure 3-1 Existing Kingston Park Stormwater Network
***Extract from Uisce Éireann Service Records**

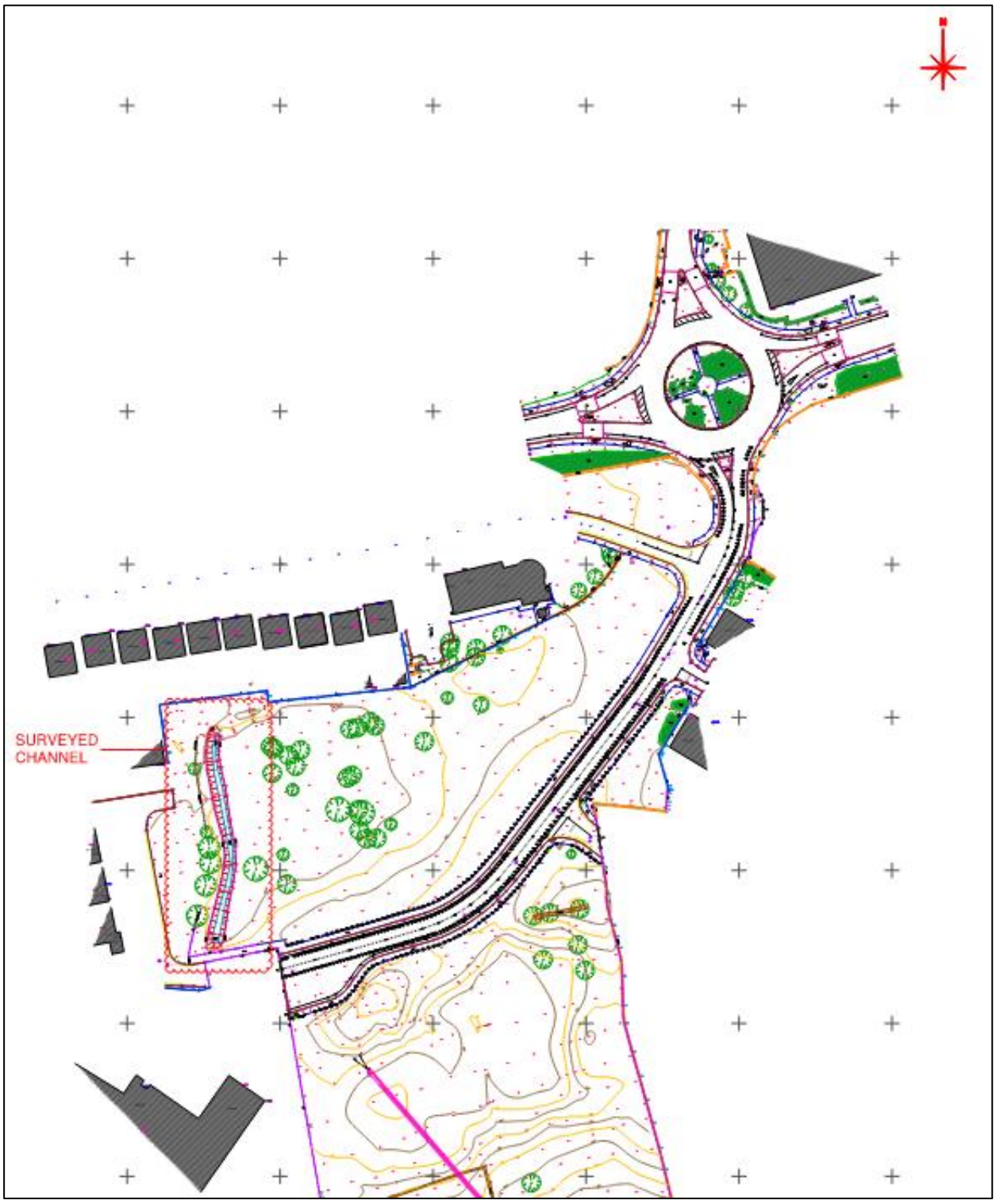


Figure 3-2 **Waterbody Northeast of Subject Site**

***Extract from April 2025 Topographical Survey**

Figure 3-3 EPA River Network
***Extract from EPA Maps**

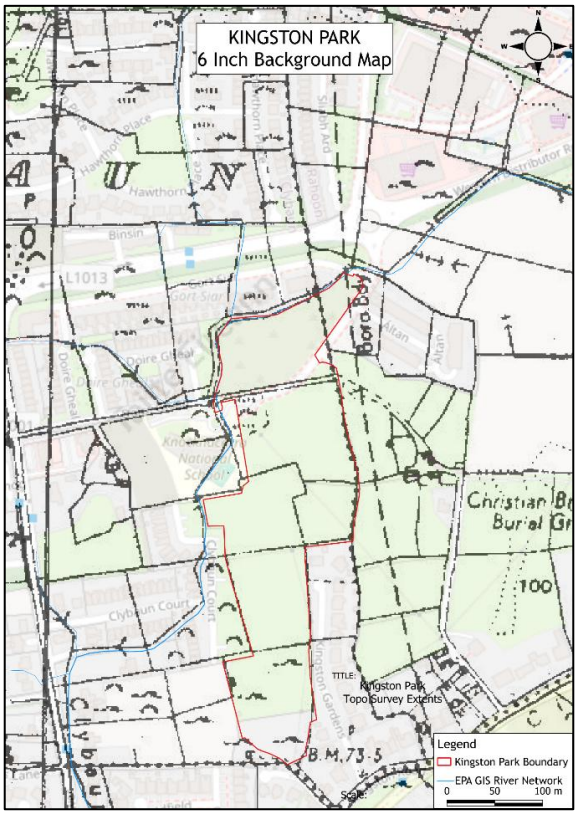


Figure 3-4 Six Inch Mapping
***Extract from GSI Website**

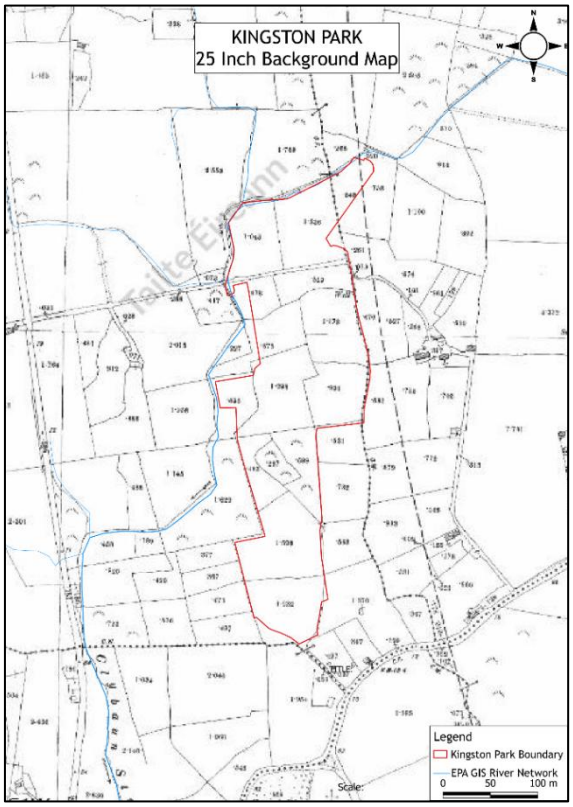


Figure 3-5 Twenty-Five Inch Mapping
***Extract from GSI Website**

Figure 3-6Aerial Imagery 1995
***Extract from GeoHive Website**

Figure 3-7 Aerial Imagery 1996
***Extract from GeoHive Website**

Figure 3-8 Aerial Imagery 2001
***Extract from GeoHive Website**

Figure 3-9 Aerial Imagery 2006
***Extract from GeoHive Website**

Figure 3-10 Surface Water Network
***Extract from Uisce Éireann Service Records**

3.2 Proposed Stormwater Drainage

The proposed stormwater water drainage system has been designed using Causeway Flow software in accordance with the Department of Environment and Local Government's guidance document "Recommendations for Site Development Works for Housing Areas", with guidance taken from the "Greater Dublin Strategic Drainage Study" (GDSDS), the Galway County Council Development Plan, Galway County Council's Development Management Standards and the Sustainable Drainage Systems (SuDS) Manual.

It is proposed where feasible to utilise nature-based solutions for the proposed stormwater drainage than a traditional piped system network.

The peak flow discharge from the site's stormwater network will be controlled with the peak discharge limited to 11.89 litres per second, based on Criterion 4 of the Greater Dublin's Drainage Strategy Study (2005). The proposal aims to implement sustainable drainage systems (SuDS) that include devices such as Permeable grass paving, Rain Gardens, Permeable 4G artificial turf pitch, Green roof, and Rainwater Harvesting. These systems will facilitate the interception and treatment of runoff at the source and incorporate on-site control measures for managing surface water runoff. In the absence, of a site investigation the system has been designed as fully tanked. However, when the site soil's permeability is confirmed, the design will be updated to reflect the same. Therefore, the SuDS devices—namely, bioretention rain gardens, permeable grass paving, filter drain and permeable 4G synthetic turf pitch surface will not allow infiltration into the ground, which has been assessed as suitable for this purpose. Additional information on SuDS can be found in Section 3.3.

Available in Appendix D is the SuDS Strategy inclusive of the maintenance regime of the various SuDS devices.

It is proposed that runoff from the road and parking areas be directed through the permeable grass paving and bio retention rain gardens. These systems are designed with filter materials and provide attenuation storage, effectively removing coarse sediments and hydrocarbons from the runoff. This approach will help reduce the risk of downstream contamination in the event of an oil spill on site.

Please refer to drawing 233114-PUNCH-KP-XX-DR-C-0101 for the Proposed Drainage Layout

The manhole adjacent to the end of the GCC-owned land west of the subject site (S MH-4601) on the proposed drainage layout along the 1,800mm diameter surface water is where the proposed surface water network will connect.

The proposed stormwater sewers have been designed using Causeway Flow software. Table 3-1 describes the stormwater drainage design parameters used, and the Causeway Flow design report is available in Appendix B.

Furthermore, a Surface Water Audit (SWA) has been undertaken and available in Appendix F.

Table 3-1 Stormwater Drainage Design Parameters

Description	Value
Total Impervious Site Area	3.32 ha
Return period target	Pipe Design 1 in 5 year. Network Design 1 in 30 year + CC. Check 1 in 100 year + CC for flooding.
Climate Change	20%
Urban Creep	10%
Freeboard to FFL	500mm
M5-60	16.3 (as per Met Eireann Records)
Ratio R	0.247
SAAR	1247mm
SOIL TYPE	2 (clayey/poorly drained)
Soil value	0.3
Rainfall Intensity	50 mm/hr
Flow reduction parameter	2l/s/Ha or QBar
Controlled Outflow from Development	11.89l/s
Flow restriction method	Vortex Flow Control

3.3 SuDS Proposals

The proposed development has been assessed in relation to Sustainable Urban Drainage Systems (SuDS). A variety of SuDS measures may be adopted to comply with Council recommendations. All SuDS measures are to be implemented with reference to the UK SuDS Manual and Galway City's Council Development Standards.

The SuDS devices decrease the impact of the development on the receiving environment by limiting the discharge, provision of attenuation in addition to providing amenity and biodiversity through the introduction of bioretention areas, permeable grass paving and the green roof. Regular maintenance of the SuDS proposals is required to ensure they are operating to their optimal level throughout their design life.

The SuDS strategy implemented is detailed in Appendix D, which includes a comprehensive maintenance plan for the various SuDS measures. A succinct overview of the specific measures adopted for the proposed development includes the following:

3.3.1 Bioretention Rain Gardens

The bioretention rain gardens will incorporate drainage stone/subsoil and will provide a level of additional attenuation within the bioretention areas. Bioretention systems allow the stormwater to filter downwards through a filter medium removing finer contaminants along the way. The quality of the bioretention system can vary depending on the particle size of the filter media used. The base and sides of the system will be lined with geotextile of the appropriate gauge to prevent infiltration until the infiltration capacity of the site has been confirmed. Additionally, a high-level overflow will be integrated into the drainage network within the development to facilitate the removal of water once retention has been achieved.

CIRIA C753 (The SuDS Manual) Table 24.6 notes that, regarding interception design of bioretention areas, pavements drained by bioretention areas can be considered to provide Interception, i.e. it can be assumed that there will be zero runoff from the first 5 mm rainfall for 80% of events during the summer and 50% in winter.

3.3.2 Permeable 4G Synthetic Turf Pitch and Permeable Grass Paving

A permeable 4G synthetic turf pitch surface for the multi-sports pitch and a permeable grass paving surface for all the car parks, including the bus set-down areas within the site, are proposed as shown in PUNCH Proposed Finishes Layout: 233114-PUNCH-KP-XX-DR-C-0441.

The treatment processes that occur within these permeable surfaces include:

I. Filtration of silt and the attached pollutants – most of the silt is trapped within the top 30mm of the jointing material between the voids of the concrete blocks for the permeable grass paving.
II. Biodegradation of organic pollutants, such as petrol and diesel, within the pavement construction
III. Adsorption of pollutants (pollutants attach or bind to surfaces within the construction), which depends on factors such as texture, aggregate structure and moisture content.
IV. Settlement and retention of solids.

A total of 400.45m^3 of attenuation is being provided by the permeable grass paving and bioretention/ rain garden, as well as 1,948.48m^3 under the 4G artificial turf multi-sports pitch surface, based on the area and depth of the build-ups. The porosity of the stone used was taken as 30% for the permeable grass surfaces/ bioretention surfaces and 43% for the artificial pitch surface, based on best practices and recent tests results from similar suppliers.

3.3.3 Green Roof and Rainwater Harvesting

A green roof is a planted area of living vegetation, which are installed on top of buildings. Green roofs are typically more expensive to construct and maintain, but they can provide long-term benefits. These

include visual benefit, ecological value, enhanced building performance, reduced surface water runoff and improved water quality.

Rainwater Harvesting (RWH) is the collection of rainwater runoff for use. Runoff can be collected from roofs and other impermeable areas, stored, treated (where required) and then used as a supply of water for domestic, commercial, industrial and/or institutional properties. RWH systems have several key benefits:

- They can meet some of the building's water demand, delivering sustainability and climate resilience benefits.
- They can help reduce the volume of runoff from a site.
- They can help reduce the volume of attenuation storage required on the site.

The type of rainwater harvesting system required is to be confirmed by the architect, (i.e. gravity or syphonic system).

It is proposed that water collected from the proposed building via the green roof is to be conveyed to the rainwater harvesting system; a preliminary sizing of 20,000 litres is provided for at planning stage. This provides some drought protection and can serve the flush requirements of the proposed building. This size will be finalised and refined at the detailed design stage.

3.3.4 Attenuation

Based on the calculations and modelling to mitigate peak runoff from the site, attenuation and flow control will be implemented by use of the SUDs devices detailed above, it is envisaged that no attenuation tank will be required for storage and in adherence to the requirements of the Galway City Development Plan (2023-2029) under Policy 9.4: Sustainable Urban Drainage Systems which states that:

1. *Ensure the use of Sustainable Urban Drainage Systems (SuDS) and sustainable surface water drainage management, wherever practical in the design of development to enable surface water run-off to be managed as near to its source as possible and achieve wider benefits such as sustainable development, water quality, biodiversity, local amenity and climate adaptation.*
2. *Promote the use of green infrastructure, e.g. green roofs, green walls, bioswales, planting and green spaces for surface water retention purposes as an integrated part of SuDS and to deliver all the ancillary benefits.*

These measures complement the reduction in hardstanding areas achieved through the proposed layout. Attenuation will be implemented at the main grass pitch to accommodate the required storage deficit for the 1% Annual Exceedance Probability (AEP), which arises from other Sustainable Drainage Systems (SuDS) devices.

3.4 Pollution Hazard Indices Based on the Simple Index Approach

The Simple Index Approach is used to assess the suitability of SuDS measures for mitigating risks from pollution hazards. It is a method used in the SuDS Manual and developed from that used in Ellis et al (2012).

In accordance with the SuDS Manual CIRIA C753 the pollution prevention guidelines have been followed to ensure appropriate levels of treatment are provided before attenuated run-off from the site is discharged. Pollution Hazard Indices are shown in Table 3-2. They identify the risks from different pollutants associated with the land uses within the subject site. Values are derived from Table 26.2 of CIRIA C753.

Table 3-2 Pollution Hazard Indices for Land Uses within Subject Site

Land Use	TSS	Metals	Hydrocarbons
Low Traffic Roads	0.5	0.4	0.4
Non-Residential Car Parking (<300 traffic movements/day)	0.5	0.4	0.4

To ensure the proposed SuDS strategy will appropriately mitigate against the potential pollution derived from these areas, the Pollution Mitigation Indices (PMI) in Table 26.3 and 26.15 of CIRIA C753 have been reviewed and laid out in Table 3-3.

Table 3-3 Indicative SuDS Mitigation Indices for Site

SuDS Measure	TSS (PMI)	Metals (PMI)	Hydrocarbons
Permeable Artificial Pitch (Astro-turf pitch by specialist)	0.7	0.6	0.7
Bioretention Rain Gardens	0.8	0.8	0.8
Permeable Grass Paving	0.8	0.8	0.8

Table 3-4 below shows the calculations for the total pollution prevention for each type of hard-standing area on site. The following formula has been used to calculate the total mitigation in line with CIRIA C753. Total SuDS Mitigation index = Mitigation Index 1 + 0.5(Mitigation Index 2).

In Table 3-4, the Mitigation Indices for the relevant SuDS feature have been subtracted from the Pollution Hazard Indices for the land use to determine if sufficient treatment has been provided. A negative number indicates that sufficient treatment has been provided, and a positive number indicates that additional forms of treatment are required.

Table 3-4 Pollution Hazard Indices for Different Land Uses

Land Use	Mitigation Method 1			Mitigation Method 2			Total SuDS Mitigation		
	TSS	Metals	H-C	TSS	Metals	H-C	TSS	Metals	H-C
Car Parking	Permeable Paving System		Grass	Artificial permeable pitch			-0.3	-0.5	-0.55
(Pollution Hazard Table 3-2 – Mitigation Index Table 3-3)	-0.3	-0.4	-0.4	-0.2	-0.2	-0.3			
Low Traffic Roads	Permeable Paving System		Grass	Artificial permeable pitch					
(Pollution Hazard Table 3-2- Mitigation Index Table 3-3)	-0.3	-0.4	-0.4	-0.2	-0.2	-0.3	-0.4	-0.5	-0.55

References:

ELLIS, J B, REVITT, M and LUNDY, L (2012) "An impact assessment methodology for urban surface runoff quality following best practice treatment", Science of the Total Environment, vol 416, February, Elsevier BV, UK, pp 172–179

4 Foul Water Drainage Design

4.1 Existing Foul Water Drainage

The wastewater system currently serving the site is as shown in Figure 4-1, based on record drawings from Uisce **Éireann** and the GSI website. The GPR survey procurement is still ongoing to confirm the exact location of the network. This Uisce Éireann data shows a 375mm diameter concrete foul sewer, flowing from east to west as it traverses the northern boundary of the site. The sewer then turns south in the northeast corner of the site and flow south and exits in the southeast corner of the site increasing to a 450mm diameter prior to exiting the site. Please see Figure 4-1 for further details.

Record drawings of the local foul water drainage network were obtained from Uisce Éireann and are included in Appendix A.

Figure 4-1: Existing Foul Sewer Network at Project Site. Source (QGIS)

4.2 Proposed Foul Water Drainage

The proposed foul water sewer has been modelled using Causeway Flow software in accordance with the "Code of Practice for Wastewater Infrastructure" (particularly clause 3, published by Uisce Éireann). Refer to drawing 233114-PUNCH-XX-XX-DR-C-0101 for the proposed drainage layout plan.. A new 150mm diameter foul sewer network is proposed around the new proposed building as shown on the same drawing. This foul sewer will connect to an existing Uisce Éireann manhole southeast of the site as shown on the drainage layout drawing.

For the design foul generated for the proposed development, two scenarios were considered. Scenario 1 represents the normal occupancy of the building, where a total occupancy of 367 is envisaged, as shown in Table 4-1. Scenario 2 applies when the proposed development hosts infrequent events, such as senior citizens' tea dances, Foróige discos, community arts events, and school musicals or plays where using the

allowable density, the hall area was estimated to accommodate up to 1,200 individuals. It is acknowledged that these events are expected to occur infrequently.

Table 4-1 : Scenario 1-Foul Water Dry Weather Flow

Category	Scenario	Quantity	Flow Rate (l/day)	Daily Flow Rate (l/Day)	DWF (l/s)	Design Peak Flow
Leisure-Recreation	1	4 -staff 318 -sport 45 -Café	90	13,755	0.33	1.49

Table 4-2: Scenario 2- Foul Water Dry Weather Flow

Category	Scenario	Quantity	Flow Rate (l/day)	Daily Flow Rate (l/Day)	DWF (l/s)	Design Peak Flow
Leisure-Recreation	2	1200	90	60,395	2.97	13.35

4.3 Uisce Éireann Consultation

A pre-connection enquiry (Customer Reference Number CDS25006216) was undertaken for the development in relation to a Water and Wastewater connections. Uisce Eireann has acknowledged the pre-connection enquiry submission but is yet to respond in terms of the feasibility of the wastewater connection.

5 Watermain Design

5.1 Existing Watermain

The watermain currently serving the site was reviewed using record drawings from Uisce Éireann and the GSI website. The record drawings obtained are included in Appendix A.

Uisce Éireann records indicate that there is a 100mm water main westward of the site and an unknown size water main which traverses through the proposed new building's footprint to connect to a 150mm diameter watermain east of the site. The procurement of the GPR survey is ongoing, which should identify the exact locations and sizes of these networks and fire hydrants(s) adjacent to the subject site. Figure 5-1 shows the water network at the subject site.

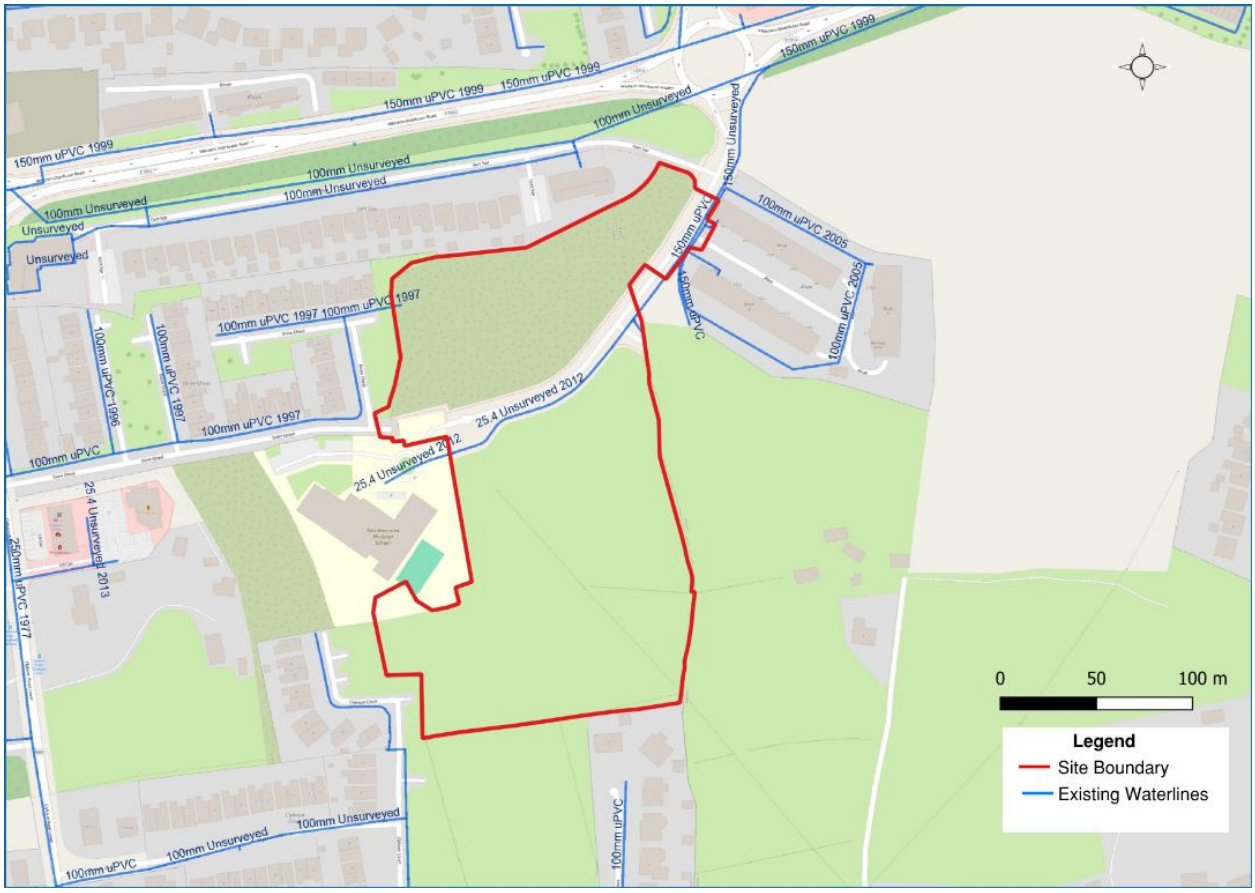


Figure 5- 1: Water Network (Source: QGIS)

5.2 Proposed Watermain

It is proposed to divert the watermain traversing the site that serves the school away from the building footprint while complying with separation distances as stipulate by Uisce Éireann.

It is proposed to connect to the 150mm watermain located along the eastern boundary of the site. The proposed 150mm connection will be designed to service the new building and accommodate the diverted watermain to sewer the school. The watermain design will also include two fire hydrants. The proposed water main drawing 233114-PUNCH-XX-DR-C-0301 shows the layout.

5.3 Uisce Éireann Consultation

A pre-connection enquiry (Customer Reference Number CDS25006216) was undertaken for the development in relation to a Water and Wastewater connections. Uisce Eireann has acknowledged the

pre-connection enquiry submission but is yet to respond in terms of the feasibility of the wastewater connection.

6 Flooding

A Flood Risk Assessment has been undertaken by PUNCH Consulting Engineers for the development which accompanies this planning submission.

7 Roads and Access

7.1 Existing Roads & Access

The site is currently a greenfield area with vehicular access leading to Knocknacarra National School, which is located to the north of the subject site. Along the Western Distributor Road to the north, there are bus stops served by City Direct Route 412, with stops for Route 411 and Bus Eireann Route 405 also nearby. To the east of the proposed development, there's the existing Clybaun Court and Doire Gheal residential developments, while the Kingston Gardens estate is situated to the south and east. To the east of the subject site, the landscape remains primarily greenfield, although there is a small residential development known as Atlan apartments nearby. There is an approved application to develop an Aquatic Centre to the east of Altán (Ref 2460370) and an LRD application for 362 units known as Kingston Stables which was submitted on October 16TH .

7.2 Galway Transport Strategy

Galway City Council has developed the Galway Transport Strategy (GTS) (2016) as part of its transportation planning requirements. The GTS emphasizes the importance of maintaining pedestrian access throughout new developments and promoting connections to existing ones. To promote active and sustainable transport, and decrease reliance on private car usage, the Western Distributor Road (WDR), which provides access to the site, is proposed to be upgraded under the GTS, as depicted in Figure 7-1.

Two schemes are currently in progress to action this. The first, a Part 8 application, has been lodged is currently under consideration by the Galway City Elected Members. It includes the addition of quick-build style segregated cycle lanes on both sides of the road. Additionally, all three existing junctions assessed in the Traffic Transport Assessment (TTA) for this project are proposed to be upgraded under the Part 8 application with enhanced active travel facilities and new pedestrian crossings along the WDR.

In addition, it is understood that work is currently being undertaken to prepare a permanent upgrade to the road as part of the BusConnects scheme. This is to provide permanent, segregated cycle tracks. It is also expected that bus lanes will be provided under the scheme, as there are currently none on the WDR. This work is currently in the initial design phase.

This development has tried to meet the requirements of the GTS of promoting Active Travel, as seen in the proposed layout drawing shown in the site layout shown in, Figure 1-3. Robust active travel infrastructure, including segregated cycle paths, a Safe Routes to School-style shared path, and abundant cycle parking, are all proposed under this application.

Figure 7- 1: Galway Transport Strategy (2023-2029) (Ref: GTS 2023-2029)

7.3 Proposed Roads & Access

There are several access points for the Kingston Park development, shown in Figure 7-2. The accesses are as follows:

1. The Main access and exit are from Altán Road/ L1011, a raised table is proposed here with full connectivity to the active travel provisions proposed by the recently permitted local developments, planning ref 24/60370. In turn, the proposed active travel measures proposed along Áltan will also connect to the proposed active travel measures for the Western Distributor Road. The main access located opposite Áltan will include for pedestrian and cycle provision
2. West of the subject site, is an access/ exit via White Oaks roads, which has active travel links
3. There are numerous active travel links with accesses to the subject site east of the site, one connects to the Atlán Road, two links connect to the future King LRD Development
4. South of the subject site is an active travel link which provides access to the southern half of the subject site, which is to be facilitated by an additional planning submission.

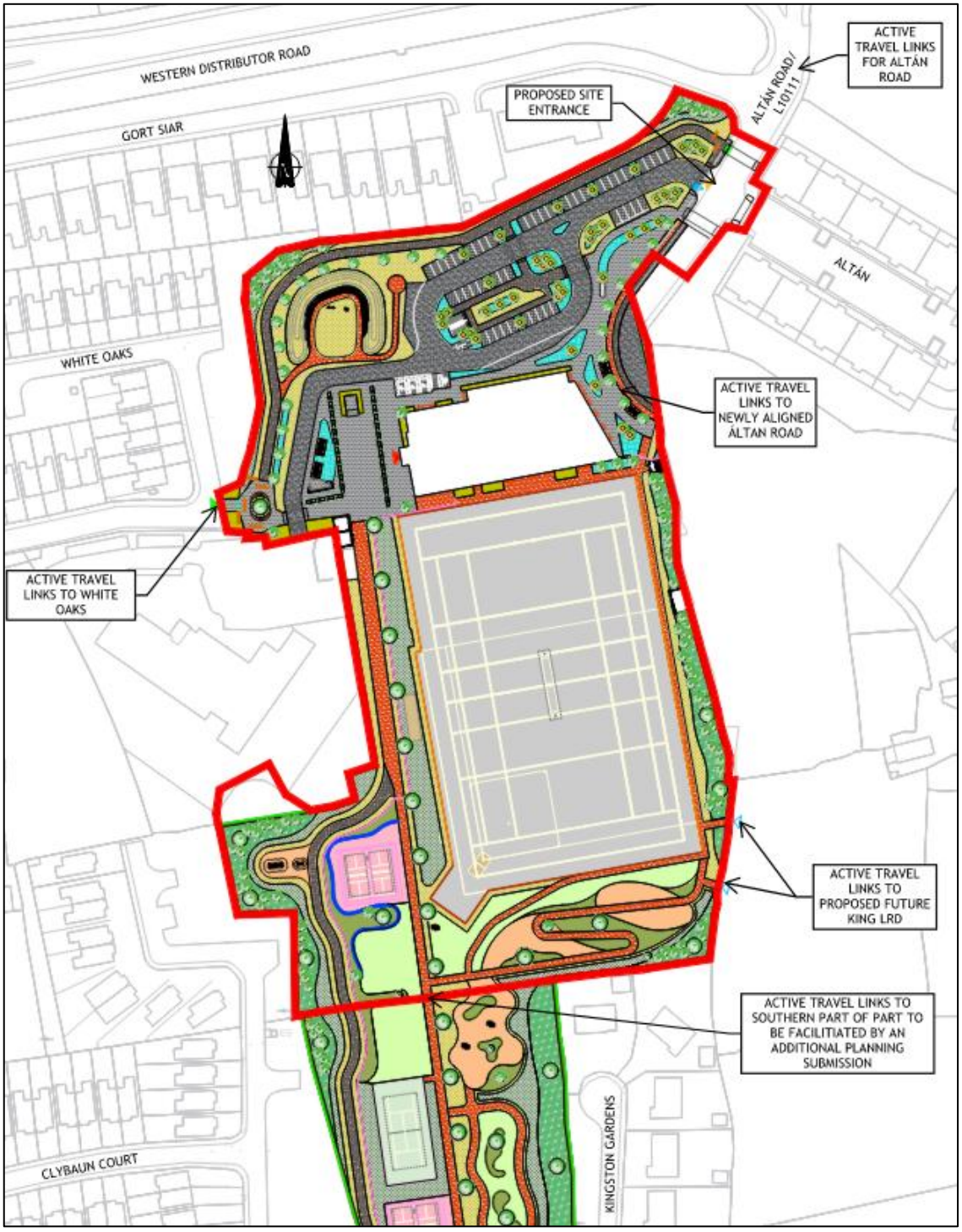


Figure 7- 2: Roads and Access to Kingston Park

The Road Safety Audit (RSA) was completed and forms part of this planning submission. A Mobility Management Plan (MMP) has been undertaken for the project and is included as part of the planning application pack for this project. A Traffic and Transport Assessment (TTA) has been completed for the project and is included in the planning application documentation for this project.

A swept path analysis was conducted for the proposed site development, as detailed in reference drawing numbers 233114-PUNCH-XX-XX-DR-C-0601, 233114-PUNCH-XX-XX-DR-C-0602, and 233114-PUNCH-XX-XX-DR-C-0603. This analysis ensured adequate access and egress to the site using the designated design vehicles. The findings from this analysis guided the necessary updates to the final site layout and the Traffic Transport Assessment report.

7.4 DMURS

The proposed road layout has been designed in accordance with the Design Manual for Urban Roads and Streets (DMURS), Cycle Design Manual and the Recommendations for Site Development Works. DMURS promotes the creation of safer, more attractive, and vibrant streets that support the development of sustainable communities and neighbourhoods. The design accommodates cars and other vehicles but prioritises the needs of pedestrians, cyclists, and public transport users.

7.5 Proposed Car Parking and Motorcycle Parking Provision

Car parking serving the development is provided in accordance with the Galway City Council City Development Standards (GCCCDP) (2023-2029) - Part B, Table 11.6. The applicable car parking standards are noted in Table 7-1 below:

Table 7-1: Galway Development Plan Car Parking Requirement

Site	Development type	Gross Floor Area	Requirement	Total Maximum
Kingston Park	Leisure Centre	2,480	1 space per 50m²	50

The Kingston Park proposal allows for a total of 50No. car parking spaces in line with the requirements of the GCC Development Standards, which consist of:

- 41No. Standard parking bays
- 4No. Standard EV charging spaces
- 3No. standard accessible parking space
- 1No. combined EV charging and accessible parking space
- 1No. age-friendly space
- 1No. Coach parking bay
- 1No. set-down area
- 2No. Motorcycle spaces

Taxis and buses will be accommodated at a designated set-down area within the Kingston Park site location, which will also be used as a designated school drop-off for children attending St. John's National School, as noted in Figure 7-2 of the proposed site plan for the development.

The 'standard' parking spaces will be demarcated with either concrete or stone inserts, plastic or metal studs, plastic or rubber markers, etc., adequately set to avoid tripping hazards. All car parking spaces will be 2.5m by 5.0m, with disabled spaces providing an additional width and length of 1.2m, as per the GCC Development Standards. The car parking will be designated as shown in drawing reference number 233114-PUNCH-KP-XX-DR-C-0461.

7.6 Proposed Cycle Facilities

Cycling is to be significantly encouraged as part of the development. Cycle parking serving the development is provided in accordance with the GCCCDP DM standard 32 Table 15.4. The applicable cycle parking standards are noted in Table 7-2.

Table 7-2 GCCCDP Cycle Parking Space Requirements

Type	No. Car Park Spaces	Requirement	Total Requirement
Other Developments	50	1 cycle stand* per 20 car spaces	2
	27		1

*Each Cycle Stand should accommodate a minimum of five bicycles

In the GCCCDP, it states that 'Provisions for cycle parking shall also be made at community centres, sports grounds and other recreational facilities. Inclusivity and accessibility should be considered in the design and location of all cycle-parking. In developments with more than 20 cycle-parking spaces, a minimum of 10% of spaces should be provided, which are family and disability friendly, with spaces configured to accommodate cargo-bikes, tricycles, bikes with trailers, recumbent bikes and other non-standard cycles.' Table 7-2 shows the adherence to these standards. Both the Millers Lane and Kingston Park developments are seeking LEED accreditation and as a result the bicycle parking proposed goes above the requirements of the GCCCDP requirements.

The Kingston Park proposal allows for a total of 82No. cycle parking spaces consisting of.

- 60No. Standard short-term spaces
- Secure bike shed accommodating 20 No. standard and 2No. cargo bike spaces.

Miller's Lane

8 Introduction

PUNCH Consulting Engineers have been commissioned by the client, Galway City Council, to provide civil and structural engineering consultancy services for the proposed Kingston Park and Miller's Lane developments which are currently at planning stage.

8.1 Site Location

The Millers Lane site is approximately 2.44 hectares in area, located on the L-5000 Road and Millers Lane, ion the townland of Rahoon. It is bounded by Gort na Gréine residential developments to the north, Millers Lane to the east, Gort na Bró residential development to the south and Gort na Bró road (L5000) to the west. On the opposite side of the L-5000 road is a primary school, Gaelscoil Mhic Amhlaigh. The existing site consists of two grass soccer pitches with a walkway around the perimeter. The site topography is slopes from east at a level of +37.0mOD to west at invert level of +30.0mOD.

The proposed development is provided for within the Galway City Development Plan, with the site being zoned as Recreational and Amenity and supported directly by Chapter 5: Specific Objectives 37, 39 and 40.

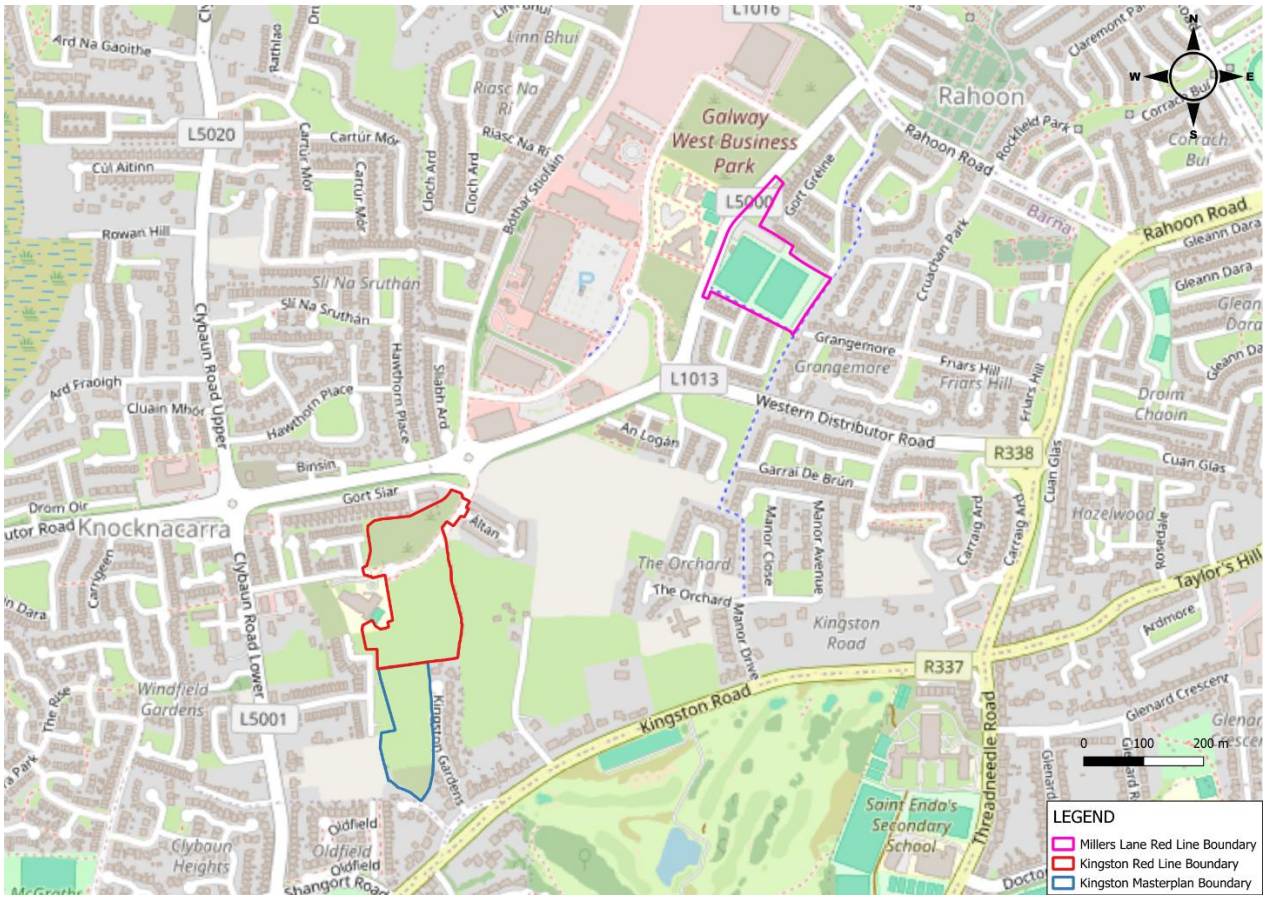


Figure 8-1: Location of the Proposed Development (Source: QGIS)

8.2 Proposed Development

The proposed development consists of:

The refurbishment and expansion of the existing park (site area 2.44Ha) located on Millers Lane, including:

- Relocation and replacement of the 2 no. existing football pitches with: 1 no. new 4G synthetic turf multi-sport pitch (designed to 4G synthetic turf multi sport pitch dimensions) with associated fencing and 6 no. floodlights; and 1 no. new 2G sand-filled synthetic multi-sport pitch (designed to hockey pitch dimensions) with associated fencing and 6 no. floodlights.
- New two-storey, multi-functional building which includes public and sports team changing rooms, showers and toilets; multi-purpose sports hall; multi-purpose activity rooms; kitchenette; 2 no. viewing terraces; first-aid room; store rooms; plant rooms; reception area; and roof-mounted solar panels.
- New public spaces and amenities including fenced children's play areas; internal paths; multi-use games area; climbing wall; calisthenics area; public plaza; pitch spectator areas; equipment storage shed; green space for passive recreation; public lighting; and public seating.
- Extensive landscape planting (including native genus and species) and nature-based drainage measures including pollinator-friendly raingarden/ bioretention areas and reinforced grass paving, as well as planting areas with typologies including native and naturalised wooded areas, avenue tree planting, clipped hedges, short-flowering meadow, and pollinator-friendly perennials.
- Relocated vehicular access on the L-5000 Road; 2 no. new active travel accesses from the L-5000 Road; and enhanced pedestrian / cyclist access from Millers Lane.
- 27 no. car parking spaces (2 no. standard EV charging spaces, 1 no. accessible space, 1 no. combined EV and accessible space, 1 no. family space, and 1 no. age-friendly space), 2 no. coach drop-off spaces with automated access control, 3 no. motorcycle spaces, and 64 no. cycle spaces (40 no. standard short-term spaces, 2 no. short term cargo-bike spaces, and a secure bike shed with 20 no. standard and 2 no. cargo-bike spaces).

Figure 8-2 Proposed Site Layout
***Extract from DRLA Site Plan Drawing P612-MIL-LD-GA-002**

9 Surveys

9.1 Topographical Survey

A topographical survey of the site was undertaken by NCW Surveys in April 2024. The survey encompassed the entirety of the Millers Lane site. The survey data includes spot levels referenced to Malin Head datum, road and kerb alignments, as well as visible manholes, chambers, and other identifiable services within the site.

9.2 Ground Penetrating Radar (GPR) Survey

A Ground Penetrating Radar (GPR) survey of the subject site has not been undertaken. Procurement is currently ongoing and will be actioned during the detailed design phase

9.3 CCTV Survey

A CCTV survey of the site was commissioned for the project and completed by Cahir Environmental Services (CES) in August 2025.

The survey identified the existing drainage network and other underground services within the site. The surface water network was found to be generally structurally acceptable with some operational defects present. It was found that maintenance is required on several sections of pipe due to excessive deposits. In addition, one section was found to have a longitudinal crack.

Most pipes in the foul water network were found to be structurally sound with minor service issues. Water levels were normal and there was no evidence of major blockages, fractures or infiltration, bar one section of pipe which has a hole, putting it at critical risk of future collapse.

9.3 Geophysical Survey

A geophysical survey of the Kingston Park and Miller's Lane sites was commissioned for the project, with a seismic refraction survey completed by Minerex Geophysics Limited in June 2025. The survey established the profile of soil and rock layers across the survey areas.

The results identified two main subsurface layers. The upper layer, between 1–4.6m thick (average 2.5m), consists of soft to loose soils with low seismic velocities (200–700 m/s). This material is considered diggable using standard excavation methods. Beneath this, competent granite bedrock was encountered at depths ranging from 1.0m–4.6m below ground level, with high seismic velocities (4,500–4,600 m/s). This layer is strong and will require mechanical breaking or blasting for removal. The granite surface generally falls in elevation from southeast to northwest, with shallower rock in the southeast and deeper profiles in the northwest. While the granite is of good quality, localised weathering may produce either large boulders close to surface or deep zones of weakened, gravelly material. These findings indicate variable excavation conditions that should be considered during design and construction planning.

10 Stormwater Drainage Design

10.1 Existing Stormwater Drainage

In August 2025, a comprehensive evaluation of the current stormwater drainage systems was conducted utilizing a Closed-Circuit Television (CCTV) Survey. This investigation, paired with an analysis of existing record drawings and data obtained from https://mobilegis.water.ie/arcgis/rest/services accessible via QGIS, enabled a detailed understanding of the infrastructure in place.

The assessment confirmed the presence of a 1,500mm diameter concrete stormwater pipe running adjacent to the western boundary of the site. The proposed stormwater drainage network will connect to this main sewer at the south-west corner of the site. A 300mm diameter concrete stormwater pipe traverses the site as shown in Figure 10-1 below.

Figure 10-1 Existing Miller's Lane Stormwater Network
***Extract from Uisce Éireann Service Records**

10.2 Proposed Stormwater Drainage

10.2.1 Design Criteria

The proposed stormwater water drainage system has been designed using Causeway Flow software in accordance with the Department of Environment and Local Government's guidance document "Recommendations for Site Development Works for Housing Areas", with guidance taken from the "Greater Dublin Strategic Drainage Study" (GDSDS), the Galway County Council Development Plan, Galway County Council's Development Management Standards and the Sustainable Drainage Systems (SuDS) Manual.

A new surface water sewer network shall be provided for the proposed development. All surface water run-off from roof areas and hardstanding areas are designed to be collected by a mixture of traditional and Sustainable urban Drainage System (SuDS) devices and conveyed to a gravity pipe network. The proposed surface water network will discharge to a surface water sewer to the southwest corner of the site.

The runoff is to be reduced for the 1% Annual Exceedance Probability (AEP) (1:100-year storm return period), with an additional percentage allowance to be added to rainfall to allow for climate change. Urban Creep has been included for at 10% and Climate Change has been accounted for at 20%.

As with Kingston Park, it is proposed to utilise nature-based solutions for the proposed stormwater drainage to reduce the extent of the piped system network where feasible

GCC was consulted during the preparation of the initial planning application regarding the surface water drainage and proposed Sustainable Urban Drainage Systems (SuDS) that will form part of the surface water management for the proposed development. Following discussions with GCC the following was agreed.

- Modelling shall confirm the discharge levels, which shall not exceed 2l/s/ha or Qbar, whichever is the greater.
- Qbar must be calculated using the net area drained and not the gross area of the site (i.e., red line boundary).
- The discharge shall be marked on the manhole in which the flow restricting device is located.
- The surface water discharge from the site can be discharged to the surface water sewer that runs along the Gort na Bró Road. The surface water discharge from the proposed development will connect to a manhole just outside the south-western boundary of the site.

The proposed stormwater sewers have been designed using Causeway Flow software.

Additional information on SuDS can be found in Section 10.3. Available in Appendix D is the SuDS Strategy inclusive of the maintenance regime of the various SuDS devices.

It is proposed that runoff from the road and parking areas be directed through permeable grass pavements and bioretention systems. These systems are designed with filter materials and provide attenuation storage, effectively removing coarse sediments and hydrocarbons from the runoff. This approach will help reduce the risk of downstream contamination in the event of an oil spill on site.

Please refer to drawing 233114-PUNCH-ML-XX-DR-C-0101 for the Proposed Drainage Layout.

Table 10-1 describes the stormwater drainage design parameters used and detailed calculations are enclosed in Appendix B.

Table 10-1 Stormwater Drainage Design Parameters

Description	Value
Return period target	Pipe Design 1 in 5 year. Network Design 1 in 30 year + CC. Check 1 in 100 year + CC for flooding.
Climate Change	20%
Urban Creep	10%
Freeboard to FFL	500mm
M5-60	16.4 (as per Met Eireann Records)
Ratio R	0.247
SOIL type	2 (clayey/poorly drained)
Soil value	0.3
Rainfall Intensity	50 mm/hr
SAAR	1320.6 mm
Flow reduction parameter	2l/s/ha or QBar
Controlled Outflow from Development	2.4l/s
Flow restriction method	Flow Control Orifice

10.3 Sustainable Drainage System Proposals

The proposed development has been assessed in relation to Sustainable Drainage Systems (SuDS). A variety of SuDS measures are proposed to comply with Council recommendations. All SuDS measures are to be implemented with reference to the UK SuDS Manual and Galway City Council Development Management Standards.

The SuDS processes decrease the impact of the development on the receiving environment by limiting the discharge, provision of attenuation in addition to providing amenity and biodiversity through the introduction of bioretention areas and swales. Regular maintenance of the SuDS features are required to ensure they are operating to their optimal level throughout their design life.

The SuDS strategy implemented is detailed in Appendix D, which includes a comprehensive maintenance plan for the various SuDS measures. A succinct overview of the specific measures adopted for the proposed development includes the following:

10.3.1 Rainwater Harvesting

It is proposed that rainwater harvesting will be the favoured over grey water recycling. Grey water systems can prove technically difficult and presents more risks in terms of water borne contaminants in storage tanks. Rainwater harvesting (RWH) is the collection of rainwater runoff for use and falls under the source control category in the SuDS Management Train.

Runoff from the roof is considered 'clean' and is often reused for facilities such as toilet flushing, landscape irrigation etc. For this development roof runoff is being directed to separate rainwater-harvesting tanks. Rainwater harvesting will be used for showers, toilet, sluice and urinal flush in the building. These tanks will be located to the north of the main building situated between the proposed multi-sport pitches.

10.3.2 Bioretention Rain Gardens

The bioretention rain gardens will incorporate drainage stone/subsoil and will provide a level of additional attenuation within the bioretention areas. Bioretention systems allow the stormwater to filter downwards through a filter medium removing finer contaminants along the way. Depending on the particle size of the filter media different qualities can be achieved from these bioretention rain gardens. The base and sides of the system will be lined with permeable geotextile to allow for partial infiltration in the system and a high-level overflow to the drainage network within the build-up will accommodate removal of water when retention has been achieved.

CIRIA C753 (The SuDS Manual) Table 24.6 notes that regarding interception design of bioretention rain gardens, pavements drained by bioretention rain gardens can be considered to provide Interception, i.e. it can be assumed that there will be zero runoff from the first 5 mm rainfall for 80% of events during the summer and 50% in winter.

10.3.3 Permeable Grass Paving Systems

The car parking bays on site are proposed to have a permeable grass paving surface covering a stone attenuation layer. Surface run-off in the trafficked areas will flow towards the permeable grass paving surfaces in all car parks.

Permeable grass paving provides a pavement suitable for pedestrian and/or vehicular traffic, while allowing rainwater to infiltrate through the surface and into the underlying structural layers. The water is temporarily stored beneath the overlying surface before controlled discharge downstream. Permeable grass paving falls under the source control category in the SuDS Management Train.

Permeable grass paving, together with its associated substructures, are an efficient means of managing surface water runoff close to its source – intercepting runoff, reducing the volume and frequency of

runoff, and providing a treatment medium. Treatment processes that occur within the surface structure, the subsurface matrix and the geotextile layers include:

- Filtration.
- Adsorption.
- Biodegradation.
- Sedimentation.

The use of permeable grass paving for car parks is proposed as an alternative to an oil separator for their specific areas. The use of Permeable grass paving for this purpose is supported by the treatment processes outlined above. CIRIA C753 (The SuDS Manual) notes that regarding interception design of pervious pavements, studies have shown that runoff typically does not occur from pervious pavements for rainfall events up to 5 mm.

The permeable grass paving car park bays will be connected to the surface water network using half-perforated land drainpipes. Please refer to Appendix D for permeable grass paving maintenance information.

10.3.4 Attenuation

Attenuation storage falls under the site control category in the SuDS Management Train. It is proposed to attenuate surface water from the proposed development with two attenuation areas located under the multi-sport pitches. The proposed attenuation layers have been designed to reduce the peak runoff from the site. The required attenuation to cater for the 1% AEP with a 20% allowance for climate change and 10% for urban creep is 1,398m^3.

Please refer to Appendix B for supporting calculations.

It is proposed that the attenuation storage will comprise a 250mm layer of stone drainage under the 2G sand-filled synthetic multi sports pitch, and a 650mm layer under the 4G synthetic turf multi-sport pitch, these provide attenuation storage of 619.75m^3 and 1564.92m^3, respectively using 43% porosity based on best practices. The other permeable surfaces provide a total attenuation storage of 173.68m^3, assuming 40% porosity. Hence, the total attenuation provided is 2358.35m3, which is more than the required attenuation storage required for the 1% AEP.

11 Pollution Hazard Indices Based on the Simple Index Approach

In accordance with the SuDS Manual CIRIA C753 the pollution prevention guidelines have been followed to ensure appropriate levels of treatment are provide before attenuated run-off from the site is discharged into the ordinary watercourse. The Pollution Hazard Indices, shown in Table 11-1 below, for the different proposed land uses have been derived from Table 26.2 of CIRIA C753.

Table 11-1 Pollution Hazard Indices for Different Land Uses

Land Use	TSS	Metals	Hydrocarbons
Residential roofs (assumed a residential proxy for the development)	0.2	0.2	0.05
Low Traffic Roads	0.5	0.4	0.4
Non-Residential Car Parking (<300 traffic movements/ day)	0.5	0.4	0.4

To ensure the proposed SuDS strategy will appropriately mitigate against the potential pollution derived from these areas the Pollution Mitigation Indices (PMI) in Table 26.3 and 26.15 of CIRIA C753 have been reviewed and laid out in Table 11-2 below.

Table 11-2 Indicative SuDS mitigation indices for site

SuDS Measure	TSS (PMI)	Metals (PMI)	Hydrocarbons
Permeable pavement	0.7	0.6	0.7
Bioretention rain gardens	0.8	0.8	0.8
Permeable Artificial Pitch (Astro-turf pitch by specialist)	0.7	0.6	0.7

Table 6 below shows the calculations for the total pollution prevention for each type of hard standing on site. The following formula has been used to calculate the total mitigation in line with CIRIA C753. Total SuDS Mitigation index = Mitigation Index 1 + 0.5 (Mitigation Index 2).

In Table 11-3, the Mitigation Indices for the relevant SuDS feature has been subtracted from the Pollution Hazard Indices for the land use to determine if sufficient treatment has been provided. A negative number indicates that enough treatment has been provided, and a positive number indicates that additional forms of treatment are required.

Table 11-3 Pollution Hazard Indices for different land uses

Land Use	Mitigation Method 1			Mitigation Method 2			Total SuDS Mitigation		
	TSS	Metals	H-C	TSS	Metals	H-C	TSS	Metals	H-C
Residential roofs	Permeable Artificial Pitch			N/A			-0.1	-0.1	-0.25
(Pollution Hazard Table 11.1 – Mitigation Index Table 11.2)	-0.5	-0.4	-0.65	0	0	0			
Main Access Roads	Bioretention Rain Gardens			Artificial Permeable Pitch			-0.4	-0.50	-0.55
(Pollution Hazard Table 11.1 – Mitigation Index Table 11.2)	-0.3	-0.4	-0.4	-0.2	-0.2	-0.3			
Car Parking	Permeable Grass Paving System			Artificial Permeable Pitch			-0.3	-0.3	-0.45
(Pollution Hazard Table 11.1 – Mitigation Index Table 11.2)	-0.2	-0.2	-0.3	-0.2	-0.2	-0.30			

12 Foul Water Drainage Design

12.1 Existing Foul Water Drainage

The Miller's Lane site is a brownfield site with no existing foul sewer provision serving it. However, an Uisce Éireann 300mm foul sewer line traverses the site, the location of which is identified in the image below.

Record drawings of the local foul water drainage network were obtained from Uisce Éireann and are included in Appendix A.

Figure 12-1 Existing Foul Sewer Network at Miller's Lane Site
***Extract from Uisce Éireann Service Records**

12.2 Proposed Foul Water Drainage

The proposed foul water sewer has been modelled using Causeway Flow software in accordance with the "Code of Practice for Wastewater Infrastructure" (particularly clause 3, published by Uisce Éireann). Refer to drawing 233114-PUNCH-ML-XX-DR-C-0101 for the proposed drainage layout plan.

The proposed foul sewer network has been designed to serve the new two-storey building located at the centre of the site. The building will accommodate changing rooms, showers, storage areas, a gym studio, and viewing terraces serving the multi-sport pitches. The network comprises two foul sewer lines running parallel to the east and west of the building, which will converge south of the building and continue parallel to the southern edge of the 4G synthetic turn multi-sport pitch before discharging to an existing manhole at the south-west corner of the site.

The design foul generated for the proposed development is based on the flows shown in the table below.

Table 12-1 Foul Water Dry Weather Flow

Category	Quantity	Flow Rate	Daily Flow Rate (l/Day)	DWF (l/s)	Design Peak Flow (l/s)
Sports Facility	Visitors – 225 Staff – 4 Total - 229	Visitors - 40 l/per/day Staff – 90 l/per/day	9,360	0.221	0.994

12.3 Uisce Éireann Consultation

A pre-connection inquiry (Customer Reference Number CDS25006216) was conducted regarding the development for a wastewater connection. Uisce Éireann confirmed that the connection is feasible and does not require any infrastructure upgrades. A copy of the Confirmation of Feasibility is available in Appendix C.

13 Watermain Design

13.1 Existing Watermain

There is currently no watermain serving the site.

Uisce Éireann records confirm the presence of two 150mm diameter water mains running parallel to the eastern and western boundaries of the site. The records also identify two fire hydrants positioned along the main line adjacent to the western boundary.

Figure 13-1 Existing Watermain Network at Miller's Lane Site
***Extract from Uisce Éireann Service Records**

13.2 Proposed Watermain

The proposed watermain network has been designed to service the new two-storey building at the centre of the site, which will provide changing rooms, showers, storage areas, a gym studio, and viewing terraces for the multi-sport pitches. The network consists of a single watermain connection entering the site to the north of the 4G synthetic turf multi-sport pitch, running parallel to its northern boundary, looping south of the building, and reconnecting to the main line. Refer to drawing 233114-PUNCH-ML-XX-DR-C-0301 for the proposed watermain layout plan. The calculations for the water demand are shown in the Table 13-1.

Table 13-1 Water Demand Calculations

Category	Quantity	Flow Rate	Daily Flow Rate (l/Day)	Normal Flow (l/s)	Design Peak Flow (l/s)
Sports Facility	Visitors – 225 Staff – 4 Total - 229	Visitors - 40 l/per/day Staff – 90 l/per/day	9,360	0.221	1.38

13.3 Irish Water Consultation

A pre-connection inquiry (Customer Reference Number CDS25006216) was conducted regarding the development for a water connection. Uisce Éireann confirmed that the connection is feasible and does not require any infrastructure upgrades. A copy of the Confirmation of Feasibility is available in Appendix C.

14 Flooding

A Flood Risk Assessment has been undertaken by PUNCH Consulting Engineers for the development which accompanies this planning submission.

15 Roads and Access

15.1 Existing Roads & Access

The site is a brownfield area predominantly occupied by two soccer fields. It is bounded to the west by Gort na Bró Road, a two-lane, two-way thoroughfare. Gort na Bró Road has pedestrian footpaths on both sides. Gort na Bró Road is served by two pedestrian crossings, enhancing safe access for pedestrians to the neighbouring Gaelscoil Mhic Amhlaigh, which sits opposite the site.

Residential estates bound the site to the north and east, specifically Gort Gréine and Cruachan Park, while Gort na Bró forms the southern boundary.

Vehicular access is provided from Gort na Bró, leading to an existing tarmacked area currently used as car parking, with a pedestrian access point located approximately 40 metres south of the entrance. Gort na Bró connects to the Western Distributor Road roughly 150 metres south of the site boundary, which is served by bus stops and cycle lanes on both sides. Bus route 405, which runs every 20 minutes, stops approximately 300m from site. Millers lane which has been refurbished has active travel links that connect to surrounding areas near the subject site, thereby provide access to the site.

15.2 Galway Transport Strategy

Galway City Council has developed the Galway Transport Strategy (GTS) (2016) as part of its transportation planning requirements. The GTS emphasizes the importance of maintaining pedestrian access throughout new developments and promoting connections to existing ones. To promote active and sustainable transport, and decrease reliance on private car usage, the Western Distributor Road (WDR), which provides access to the site, is proposed to be upgraded under the GTS, as depicted in Figure 7-1.

Two schemes are currently in progress to action this. The first, a Part 8 application, has been lodged is currently under consideration by the Galway City Elected Members. It includes the addition of quick-build style segregated cycle lanes on both sides of the road. Additionally, all three existing junctions assessed in the Traffic Transport Assessment (TTA) for this project are proposed to be upgraded under the Part 8 application with enhanced active travel facilities and new pedestrian crossings along the WDR.

In addition, it is understood that work is currently being undertaken to prepare a permanent upgrade to the road as part of the BusConnects scheme. This is to provide permanent, segregated cycle tracks. It is also expected that bus lanes will be provided under the scheme, as there are currently none on the WDR. This work is currently in the initial design phase.

This development has tried to meet the requirements of the GTS of promoting Active Travel, as seen in the proposed layout drawing shown in the site layout shown in, Figure 1-3. Robust active travel infrastructure, including segregated cycle paths, a Safe Routes to School-style shared path, and abundant cycle parking, are all proposed under this application.

Figure 15-1 Galway Transport Strategy: Upgrades Proposed for Western Distributor Road
***Ref: Galway Transport Strategy 2023-2029**

15.3 Proposed Roads & Access

There are several access points for the Millers Lane Park development, shown in Figure 15-2. The accesses are as follows:

1. The main access or exit to Millers Lane Park is located to the north of the site, directly from the L5000 road.
2. There are two access points for active travel along the L5000 road. One is an existing access point located southwest, which is planned to be enhanced, while the other is a new proposed access point designed to facilitate active travel along the road.
3. To southeast of the subject site, there is an existing active travel link to Millers Lane Road that will be enhanced and maintained.
4. A new active travel access is proposed from the southern access, southwest of the site, which will also connect to Millers Lane.

Figure 15-2 Roads and Access to Millers lane Park

The Road Safety Audit (RSA) was completed and forms part of this planning submission. A Mobility Management Plan (MMP) has been undertaken for the project included as a separate report and forms part of the planning application pack for this project. A Traffic and Transport Assessment (TTA) has been completed for the project and is included as a separate report and forms in the planning application documentation for this project.

Swept path analyses were carried out for a range of vehicles for the proposed site development and available on drawings 233114-PUNCH-ML-XX-DR-C-0601, 233114-PUNCH-ML-XX-DR-C-0602 and 233114-PUNCH-ML-XX-DR-C-0603 to ensure adequate access/egress into the site, especially by service vehicles, which informed the necessary updates to the site layout and informed the Traffic Transport Assessment Report.

15.4 DMURS

The proposed road layout has been designed in accordance with the Design Manual for Urban Roads and Streets (DMURS) and the Recommendations for Site Development Works. DMURS promotes the creation of safer, more attractive, and vibrant streets that support the development of sustainable communities and neighbourhoods. The design accommodates not only cars and other vehicles but also prioritises the needs of pedestrians, cyclists, and public transport users.

15.5 Proposed Car Parking and Motorcycle Parking Provision

Car parking serving the development is provided in accordance with the Galway City Council City Development Standards (GCCCDP) (2023-2029) - Part B, Table 11.6. The applicable car parking standards are noted in Table 15-1 below:

Table 15-1 Galway Development Plan Car Parking Requirement

Site	Development type	Gross Floor Area	Requirement	Total Maximum
Millers Lane	Leisure Centre	1316	1 space per 50m^2	27

The Millers Lane proposal allows for a total of 27No. car parking spaces consisting of.

- 21No. Standard parking bays
- 2No. Standard EV charging spaces
- 1No. Standard accessible parking space
- 1No. Combined EV charging and accessible parking space
- 1No. Family space
- 1No. Age-friendly space
- 2No. Coach drop-off spaces located off L5000 with automated access control
- 3No. Motorcycle spaces

Taxis and buses will be accommodated at the Miller's Lane development at a designated set-down area along Gort na Bró Road. The bus set down for Millers Lane will provide 2 parking spaces and is located along the L-5000 road. Access to the set-down area will be controlled by rising bollards to prevent illegal parking, particularly in relation to the nearby school. Further details on the controlled access arrangements for the Millers Lane set down can be seen in the MMP accompanying this application.

The 'standard' parking spaces will be demarcated with white lines. All car parking spaces will be 2.5m by 5.0m, with disabled spaces providing an additional width and length of 1.2m, as per the GCC Development Standards. The car parking will be designated as shown in drawing reference number 233114-PUNCH-ML-XX-DR-C-0461.

15.6 Proposed Cycle Facilities

Cycling is to be significantly encouraged as part of the development. Cycle parking serving the development is provided in accordance with the GCCCDP DM standard 32 Table 15.4. The applicable cycle parking standards are noted in Table 15-2.

Table 15-2 GCCCDP Cycle Parking Space Requirements

Type	No. Car Park Spaces	Requirement	Total Requirement
Other Developments	27	1 cycle stand per 20 car spaces*	1

*Each Cycle Stand should accommodate a minimum of five bicycles

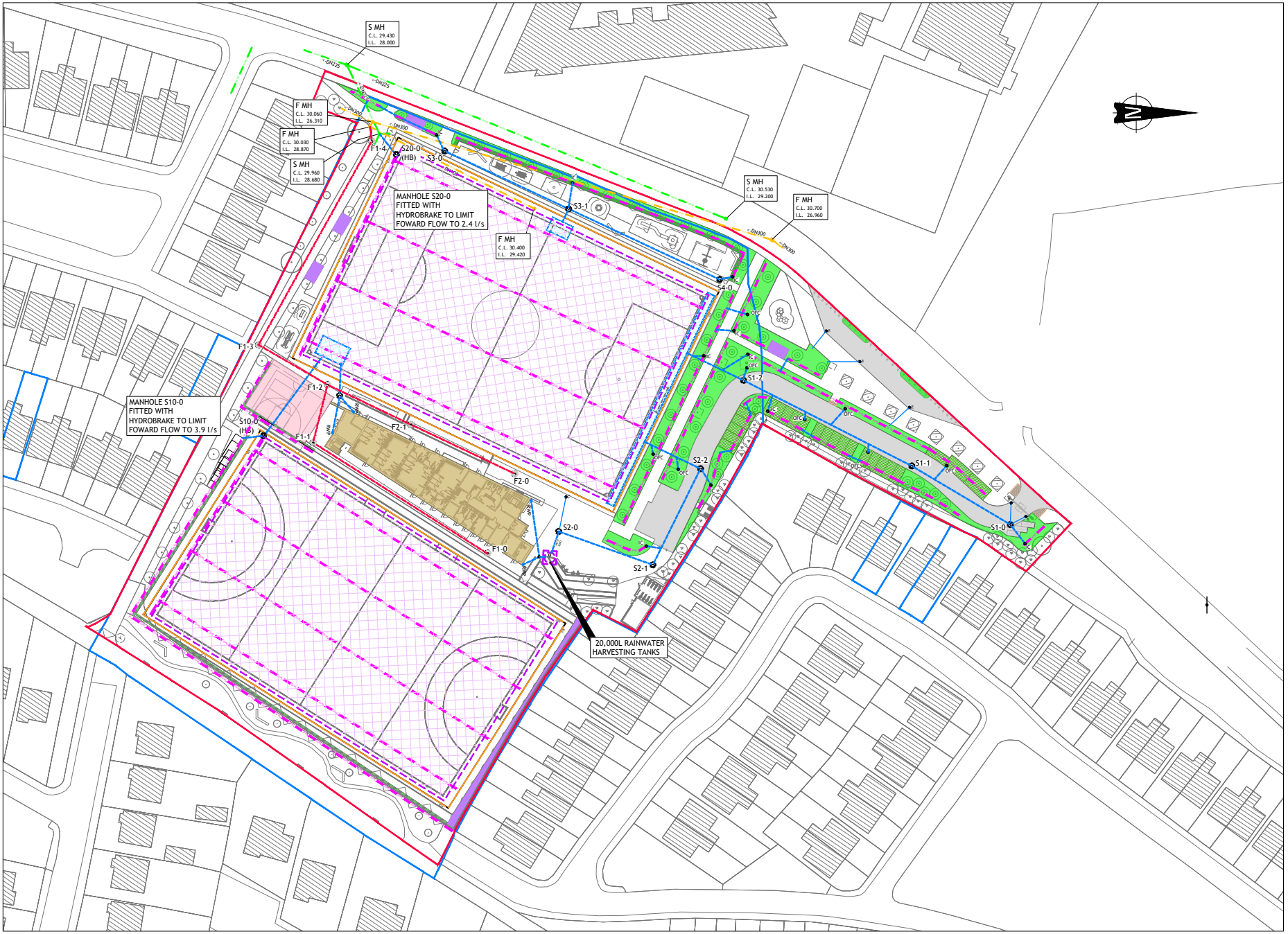
In the GCCCDP, it states that 'Provisions for cycle parking shall also be made at community centres, sports grounds and other recreational facilities. Inclusivity and accessibility should be considered in the design and location of all cycle-parking. In developments with more than 20 cycle-parking spaces, a minimum of 10% of spaces should be provided, which are family and disability friendly, with spaces configured to accommodate cargo-bikes, tricycles, bikes with trailers, recumbent bikes and other non-standard cycles.' Table 5 shows the adherence to these standards. Both the Millers Lane and Kingston Park developments are seeking LEED accreditation, and as a result, the bicycle parking proposed goes above the requirements of the GCCCDP requirements.

The Millers Lane proposal allows for a total of 64No. cycle parking spaces consisting of.

- 40No. Standard short-term spaces
- 2No. short-term cargo bike spaces
- Secure bike shed accommodating 20 No. standard and 2No. cargo bike spaces.

APPENDIX 3

SITE DRAINAGE PLAN



LEGEND

- SITE BOUNDARY
- LAND WITHIN OWNERSHIP OF THE APPLICANT
- PROPOSED BUILDING
- EXISTING BUILDING
- EXISTING SURFACE WATER SEWER 150
- EXISTING SURFACE WATER MANHOLE SMH1 C.L. I.L.
- PROPOSED SURFACE WATER SEWER S1.001 150
- PROPOSED SURFACE WATER MANHOLE S1-0
- PROPOSED OVERFLOW CHAMBER OFC
- PROPOSED GULLY
- EXISTING COMBINED SEWER
- EXISTING FOUL SEWER 150
- EXISTING FOUL MANHOLE FMH1 C.L. I.L.
- EXISTING GULLY G
- PROPOSED FOUL SEWER 225
- PROPOSED FOUL MANHOLE F1-0
- PROPOSED FILTER DRAIN
- PROPOSED RAINWATER DROP PIPE RWP
- PROPOSED ACO DRAINAGE CHANNEL
- PROPOSED DIFFUSER BOX
- ATTENUATION LAYER UNDER PITCH
- S1 - MACADAM CARRIAGEWAY
- S2 - PARKING BAYS - REINFORCED GRASS
- S8 - SELF BINDING GRAVEL (TO LANDSCAPE ARCHITECTS SPECIFICATION)
- S9 - PEDESTRIAN PATH - COLOURED BITUMEN MACADAM

NSAI Certified

Rev	Amendment	By	Date
P01	FOR REVIEW & COMMENT	PJM	2025-09-17
C01	ISSUED FOR PLANNING	PJM	2025-10-17
C02	ISSUED FOR PLANNING	PJM	2025-10-31

Client: GALWAY CITY COUNCIL

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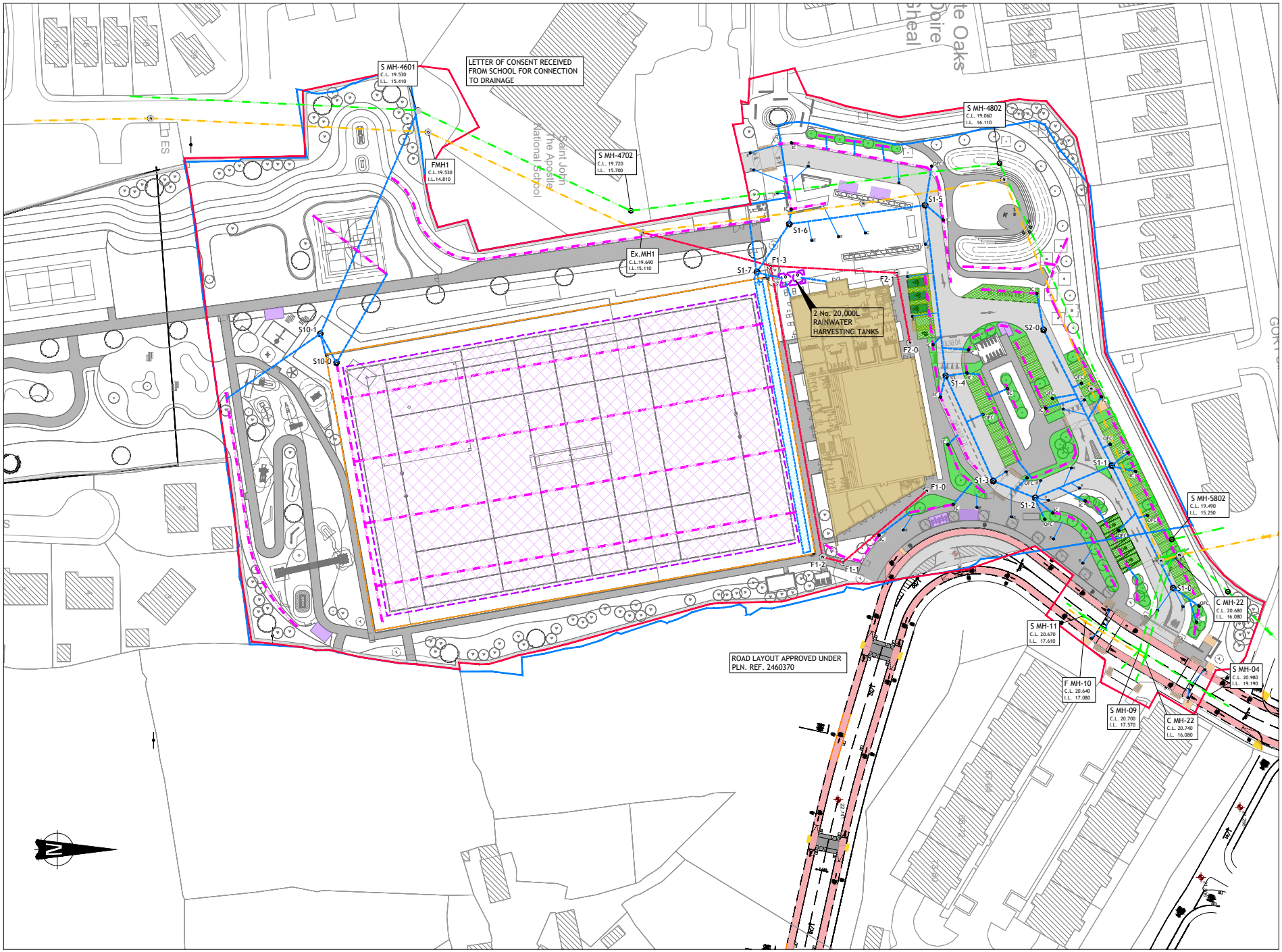
Project: KINGSTON PARK AND MILLERS LANE - PUBLIC PARK AND URBAN REALM PROJECT
Title: MILLERS LANE - PROPOSED DRAINAGE LAYOUT

Drawn:	Date drawn:	Technician Check:	Engineer Check:	Approved:
PJ Mulcahy	2025-09-17	PJ Mulcahy	Melusi Ncube	Matthew Greene

Project No.	Model Ref.	Drawing Status:
233114	233114-PUNCH-ML-XX-M2-C-0101	A0 (Planning)

Scale @ A1	Document No.	Revision No.
1:500	233114-PUNCH-ML-XX-DR-C-0101	C02



LEGEND

- SITE BOUNDARY
- LAND WITHIN OWNERSHIP OF THE APPLICANT
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- PROPOSED SURFACE WATER MANHOLE S1-0
- PROPOSED OVERFLOW CHAMBER OFC
- PROPOSED GULLY
- EXISTING COMBINED SEWER
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- EXISTING FOUL MANHOLE FMH1 C.L. I.L.
- EXISTING GULLY G
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- PROPOSED FILTER DRAIN
- ATTENUATION LAYER UNDER PITCH
- PROPOSED ACO DRAINAGE CHANNEL
- S1 - MACADAM CARRIAGEWAY
- S2 - PARKING BAYS - REINFORCED GRASS
- S9 - PEDESTRIAN PATH - COLOURED BITUMEN MACADAM

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Rev	Amendment	By	Date
P01	FOR REVIEW & COMMENT	PJM	2025-09-04
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C02	ISSUED FOR PLANNING	PJM	2025-10-31

Client: GALWAY CITY COUNCIL

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Project:	KINGSTON PARK AND MILLERS LANE - PUBLIC PARK AND URBAN REALM PROJECT
Title:	KINGSTON PARK - PROPOSED DRAINAGE LAYOUT
Drawn: PJ Mulcahy	Date drawn: 2025-09-04 / PJ Mulcahy
Technician Check:	Engineer Check: Matthew Greene
Approved: Matthew Greene	
Project No.: 233114	Model Ref.: 233114-PUNCH-KP-XX-M2-C-0101
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