

TOBIN

Monaghan County Council
The Old Cross Square to Annahagh
Roundabout Link Road
Feasibility Study and Options Report



Comhairle Contae Mhuineacháin
Monaghan County Council

BUILT ON KNOWLEDGE

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1. INTRODUCTION

1.1 GENERAL

TOBIN have been commissioned by Monaghan County Council to undertake a Feasibility Study and Options review for a proposed link road between the Old Cross Square Roundabout in Monaghan Town and the Annahagh Roundabout on the N2 national road located circa 1.3km to the east. The focus of this review will be a high-level study on the suitability for construction of this link road including provision of active travel infrastructure, planned developments, linkage to the existing Ulster Canal Greenway and a planned Transport Hub to include park and ride facilities, bus set down areas, cycle parking facilities and any other facility that will improve the user experience of the transport hub.

This project is approximately 1.5km in length. The core objective of this scheme is to provide a road connection including active travel infrastructure between Old Cross Square Roundabout and Annahagh Roundabout, feasibility study area as shown in Figure 1-1.

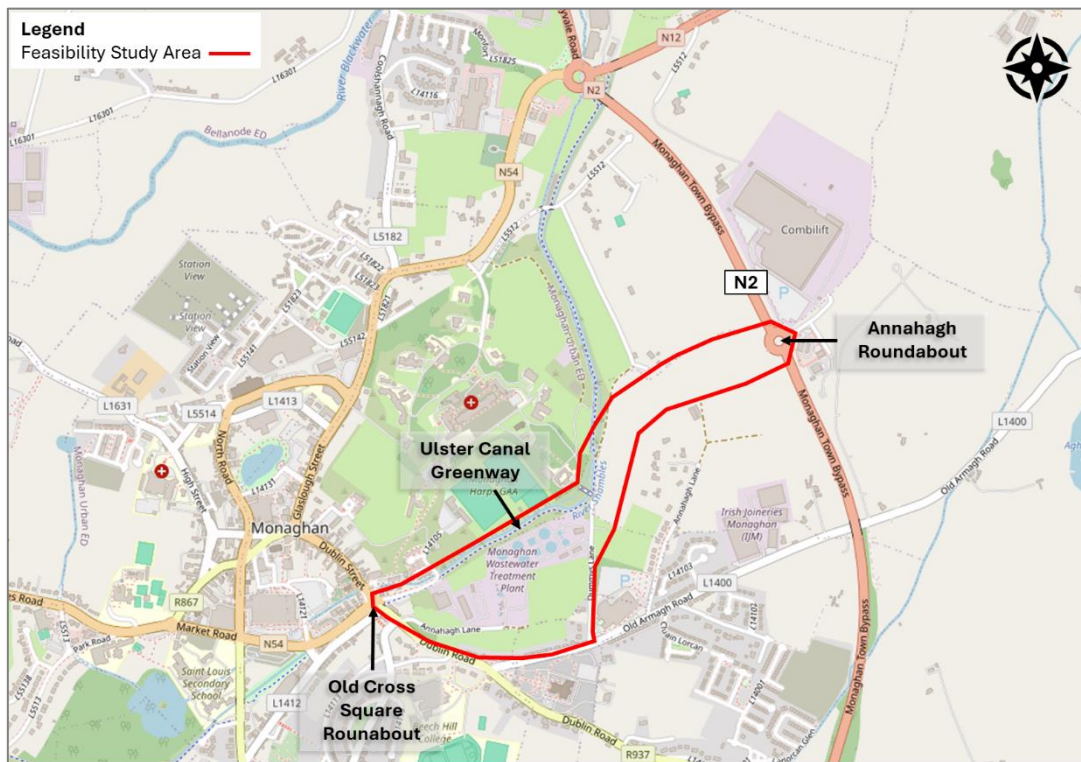


Figure 1-1 Feasibility Study Area (©OpenStreetMap)

1.2 PURPOSE OF THE FEASIBILITY STUDY & OPTIONS REPORT

This report sets out to ascertain the need for the scheme, establish any constraints to its development, assess and evaluate route options and identify a preferred route.

In line with the Transport Infrastructure Ireland’s Project Approval Guidelines, the Option Selection process determines the Preferred Option. The Option Selection considers the realistic alternatives for the implementation of the project. These alternatives involve different routes, alignments, designs, cross sections and substitute approaches that could also deliver the core

project objectives. The Preferred Option will form the basis for the further development of the project. A clearly defined appraisal methodology is used in the selection of the Preferred Option.

1.3 PROJECT BACKGROUND

The study area for the proposed link road comprises two planned developments and associated access roads. The first is new civic offices in Monaghan town centre and the second is an industrial development to the west of national road N2 as shown in Figure 1-2.

The scheme would provide sustainable transport infrastructure enabling a transport connection for the industrial development area to the town centre that also offers an alternative to carbon emitting vehicles and encourages the development of lands to the east of Monaghan town.

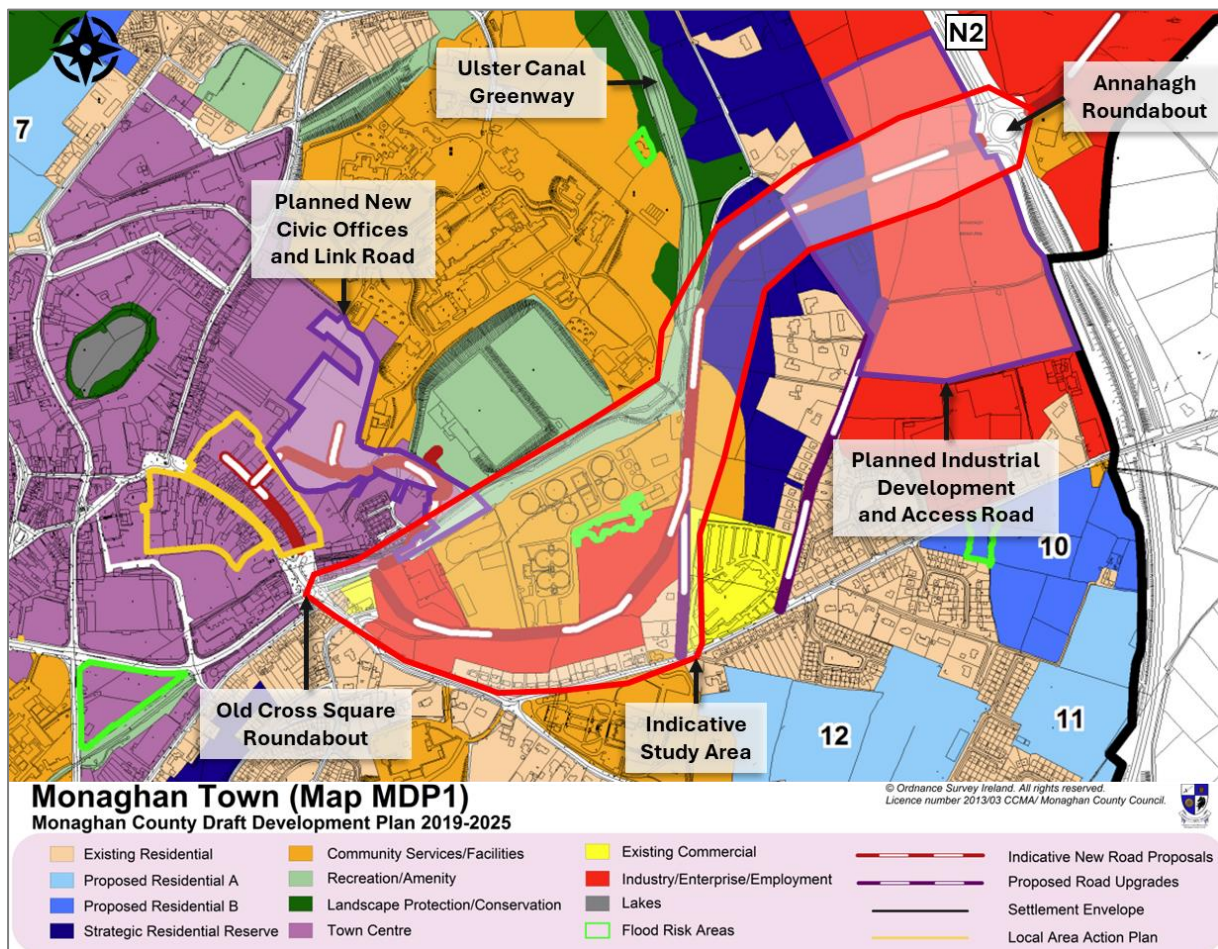


Figure 1-2 Planned Developments Location (Extract from Monaghan Town Map MDP1)

1.4 PROJECT OBJECTIVES AND DESIGN STRATEGIES

Monaghan County Council have set the following objectives for the scheme:

- The provision Active Travel infrastructure,
- Include planned developments, as shown in Figure 1-2,
- Linkage to the existing Ulster Canal Greenway,
- A planned Transport Hub to include park and ride facilities, bus set down areas, cycle parking facilities and any other facility that will improve the user experience of the transport hub.

These objectives can be incorporated into the Transport Appraisal Framework heading as follows:

1.4.1 Transport User Benefits and Other Economic Impacts

- Increase property values through accessibility of lands and access to new Infrastructure such as proposed Transport Hub.
- Increase the availability of sustainable travel modes in Monaghan Town, making it a more attractive destination for perspective businesses / homeowners.
- Increase desirability and attractiveness of the area by providing a unique amenity and sense of place and pride.

1.4.2 Accessibility Impacts

- Provide informal opportunities to meet and interact with neighbours and tourists, improving community connections and strengthening cultural identity.
- Improve accessibility and quality of service between rural areas and local services.

1.4.3 Land Use Impacts

- To conform and complement existing national, regional and local plans and policies.

1.4.4 Safety Impacts

- To improve the safety of pedestrians and cyclists by providing cycle / pedestrian facilities to cater for recreational, tourist and commuters.
- Provide convenient, accessible, inclusive facilities for pedestrians and cyclists to safely commute between Monaghan town centre and edge of town reducing the reliance on motor vehicles.

1.4.5 Local Environmental Impacts

- Reduce fossil fuel emissions from traffic by promoting sustainable transport alternatives.
- In terms of landscape and visual quality, biodiversity, archaeology and cultural heritage, water resources, soils and geology and land take, provide a scheme that minimises and avoids impacts on environmental sensitive aspects and areas within the locality.
- Promote modal shift by reducing car use and encouraging active travel and public transport use.

1.4.6 Social Impacts

- Improved access to areas that are either remote or economically disadvantaged.
- Provide informal opportunities to meet and interact with neighbours and tourists, improving community connections and strengthening cultural identity.
- Improve accessibility and quality of service between rural areas and local services.

1.4.7 Climate Change Impacts

- Reduction in the greenhouse gases (GHGs).
- Reduction in climate change which can further reduce environmental issues such as acid rain.

- Improve the potential for a modal transport shift from personal car use to alternative 'greener' forms of transport.

On establishment of the project objectives, various options can be appraised against these objectives to determine the preferred option.

1.5 REPORT STRUCTURE

The report is set out as follows:

Context – A brief summary of the scheme in the context of relevant policies, strategies and plans.

Design Principles – A brief summary of design principles, informed primarily by the Cycle Design Manual and Design Manual for Urban Roads and Streets (DMURS).

Existing Transport Infrastructure – A description of the existing conditions on the route based on a combination of desktop study, site visits and observations.

Options Assessments – The options assessment is broken into a four-stage process:

- Stage 1: Feasibility Screening – This will review all proposed options at a high level with a view to achieving the highest Quality of Service possible.
- Stage 2: High -Level Impact Assessment – Each feasible option from Stage 1 will be reviewed in relation to each individual section of the route. The sections are identified by cross sectional width which varies considerably along the study area.
- Stage 3: Multi-Criteria Analysis (MCA) – After shortlisting the preferred options for each section, an MCA will be carried out under the DTTAS common appraisal guidelines.
- Stage 4: Review of Options – This will involve a holistic view of the entire route to ensure consistency of provision and continuity along the entire route. This may require reviewing the preferred options for each section.

2. PROJECT CONTEXT, STRATEGIC FIT AND PRIORITY

2.1 NEED FOR THE SCHEME

The areas classified as industry/employment to the east of Monaghan town centre currently lack a direct connection to the town centre. The scheme aims to establish road connectivity and a transport hub between these areas, creating opportunities for bus routes and active travel to and from the industrial and employment zones. Additionally, the scheme will facilitate connections to future developments.

2.2 PLANNING POLICY

This section of the feasibility study examines planning policy at National, regional and local level in the context of the options available to construct a new link road between the Old Cross Square roundabout in Monaghan Town and the Annahagh Roundabout on the N2 road located c.1.3km to the east, hereafter referred to as the 'proposed link road'. The focus of the review is to identify relevant planning policy and any potential planning constraints relating to the proposal. Constraints include considerations for landscape sensitivity, heritage, and any planned developments within the study area. It also includes a review of recent planning applications within the study area and within a 50 m radius of the study area.

2.3 NATIONAL AND REGIONAL POLICY

The proposed Monaghan Link Road project aligns with several key objectives and guidelines from national and regional planning policies, supporting infrastructural improvements, economic development, and enhanced connectivity.

National Planning Framework (NPF)

The National Planning Framework (NPF), titled "Project Ireland 2040," sets out the long-term strategy for spatial development in Ireland. Key relevant objectives include:

- *National Strategic Outcome 2 (Enhanced Regional Accessibility):* This outcome focuses on improving transport infrastructure to enhance connectivity between regions. The proposed link road will facilitate better access to Monaghan Town, supporting regional development.
- *National Strategic Outcome 6 (High-Quality International Connectivity):* Emphasizes the importance of connecting Ireland to international markets. The proposed link road improves access to Monaghan's strategic border location, enhancing cross-border trade and mobility.

National Development Plan (NDP)

The National Development Plan (NDP) outlines the financial investment needed to implement the NPF. Key infrastructure projects identified in the NDP that support the proposed Link Road include:

- Investment in National Roads: Funding allocations for national roads include projects aimed at enhancing safety and efficiency. The proposed Link Road will benefit from such investments by improving local road infrastructure.
- Rural Regeneration and Development Fund: This fund supports projects that drive economic and social development in rural areas. The proposed link road may be a candidate for funding to enhance Monaghan's connectivity and economic potential.

Regional Policy

Regional Spatial and Economic Strategy (RSES) for the Northern and Western Region

Monaghan town is a key county town, occupies a strategic border location along the Dublin to Derry/Letterkenny corridor, and the adjacent Dublin/Belfast eastern economic corridor. The Regional Spatial and Economic Strategy (RSES) recognises its importance as an economic driver in the Central Border Region and how it is crucial that it continues to expand seamless cross border links. The absence of substantial investment in critical infrastructure until now has meant Monaghan has not yet achieved its potential in terms of economic growth.

The RSES provides a framework for the sustainable development of the Northern and Western Region. Relevant objectives include:

- *Regional Policy Objective 6.7: Improve transport connectivity and enhance the strategic transport corridors.* The proposed Link Road project will improve regional connectivity and support economic growth.
- *Regional Policy Objective 8.1: Promote the development of key towns and economic corridors.* The proposed link road will strengthen Monaghan's position as a key regional town, supporting its growth and development.

European Policy

The proposed Link Road project also aligns with several European Union policies aimed at improving infrastructure, enhancing regional development, and promoting cross-border cooperation.

Trans-European Transport Network (TEN-T)

The TEN-T policy aims to develop a Europe-wide network of roads, railways, airports, and water infrastructure. The N2, part of the TEN-T network, connects Dublin to Derry and Letterkenny, highlighting the strategic importance of improving road infrastructure in Monaghan:

- TEN-T Core Network Corridors: Enhancing connectivity along these corridors is crucial for economic growth and regional integration. The Monaghan Link Road will improve local access to the TEN-T network, facilitating better regional and international connectivity.

European Regional Development Fund (ERDF)

The ERDF aims to strengthen economic and social cohesion by correcting imbalances between regions. Relevant aspects include:

- Investment in Infrastructure: The ERDF supports infrastructure projects that boost regional development. The proposed Link Road may be eligible for ERDF funding, supporting its construction and enhancing regional mobility.
- Cross-Border Cooperation Programmes: These programmes, such as INTERREG, fund projects that promote cooperation between neighbouring regions. The proposed link road project, by improving cross-border connectivity, aligns with the goals of these programmes.

2.4 LOCAL PLANNING POLICY

Monaghan County Development Plan (2019-2025)

The study area is located in Monaghan Town and is subject to the policies and objectives of the Monaghan County Development Plan 2019-2025. The study area is shown on the Monaghan Town Zoning Map (Map MDP1, Variation No. 5, as set out in Figure 2-1 below):

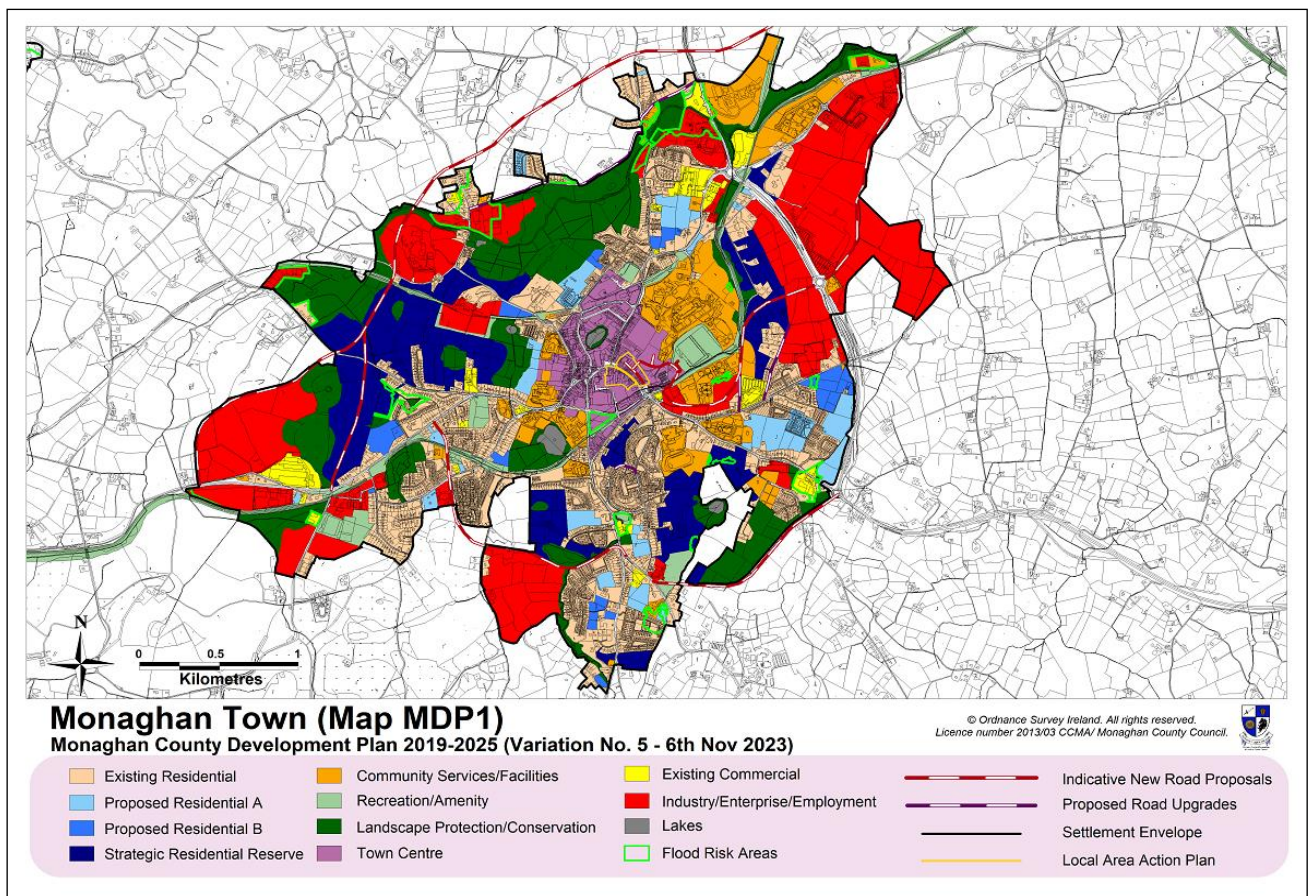


Figure 2-1: Monaghan Town Zoning Map (Variation No. 5)

The proposed link road is shown on this map as an ‘Indicative New Road Proposal’, between the Old Cross Square roundabout in Monaghan Town and the Annahagh Roundabout on the N2

road located c.1.3km to the east. The following zoning designations apply along the route of the proposed road:

Industry/Enterprise/Employment Zone: The section of the road closest to the Annahagh roundabout and before it enters Monaghan town is zoned for Industry, Enterprise, and Employment. This zoning supports industrial growth and employment generation, facilitating the town's economic development.

Strategic Residential Reserve Zone: The road then passes through a Strategic Residential Reserve Zone, which reserves land for future residential development.

Community services/Facilities: The next section of the road is zoned for Community services.

Town Centre: The final section of the road is in an area which has been designated as Town centre.

The road runs alongside an area zoned for Recreation and Amenity in the first stretch, as it is in the area of the Ulster Canal Greenway and Sports Grounds. It also briefly borders an area designated as Existing Commercial.

The Monaghan County Development Plan outlines strategic objectives and policies for the county's development. Relevant objectives include:

- *Strategic Objective SO 3: Enhance Monaghan's strategic border location by improving linkages and communications with neighbouring counties.* The proposed link road will play a key role in achieving this objective.
- *Strategic Objective SO 4: Support balanced economic development across the county through improved infrastructure.* The proposed link road will facilitate better movement of goods and people, boosting local economy.
- *Strategic Objective SO 8: Maintain the strategic capacity and safety of the national roads network.* The proposed road will alleviate congestion and improve traffic flow in Monaghan Town.

Ch 4. Economic Development

Chapter 4 of the Monaghan County Development Plan sets out the economic development of the county and Monaghan Town. The provision of suitable road infrastructure is paramount in achieving these goals.

4.5 Industry

- To promote new industrial development in suitably serviced areas (or at locations where such required infrastructure can be reasonably provided) to encourage the generation of employment and increased economic activity in a sustainable and spatially balanced manner.
- To cooperate with relevant national and local bodies to foster a partnership approach to the location of industry and enterprise; ensuring that the provision of necessary

infrastructure and service supports are developed in awareness of the conservation of the natural, recreational and cultural amenities of the County.

Ch 7 Transport & Infrastructure

Chapter 7 of the Monaghan Development Plan sets out the policy position in relation to transport infrastructure and provision. As this chapter outlines:

Investment, maintenance and improvement of our existing road infrastructure and the protection of the carrying capacity of our national road network is of key importance to the economic and social development of the county. This aligns with the aforementioned policies on regional growth.

7.8 National Roads

A high quality, safe and efficient road network is paramount in Monaghan where road transport is the only mode of travel to access ports, airports and wider markets in the region and Country. The National Road network provides the County's towns with fast and efficient access to Dublin and other principal towns, airports, seaports and Northern Ireland. The N2 Dublin- Derry National Primary and the Old Cross Square Roundabout will be linked by the proposed link road from the Annahagh roundabout.

The N2 is part of the Trans-European transport Network (TEN-T). This is a network which comprises roads, railway lines, inland waterways, inland and maritime ports, airports and rail-road terminals throughout the 28 EU Member States. This characteristic is a key factor for the network's efficient, safe and secure operation, using seamless transport chains for passengers and freight. The N2 is categorised as being part of the "comprehensive network": a multi-modal network of relatively high density which provides all European regions (including peripheral regions) with an accessibility that supports their further economic, social and territorial development as well as the mobility of their citizens.

7.8.1 National Roads Policy

- NRP 2 To consider, in exceptional circumstances, permitting access onto national roads for developments of national and regional strategic importance where the locations concerned have specific characteristics that make them particularly suitable for the developments proposed, subject to such developments being provided for through the Local Area Plan or Development Plan making process in accordance with Section 2.6 of the DoECLG Spatial Planning and National Road Guidelines, and in consultation with the TII.
- NRP 5 To seek to progress and ensure the upgrade of the N2 in co-operation with Transport Infrastructure Ireland and the relevant adjoining local authorities.

7.12 Urban and Development Roads

There is an anticipated increases in demand for serviced land for residential, commercial, and industrial uses in each of the five main towns in Monaghan. This places pressure on the existing urban road structures and requires the development of new access and relief roads. A number

of strategic new routes have been identified in each town that would facilitate development and relieve town centre congestion. The development of the Mid-town link road from Old Cross Square Roundabout to Annahagh Roundabout is one of the routes which has been identified under this policy and is set out in *Table 7.5 Roads proposals for the five towns in County Monaghan*.

Ulster Greenway and Ulster Canal

The Ulster Greenway and Ulster Canal is located within the northern part of the study area. There are a number of tourism policies set out in the development plan which seek to promote and enhance the canal and greenway. These policies are outlined below:

4.7.2 Tourism Policies (Relevant for proximity to Ulster Canal)

- TMP 5 To support the continued development of the Ulster Canal project and the expansion of the Greenway along the route of the Canal through County Monaghan.
- TMP 6 To support the reopening of the Ulster Canal given its tourism and economic potential for County Monaghan and the wider region

10.9 Tourism

- MPO 9 To support the re-opening of the Ulster Canal in Monaghan Town and any complementary developments along the route of the Ulster Canal, including the proposed Ulster Canal Greenway network.

It will be important to ensure that the design of the proposed link road does not compromise the development of the Ulster Canal and expansion of the greenway as outlined in the policy objectives above.

Settlement Plan for Monaghan Town

The Settlement Plan provides detailed guidance for the development of Monaghan Town:

- MTSO 1: Facilitate Monaghan's development to maintain its status as the county's principal town. The proposed link road is essential for the orderly expansion and economic vitality of the town.
- Land Use & Transportation Study: The proposed link road from Old Cross Square Roundabout to Annahagh Roundabout is a key objective to reduce traffic congestion and improve urban mobility.

Landscape Sensitivity

The study area comprises of an area of the Ulster Canal Greenway, which is an area of Secondary Amenity Value in Monaghan Town. These areas are usually protected from intrusive developments so special attention would need to be paid in this area to ensure that there is minimal disruption to the natural environment. This will safeguard both the natural environment and the canal as a recreational amenity. The MCDP also outlines that areas which have been designated as Recreation and Amenity Zones need to be protected both visually and

ecologically. As part of the study area also lies within a Recreation and Amenity Zone, design in this area would have to integrate the surrounding landscape sensitively. A Visual Impact Assessment may be necessary to ensure the road aligns with these policies. The road design will be done in accordance with Monaghan County Landscape Character Assessment Policies, particularly considering Ch 5.4.1 Transportation. There are no designated scenic views in the study area.

Development Management Requirements

The following specific requirements are outlined within the Monaghan County Development Plan and are relevant to the proposed link road project:

- **Landscape Protection:**
To protect the landscape character, quality, and local distinctiveness of County Monaghan. Development proposals should demonstrate how they have considered and incorporated the guidance set out in the Landscape Character Assessment.
- **Visual Impact Assessment:**
Where necessary, applications should be accompanied by a visual impact assessment, particularly in areas of greater sensitivity, such as upland areas and river valleys. This assessment should detail how the development will visually integrate with the existing landscape.
- **Minimizing Natural Feature Loss:**
Developments should minimize the loss of natural features such as trees, hedgerows, and stone walls. Proposals should detail measures to preserve these features or provide compensatory planting where loss is unavoidable.
- **Functional and Locational Requirements:**
Facilitate appropriate development that reflects the scale, character, and sensitivities of the local landscape. Developments with functional and locational natural resource requirements should be situated in suitable areas as identified in the County Development Plan. This includes ensuring residual adverse visual impacts are minimized or mitigated.
- **Visual Obtrusiveness:**
In low-lying open environments, tall and bulky developments can have a disproportionate impact. Such developments should be carefully designed to avoid being visually obtrusive or insensitive to the landscape, particularly when viewed from the public realm.
- **Protected Views:**

Ensure that development in visually sensitive areas will not adversely affect or detract from protected views or distinctive linear sections of river valleys, especially open floodplains, when viewed from settlements.

- **Landscape Integrity:**

Maintain the visual integrity of areas of greater sensitivity in the county. Ensure that any development in these areas is appropriately sited and designed. Applicants must demonstrate that the proposed development can be assimilated into the landscape and will not have a disproportionate visual impact on the landscape.

Roosky Masterplan

The Roosky Masterplan was adopted on 4th April 2022 as Variation No. 4 of the Monaghan County Development Plan 2019-2025. Part of this masterplan overlaps with the study area for the proposed link road. As such, this Masterplan which sets out a detailed vision for the masterplan lands would need to be taken into consideration when deciding on the route for the proposed link road.

2.5 PLANNED NEW DEVELOPMENTS

The proposed link road is a key infrastructural development that will support the strategic development of Monaghan Town, enhancing connectivity to several civic and industrial sites. This access road will serve as a link between newly planned civic offices, community services, and industrial zones, facilitating both public services and economic growth.

Civic Offices and Community Services

Monaghan Town is set to expand its civic and community infrastructure with the development of new civic offices and community service buildings. These developments are part of the broader objective to enhance public service accessibility and provide modern, efficient facilities to meet the needs of the growing population. These plans are laid out in the Monaghan County Development Plan and the Roosky Masterplan. The planned civic offices consolidate and improve Monaghan County Council's civic facilities and ensure they are centrally located and easily accessible. The proposed link road will connect these offices to residential and commercial areas, as well as providing direct access from the town centre to the N2 road. This will improve access for both the public and staff and reduce congestion in surrounding urban areas. The project will also act as a catalyst for the regeneration of Dublin Street and its back lands, making Monaghan a better place to work, live and visit.

Future Industrial Development

In addition to supporting civic infrastructure, the link road will serve the Industry/ Enterprise/ Employment Zone located to the west of the Annahagh roundabout on the N2. This area is designated for industrial and business development, promoting Monaghan as a hub for enterprise and economic activity. The road will improve access to this zone potentially attracting further industrial investments. This development is expected to generate new employment opportunities and stimulate economic growth in the region. The proposed road will

pass through a site on which permission for industrial development has already been granted. This site is directly west of the existing Annahagh Roundabout (Planning Ref. No. 1869) and is captured in Table 2-1 below.

Integration with Monaghan's Growth Strategy

The proposed road's strategic positioning is designed to align with Monaghan's overall growth strategy, which aims for balanced urban development. By linking the industrial zone with the new civic offices and surrounding residential areas, the road will help create a cohesive urban environment where services, employment, and community facilities are all interconnected. This infrastructure investment is not only a boost for economic and civic development but also a critical step toward improving the quality of life for Monaghan's residents.

These planned developments, supported by the new slip road, are pivotal to Monaghan Town's future, ensuring that civic and industrial growth proceeds in a sustainable, integrated manner that benefits the entire community.

2.6 PLANNING APPLICATIONS WITHIN STUDY AREA

A planning search using the Monaghan online planning portal was conducted to examine relevant planning permissions within the study area and within a 50-metre boundary of the study area. This was carried out for planning applications within the last 5 years (i.e. 2019-2024).

Table 2-1 Recent Planning History within the Study Area

File Number	Decision Type	Decision Date	Development Description	Appeal
21520	Granted	23/03/2022	Permission to erect a single-story dwelling, detached domestic garage, treatment plant, percolation area, new entrance and all associated site works. Significant further information submitted including revised location and design of single-story dwelling with detached domestic garage, treatment plant, percolation area, new entrance and all associated site works. Annahagh DED Monaghan rural/Tirkeenan/Latlorcan, Monaghan town, Co. Monaghan.	Granted
21350	Granted Conditional	05/08/2021	Permission to consist of: Ground mounted Photovoltaic Solar Panels with a maximum square meterage of 347 m2 distributed over a grass area on-site with associated ancillary works at Monaghan Wastewater Treatment Plant. Tirkeenan, Monaghan, H18 RC6.	
209011	Granted Conditional	13/11/2020	Erect 1No. two story detached domestic dwelling, together with domestic garage, connection to site services and all associated site works. Latlorcan, Monaghan	

File Number	Decision Type	Decision Date	Development Description	Appeal
1869	Granted Conditional	10/07/2018	Outline permission for development of proposed new advanced technology building together with access from proposed service road, connection to existing public services, car parking, signage and all associated ancillary works. O'Neill's Farmland, Annahagh, Monaghan, Co Monaghan.	
2460070 -	Further Information requested 22/04/2024		Permission for a new daycare centre for the Alzheimer Society of Ireland, detached garage, new vehicular entrance and all associated site civil works. Rooskey Vale, Monaghan, Co. Monaghan	

Table 2-2 Recent Planning History within 50m of the Study Area

File Number	Decision Type	Decision Date	Development Description	Appeal
2360186	Granted	12/01/2024	Permission to construct a new electrical wholesale and warehousing premises comprising of the following: 1. Construction of 5755 SQM wholesale/warehouse unit, 2. Hard standing areas to include car parking, roads and turning heads, 3. Connection to public mains services, 4. Entrances onto public roadway 5. Company signage on the building and on entrance walls, 6. Entrance walls, gates, boundary fence and retaining structures together with all other associated ancillary site works. Significant further information relates to alterations to the development site line boundary and written clarifications regarding the proposed street lighting/planting design. Annahagh, Monaghan, Co Monaghan.	
23160	Granted Conditional	21/07/2023	Development consisting of; 1. Permission for the erection of 6 no. new 18m high columns with 8 floodlights per column to existing training pitch 2. Permission to retain & complete access walking path to training pitch 3. Retention permission for as installed 4 no. 18m high columns with 8 floodlights to the juvenile playing pitch and all associated site development works. Roosky Td., Monaghan Town, Co. Monaghan	
2360110	Granted Conditional	07/09/2023	Permission for development consisting of demolition of approximately 44m of the existing chain link fence located between Beech Hill school and the neighbouring property, 19 Tirkeenan, at the North of the site, Monaghan, H18 C589 and replacement with approximately 24m of new blockwork wall with stone facing to match the existing stonewall and approximately 20m of new timber fence to include a new access gate. (Significant further information relates to the site boundary to encompass both the proposed wall and the proposed fencing). Beech Hill College, Tirkeenan, Monaghan, H18P997.	
22239	Granted Conditional	25/07/2022	Permission to erect 837.00 m2 or 154.35 kWp of photovoltaic panels on the roofs of our existing manufacturing buildings, behind the office area, in our factory; with all associates site works. Old Armagh Road, Latlorcan, Co. Monaghan, H18 V306.	



Heritage and Architecture

A review of the Historic Environment viewer of the National Built Heritage Service (NBHS) was carried out to identify any protected structures and recorded monuments within the study area, and the following were identified:

- Bridge (41303055) (Protected Structure) – This bridge is located over the Ulster Canal and is of regional importance. (Coordinates - 268074, 333886).
- Lock Keeper’s House (41303056) (Protected Structure) – This structure is located to the east of the wastewater treatment plant; it fronts onto the Ulster Canal a short distance south of Seventeenth Lock on roughly surfaced lane. It is of regional importance. The house may be impacted by Route Option No. 2, and further investigation is therefore recommended. (Coordinates - 268080, 333854).
- Worker’s House (The Gas Works) (41303167) (Protected Structure) of regional importance – Detached terrace of three two-storey former gasworks worker’s houses, built c.1890. Now in use as a store. The worker’s houses are located to the west of the wastewater treatment plant. (Coordinates: 267700, 333618). Further investigation may be required where further options are being considered at this location.
- Post Box (41303166) (Protected Structure) – located at the road junction at south-east side of Monaghan town centre. Coordinates 267568, 333521)
- Canal Bridge (41303165) (Protected Structure) – This is a former Ulster Canal tunnel, running east-west under Old Cross Square, at the south-east side of Monaghan Town centre. (Coordinates 267495, 333577).

Within a 50m radius of the study area there are the following protected structures and recorded monuments. As they are located outside the study area, they are not considered to be impacted by the proposed link road and are listed below for information purposes only.

- **Stone Head** (MO009-077) (National Monument)
- **Market Cross** (MO009-060006) (National Monument)
- **Burial Ground** (MO009-044) (National Monument)
- **Saint Macartan's Catholic Cathedral: gates/railings/walls** (41303169) (Protected Structure)
- **Saint Macartan's Catholic Cathedral** (41303171) (Protected Structure)
- **Saint Davet’s Hospital Farmyard Complex** (41303054) (Protected Structure)

In line with the policies of the MCDP the proposed link road will need to take into account and be sympathetic to nearby protected structures. Relevant policy includes:

- *BHP-6: To ensure that any new development proposed to or in the vicinity of a Protected Structure will complement and be sympathetic to the structure and its setting in terms of its design, scale, height massing and use of materials and to resist any development which is likely to impact on the building’s special interest and/ or any views of such buildings and their setting.*

Pre-planning and Public Consultation

Transport Infrastructure Ireland, which oversees national road projects, provides guidelines for public consultation. These guidelines recommend best practices for engaging with the public,



including the types of consultation activities, such as public meetings, consultations, and feedback forms. According to the Planning and Development Act 2000, the proposal would need to undergo a formal planning process that includes notifying the public through notices and providing opportunities for local residents and stakeholders to submit their comments or objections. The Roads Act 1993 would ensure that major road projects, such as a link road, follow specific procedures, potentially including public inquiries or hearings if significant changes or impacts are anticipated. Additionally, if the project requires an Environmental Impact Assessment (EIA), EU regulations mandate that the findings be made available to the public and that there be a period for public feedback. Local authority procedures would also involve hosting public meetings or exhibitions to present the proposal and gather input from the community. These processes collectively ensure that the planning proposal is transparent and considers the concerns of the local population.

2.7 CONCLUSION

The proposed link road is considered to be consistent with EU, National, Regional and Local planning policy.

At a local level, the study area is located within Monaghan Town and is governed by the Monaghan County Development Plan 2019-2025. The relevant zoning map is Monaghan Town (MDP1) which sets out the land use zonings (existing and proposed) and indicative proposals for the development of the town over the 6-year development plan period. There are a number of zoning objectives within the study area which will benefit from the proposed link road. These include for industry/ enterprise/ employment; strategic residential reserve; community services/facilities and recreation/ amenity zonings.

A number of issues will need to be considered in the design of the proposed link road as follows:

- **Roosky Masterplan 2022** - Part of this masterplan overlaps with the study area for the proposed link road. As such, this Masterplan would need to be consulted when deciding on the route for the proposed link road.
- **Planned Future Developments** -
 - Industrial zoned lands - An indicative site layout plan (Option 6) was prepared by RKD for eight industrial units with a proposed link road from the Annahagh roundabout through the industrial zoned lands. This layout and road option will need to be considered in the design of the proposed link road.
 - Community Services/Facilities zoning - the proposed link road will need to facilitate the planned development of the civic offices and community services which although located outside the study area will link in with the proposed link road.
- **Ulster Canal Greenway** - There are a number of policies and objectives in the development plan which seek to encourage and promote the development of the Ulster Canal and greenway. It will be important to ensure that the design of the proposed link road does not compromise the development of the Ulster Canal and expansion of the greenway.
- **Protected Structures** - The proposed link road will need to take into account any nearby protected structures/recorded monuments identified.
- **Planning applications** - the proposed link road should take account of any relevant planning applications set out in Tables 1.1 and 1.2 of this section to ensure there are no constraints



to development. A further planning search is recommended as the scheme progresses to capture any further planning applications of note-



3. ENVIRONMENTAL, LANDSCAPE & CULTURAL HERITAGE

3.1 ENVIRONMENTAL

As part of the Feasibility Study and Options review TOBIN have assessed the environmental constraints that could influence route option selection. The assessment was informed by 1) desktop review of existing constraints, and 2) a multidisciplinary ecological walkover survey to capture ecological constraints within the study area.

3.1.1 Desktop Review

A desktop review was carried out to identify, describe, and map areas of known and/or potential ecological constraints within the study area. The desktop review also considered European and Nationally designated sites within a 15km radius of the project. The material sources consulted as part of the desktop review included the following:

- A review of the National Parks and Wildlife Service (NPWS) natural heritage database for designated areas of ecological interest and sites of nature conservation importance within and adjacent to the study area¹;
- A review of the NPWS rare and threatened species database for records of species of conservation interest within the study area²;
- A review of the Water Framework Directive (WFD) including rivers, lakes, and streams³;
- A review of the Environmental Protection Agency (EPA) mapping database⁴;
- Literature/data review of the protected species under the EU Habitats Directive and the Wildlife Act (as amended) to identify and collate relevant published information on both ecological aspects of the study area and relevant ecological studies conducted in other areas, including the following:
 - National Biodiversity Data Centre (NBDC) online database⁵;
 - Bat Conservation Ireland's website⁶;
 - Irish Butterflies website⁷; and
- Inland Fisheries Ireland (IFI) research data, including a review of research studies carried out for the Habitats Directive and Red Data Book Fish species within the receiving environment⁸.

3.1.2 Designated Sites

The Birds Directive (2009/147/EC) and the Habitats Directive (92/42/EEC) put an obligation on EU Member States to establish the Natura 2000 network. The Natura 2000 network comprises sites of the highest biodiversity importance for rare and threatened habitats and species across the EU. In Ireland, the Natura 2000 network of European sites comprises Special Areas of Conservation (SAC) and Special protection Areas (SPA); SACs are selected for the conservation of Annex I habitats (including priority types which are in danger of disappearing) and Annex II

¹ <https://www.npws.ie/protected-sites>

² <https://www.npws.ie/maps-and-data/habitat-and-species-data>

³ <https://www.catchments.ie/guide-water-framework-directive/>

⁴ <https://gis.epa.ie/EPAMaps/>

⁵ <http://maps.biodiversityireland.ie>

⁶ <http://www.batconservationireland.org>,

⁷ <http://www.irishbutterflies.com>

⁸ <https://www.fisheriesireland.ie/sites/default/files/migrated/docman/Habitats%20Directive%20Report%202018.pdf>



species (other than birds), while SPAs are selected for the conservation of Annex I birds and other regularly occurring migratory birds and their habitats.

The nearest European site to the project is Slieve Beagh SPA (site code: 004167). This site is located approximately 11km northwest of the project and is designated for Hen Harrier (*Circus cyaneus*) (species code: A082). The location of the site relative to the project is shown in Figure 3-1.

A Report in Support of Appropriate Assessment (AA) Screening has been produced for the project. The report provides information on and assesses the potential for the project to impact on any European sites within its likely Zone of Influence. The screening exercise was completed as per relevant European Commission and national guidance, and case law.

The assessment considers the potential impacts of the project in the context of the European sites potentially affected, their qualifying interests or special conservation interests, and their conservation objectives. Through an assessment of the source-pathway-receptor (S-P-R) model, which considered the Zone of Influence of effects from the project and the potential in-combination effects with other plans or projects, it was concluded that the project, either alone or in-combination with other plans and/or projects, does not have the potential to significantly affect any European site, in light of their conservation objectives.

3.1.3 Sites of National Importance

Natural Heritage Areas (NHAs) are the basic wildlife designation in Ireland. These areas contain nationally important habitats and flora and fauna species that need protection. Under the Wildlife Act (as amended), NHAs are legally protected from damage from the date they are formally proposed for designation. Proposed Natural Heritage Areas (pNHAs) were published on a non-statutory basis in 1995 and have not since been statutorily proposed or designated.

There is one NHA site, Eshbrack Bog NHA (site code: 002364), located within a 15km radius of the project, as illustrated on Figure 3-2. This NHA is located approximately 13km from the project.

The project is within 15km of the following 18 pNHAs:

- Dromore Lakes (site code: 000001)
- Emy Lough (site code: 000558)
- Glaslough Lake (site code: 000559)
- Monmurray Grassland (site code: 000562)
- Cordoo Lough (site code: 001268)
- Drumreaske Lough (site code: 001602)
- Rafinny Lough (site code: 001606)
- Ulster Canal (Aghalisk) (site code: 001611)
- Wright's Wood (site code: 001612)
- Tassan Lough (site code: 001666)
- Lisarilly Bog (site code: 001781)
- Corcreeghy Lake And Woodland (site code: 001783)
- Rosefield Lake And Woodland (site code: 001784)
- Mullaghmore Lake (South) (site code: 001785)
- Mullaglassan Lough (site code: 001837)



- Kilcorran Lough (site code: 001838)
- Killyvilly Lough (site code: 001839)
- Lislannan Bog (site code: 001840)

The location of the project relative to the pNHA sites is shown in Figure 3-3.



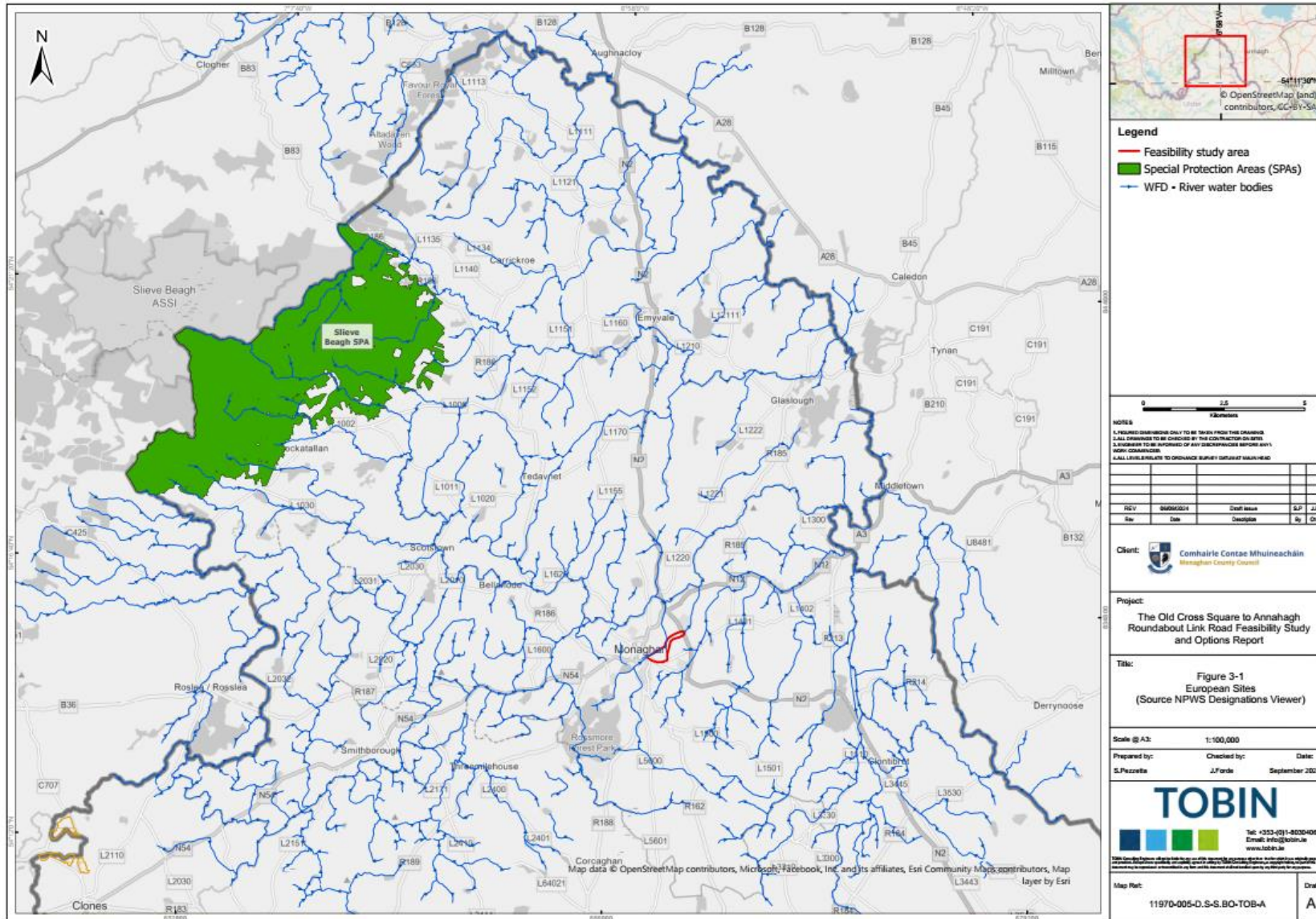


Figure 3-1: European Sites (Source: NPWS Designations Viewer)



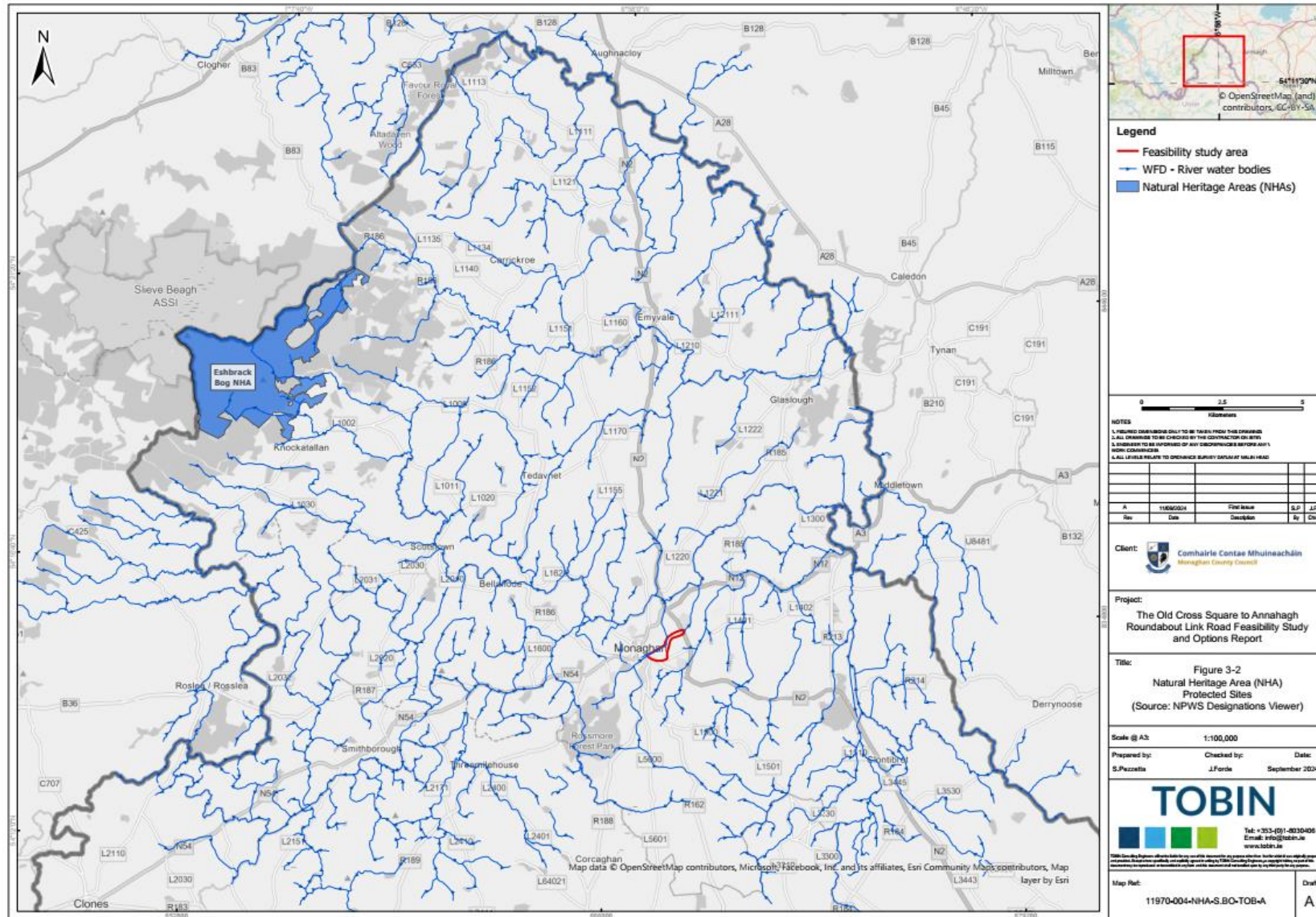


Figure 3-2: Natural Heritage Area (NHA) Protected Sites (Source: NPWS Designations Viewer)



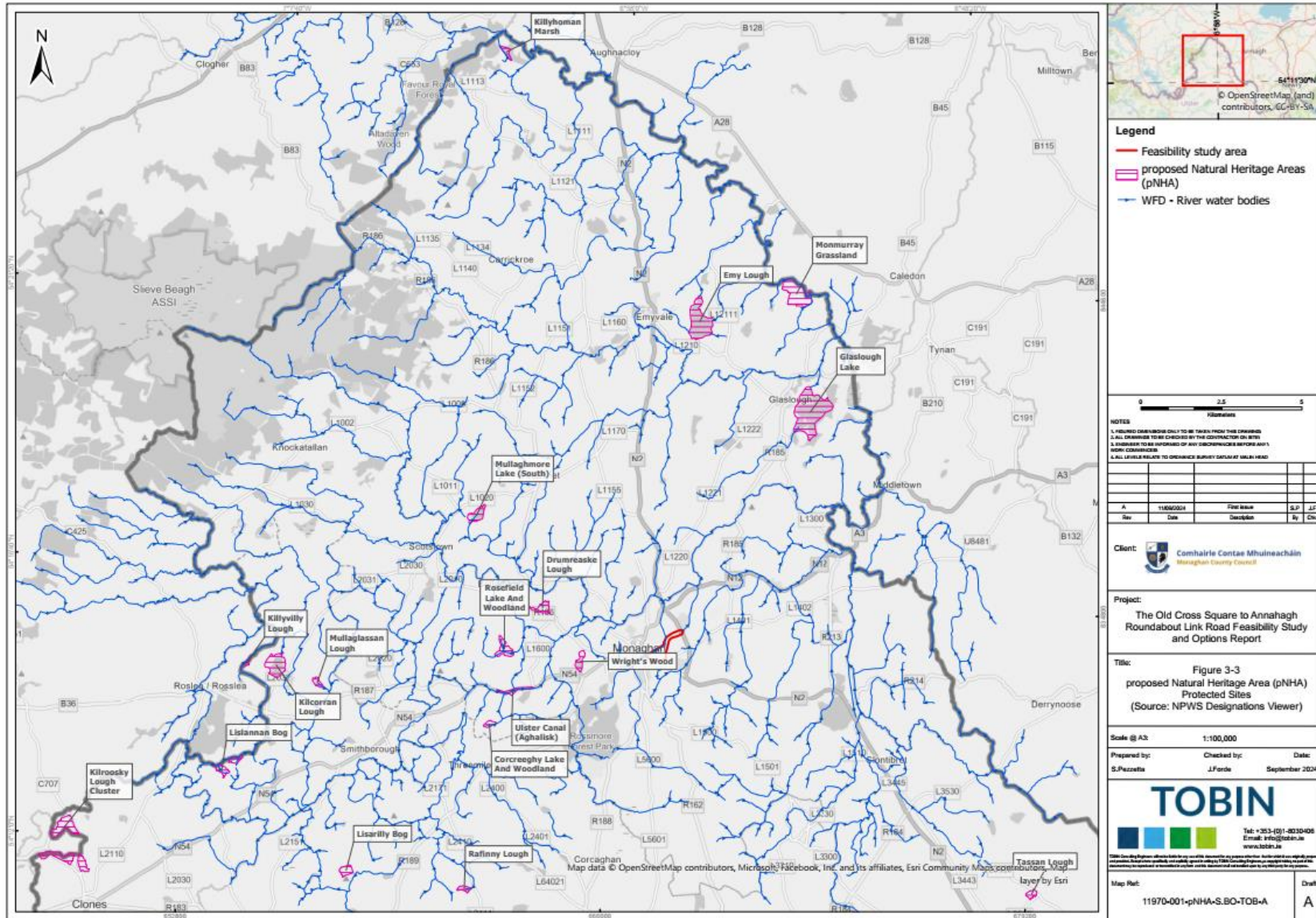


Figure 3-3: Proposed Natural Heritage Area (pNHA) Protected Sites (Source: NPWS Designations Viewer)



3.1.4 Other Sites of Conservation Interest

Other sites of nature conservation within 15km of the development site are discussed hereunder:

- There are no National Parks located within 15km of the project.
- There are no Nature Reserves located within 15km of the project.
- There are no Ramsar sites within 15km of the project.

3.1.5 Water Quality

River Basin Management Plan for Ireland 2022-2027 (3rd Cycle)

The WFD sets out the environmental objectives which are required to be met through river basin planning and implementation of those plans. For surface water, groundwater and protected areas, specific objectives are set out to achieve those objectives. The River Basin Management Plan (RBMP) set out priorities guiding its implementation. The Environmental Protection Agency (EPA) has published a draft assessment for each of Ireland’s 46 catchments providing an overview of the status of the catchment. The RBMP assesses the quality of water and presents detailed scientific characterisation of our water bodies. The characterisation process identifies water bodies that are At Risk of not meeting the objectives of the WFD and identifies the significant pressures causing this risk.

Data relating to the watercourses in the vicinity of the project are provided in Table 3-1 and the location of these shown in Figure 3-4.

Table 3-1: River Basin Management Plan (RBMP) – Lough Neagh & Lower Bann Catchment: (Code 03)

<p>Overview This catchment includes the area drained by the River Bann and by all streams entering tidal water between the Barmouth and Ballyaghan Point, Co. Derry. This is a cross-border catchment with a surface area of 5,787km², 374km² of which is located within the Republic. The largest urban centre in the catchment is Monaghan town. The catchment is divided into six sub catchments and has 33 surface water bodies and 11 groundwater bodies. The proposed development site is located within Blackwater [Monaghan]_SC_010 sub catchment. The sub catchment includes nine river water bodies, including the Shambles River which runs adjacent to the project. The sub catchment also includes one lake water body.</p> <p>Summary of Cycle 2. Four of the 9 river water bodies within this sub catchment, including the Shambles which flow from adjacent to the project, are at RISK due to Poor biological status.</p>				
River Waterbody	WFD Risk	WFD Status (2016 - 2021)	Significant Pressure	Pressure category
BLACKWATER (MONAGHAN)_010	Review	Good	No	-
BLACKWATER (MONAGHAN)_020	Not at risk	Good	No	-
BLACKWATER (MONAGHAN)_030	Not at risk	Good	No	-
BLACKWATER (MONAGHAN)_040	At risk	Poor	Yes	Urban Wastewater, Urban Run Off
CONAWARY (LOWER)_010	At risk	Poor	Yes	Agriculture, Hydromorphology
CONAWARY (LOWER)_020	At risk	Poor	Yes	Agriculture, Domestic Wastewater
SHAMBLES_010	At risk	Poor	Yes	Urban Run-off



SCOTSTOWN_010	Not at risk	High	No	-
SCOTSTOWN_020	Not at risk	High	No	-
Lake Waterbody	WFD Risk	WFD Status (2016 - 2021))	Significant Pressure	Pressure category
Lambs	Review	Moderate	No	-





Figure 3-4: WFD Status (2016-2021) of Waterbodies in the Vicinity of the Project (Source: EPA Envision mapping <https://gis.epa.ie/EPAMaps/>)



3.1.6 National Biodiversity Data Centre

A review of data recorded by NBDC within 1km grid squares H6834, H6733, and H6833 was conducted to assess the presence of protected species. The results of the data search are presented in Table 3-2.

As all bird species are protected under the Wildlife Act (as amended), only Annex I bird species protected by the EU Birds Directive or species listed as 'Red' (i.e., high conservation concern) under the Birds of Conservation Concern in Ireland (BoCCI) (Gilbert *et al.*, 2021) have been listed in Table 3-2.

A total of 11 bird species protected by Annex I of the EU Birds Directive and/or are BoCCI 'Red' listed species have been previously recorded within grid squares H6834, H6733, and H6833.

Three mammals and one amphibian were recorded in grid squares. Of the three mammal species, one is listed under Annex IV species (i.e., bat species) under the Habitats Directive.

Additional Wildlife Act (as amended) protected species recorded included smooth newt (*Lissotriton vulgaris*), Eurasian red squirrel (*Sciurus vulgaris*), west European hedgehog (*Erinaceus europaeus*).

Table 3-2 National Biodiversity Data Centre Records of Protected and Invasive Fauna within 2km Grid Square Overlaying the Study Area

Grid Square	Species name	Date of Last Record	Title of Dataset	Designation
Bird				
H6733	Barn Swallow (<i>Hirundo rustica</i>)	29/05/2023	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
H6733	Black-headed Gull (<i>Larus ridibundus</i>)	14/04/2012	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
H6733	Common Coot (<i>Fulica atra</i>)	18/05/2012	Birds of Ireland	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section I Bird Species Protected Species: EU Birds Directive >> Annex III, Section II Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
H6733	Common Starling (<i>Sturnus vulgaris</i>)	29/05/2023	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
H6733	Common Swift (<i>Apus apus</i>)	25/05/2023	Swifts of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
H6733	Common Wood Pigeon (<i>Columba palumbus</i>)	18/05/2012	Birds of Ireland	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section I Bird Species Protected Species: EU Birds Directive >> Annex III, Section I Bird Species



Grid Square	Species name	Date of Last Record	Title of Dataset	Designation
H6733	House Sparrow (<i>Passer domesticus</i>)	29/05/2023	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
H6733	Mallard (<i>Anas platyrhynchos</i>)	25/05/2023	Birds of Ireland	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section I Bird Species Protected Species: EU Birds Directive >> Annex III, Section I Bird Species
H6733	Mute Swan (<i>Cygnus olor</i>)	10/12/2011	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
H6733	Rock Pigeon (<i>Columba livia</i>)	04/01/2018	Birds of Ireland	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section I Bird Species
H6834	Spotted Flycatcher (<i>Muscicapa striata</i>)	18/05/2012	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
H6834	Daubenton's Bat (<i>Myotis daubentonii</i>)	31/07/2017	National Bat Database of Ireland	Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex IV Protected Species: Wildlife Acts
Amphibian				
H6733	Smooth Newt (<i>Lissotriton vulgaris</i>)	29/06/2010	Newt Survey 2010-2014	Protected Species: Wildlife Acts
Mammal				
H6834	Daubenton's Bat (<i>Myotis daubentonii</i>)	31/07/2017	National Bat Database of Ireland	Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex IV Protected Species: Wildlife Acts



Grid Square	Species name	Date of Last Record	Title of Dataset	Designation
H6834 & H6733	Eastern Grey Squirrel (<i>Sciurus carolinensis</i>)	31/12/1981 & 31/12/2007	Mammal Recording Scheme 1970-1985 (An Foras Forbartha)	Invasive Species: Invasive Species Invasive Species: Invasive Species >> High Impact Invasive Species Invasive Species: Invasive Species >> EU Regulation No. 1143/2014 Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
H6833	Eurasian Red Squirrel (<i>Sciurus vulgaris</i>)	31/12/1982	Mammal Recording Scheme 1970-1985 (An Foras Forbartha)	Protected Species: Wildlife Acts
H6733	West European Hedgehog (<i>Erinaceus europaeus</i>)	23/03/2023	Hedgehogs of Ireland	Protected Species: Wildlife Acts



3.2 MULTIDISCIPLINARY ECOLOGICAL WALKOVER SURVEY

A multidisciplinary ecological walkover survey was carried out across the study area on 4th of September 2024 to identify the habitats, flora and fauna present at the site.

A habitat assessment was undertaken in accordance with 'The Heritage Council's Best Practice Guidance for Habitat Survey and Mapping' (Smith *et al.*, 2011). Habitats were classified according to 'The Heritage Council's A Guide to Habitats in Ireland' (Fossitt, 2000) and following the 'EU Habitats Interpretation Manual for Annex I Habitats' (EC, 2013).

The study area was surveyed for protected flora and fauna and any evidence of Annex I habitats or Annex II species listed on the EU Habitats Directive (92/43/EEC) and any Annex I bird species listed on the EU Birds Directive (2009/147/EC).

Species protected under Flora Protection Order, 2022 (S.I. No. 235/2022) or listed under the Irish Red Data List of Irish Plants were also searched for. All semi-natural habitats encountered were surveyed, including data collection on dominant vegetation, qualitative consideration of plant species diversity, presence of protected flora, vegetation structure, topography, drainage, disturbance and management.

The study area was searched for evidence of invasive alien plant species (IAPS) listed in Part 1 of the Third Schedule of S.I. No. 477/2011 – European Communities (Birds and Natural Habitats) Regulations (2011).

Buildings and trees were assessed for their bat roost potential in line with 'Best Practice Guidance for the Conservation of Bats in the Planning of National Road Schemes' (National Roads Authority [NRA], 2006) and 'Bat Surveys for Professional Ecologists: Good Practice Guidelines' (Collins, 2023).

Searches for evidence of protected species and or presence of suitable habitats were also carried out in line with methodologies outlined in the NRA Guidance: 'Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes' (NRA, 2009).

Mammal surveys were carried out within the study area, targeting potential breeding habitat and resting places in the vicinity of the watercourses, treelines and hedgerows. Key target mammal species included otter (*Lutra lutra*). Otter surveys were conducted in accordance with NRA (2009) guidelines and 'Monitoring the Otter *Lutra Lutra*' (Chanin, 2003), along waterbodies within the study area to confirm otter presence. This included surveys along all drains and watercourses within accessible lands, checking for signs of otter presence and activity, such as holts (breeding and temporary), slides and territorial marking points (spraints), with each sign recorded.

Other protected mammal species were also surveyed for, such as badger (*Meles meles*), red squirrel (*Sciurus vulgaris*), Irish hare (*Lepus timidus hibernicus*).

A walkover aquatic ecological survey was also carried out at locations hydrologically connected to the study area. These locations, where feasible, were selected as being representative of the local aquatic environment, to establish the existing baseline freshwater ecology.



Following the completion of the desktop review and field survey habitat maps of the study area were prepared, according to the methodology outlined in Smith *et al.* (2011).

3.2.1 Habitats and Flora

The ecological walkover survey mapped a total area of 682,008m². The area is predominantly composed of Improved Agricultural Grassland (GA1) at 255,241.6m², followed by buildings and artificial surfaces (BL3) covering 225,286.6m², with smaller areas of Wet Grassland (GS4) at 97,370.5m², Mixed Broadleaved Woodland (WD1) at 95,708.1m², and Mixed Broadleaved/Conifer woodland (WD2) at 8,401.3 m². Walkover surveys results for the habitats identified are presented in Table 3-3.





Figure 3-5: Habitat Map and Ecology Observations at the Feasibility Study Area



Table 3-3: Representative Habitats and Species Within the Project Boundary (DAFOR - Dominant; Abundant; Frequent; Occasional; Rare).

Habitat (Fossitt, 2000) Habitat Category	Map Label	Dominant	Abundant	Frequent	Occasional	Rare	Area m ²
BL3 - Buildings and Artificial Surfaces	1						9,399.43
BL3 - Buildings and Artificial Surfaces	2						107,986.40
BL3 - Buildings and Artificial Surfaces	3						45,843.42
GS4 - Wet Grassland	4	Perennial Ryegrass	Soft rush		Silverweed		72,191.33
GA1 - Improved Agricultural Grassland	5	Perennial Ryegrass		Broadleaf dock			21,295.56
GA1 - Improved Agricultural Grassland	6	Perennial Ryegrass		Yorkshire fog, fescue, broadleaf dock	Marsh thistle		28,527.51
BL3 - Buildings and artificial surfaces	7						46,943.39
GA1 - Improved agricultural grassland	8	Perennial Ryegrass	Ragwort, broadleaf dock		Soft rush		11,527.91
GA1 - Improved agricultural grassland	9	Perennial Ryegrass	Ragwort, broadleaf dock				11,290.52
GS4 - Wet Grassland	10	Perennial Ryegrass, soft rush					15,897.08



Habitat (Fossitt, 2000) Habitat Category	Map Label	Dominant	Abundant	Frequent	Occasional	Rare	Area m ²
GS4 - Wet Grassland	11	Perennial Ryegrass, soft rush					9,282.08
GA1 - Improved Agricultural Grassland	12	Perennial Ryegrass					35,118.86
GA1 - Improved Agricultural Grassland	13	Perennial Ryegrass			Soft rush, meadow buttercup	Nettle	40,513.85
GA1 - Improved Agricultural Grassland	14	Perennial Ryegrass			Soft rush, ragwort	Meadow buttercup, Yorkshire fog, marsh thistle	20,887.59
GA1 - Improved Agricultural Grassland	15	Perennial Ryegrass		Ragwort	Soft rush, meadow buttercup	Rash thistle	18,740.61
GA1 - Improved Agricultural Grassland	16	Perennial Ryegrass			Broadleaf dock, soft rush, meadow buttercup, marsh thistle	Hawk bit, Yorkshire fog	5,322.61
GA1 - Improved Agricultural Grassland	17	Perennial Ryegrass			Broadleaved dock, ragwort, soft rush		43,478.59
BL3 - Buildings and Artificial Surfaces	18						15,113.91



Habitat (Fossitt, 2000) Habitat Category	Map Label	Dominant	Abundant	Frequent	Occasional	Rare	Area m ²
WD2 - Mixed Broadleaved/ Conifer Woodland	19	Sycamore, ivy		Leydandii	Grey willow, ash, Sitka spruce	Hawthorn	8,401.28
WD1 - (Mixed) Broadleaved Woodland	20	Grey willow	Nettle, bramble, ivy	Sycamore, field maple		Hawthorn, white willow	195,62.51
WD1 - (Mixed) Broadleaved Woodland	21	Hawthorn	Ash, ivy		Bramble, blackthorn		18,708.01
WD1 - (Mixed) Broadleaved Woodland	22		Bramble, ivy	Elder, ash, blackthorn, hawthorn	Herb Robert	Sycamore	3,866.47
WD1 - (Mixed) Broadleaved Woodland	23		Grey willow, sycamore	Bramble, beech	Hawthorn, white willow, hazel, bindweed, willowherb, nettle		21,627.35
WD1 - (Mixed) Broadleaved Woodland	24	Ash	Sycamore, ivy		Elder, snowberry, butternut		6,951.28
WD1 - (Mixed) Broadleaved Woodland	25	Grey willow		Ash, hawthorn	Nettle, ivy, bramble		5,204.32
GA1 - Improved Agricultural Grassland	26	Perennial Ryegrass			Broadleaved dock, meadow buttercup		6,013.11



Habitat (Fossitt, 2000) Habitat Category	Map Label	Dominant	Abundant	Frequent	Occasional	Rare	Area m ²
WD1 - (Mixed) Broadleaved Woodland	27		Silver birch	Dog wood, bramble, bindweed	Grey willow, white willow	Field maple, hazel	1,694.37
WD1 - (Mixed) Broadleaved Woodland	28		Silver birch	Dog wood, bramble, bindweed	Grey willow, white willow	Field maple, hazel	3,144.75
GA1 - Improved Agricultural Grassland	29						12,524.91
WD1 - (Mixed) Broadleaved Woodland	30						14,949.06
WS1 - Scrub	31	Blackthorn			Hawthorn, bramble, nettle		3,640.35
BL3 - Buildings and Artificial Surfaces	1						9,399.43
BL3 - Buildings and Artificial Surfaces	2						107,986.40
BL3 - Buildings and Artificial Surfaces	3						45,843.42



3.2.2 Aquatics

The watercourse flowing in northern section of the study area can be classified as FW2 - Depositing/Lowland River. This watercourse is characterised by riparian vegetation including sycamore, grey willow, ash, bramble, nettle, and bindweed. The riparian treeline is gappy and unmanaged, with large gaps present in places, and it is fenced off from the adjacent walkway. The riverbanks are heavily vegetated, with encroachment beginning to shade the river channel. The channel itself appears to have been modified and straightened, and it flows slowly, with a section culverted under a bridge. The watercourse is assessed as having no fishery value.



Plate 3-1: FW2 - Depositing/Lowland River Watercourse at the Study Area

3.2.3 Mammals

Badger

In the northeast of the study area there was evidence of significant badger activity. Several active and non-active setts were recorded in areas of WD1 - (Mixed) Broadleaved Woodland Woodland and WS1 - Scrub and adjacent to the hedgerow/ treeline boundaries of GA1 Improved Agricultural Grassland. Mammal paths were evident leading from the setts to neighbouring fields, scrub and woodland. There as also several snuffle holes recorded at the base of trees within areas of GA1 - Improved Agricultural Grassland.



Plate 3-2: Badger Setts Recorded in WS1 - Scrub



Plate 3-3: Snuffle Holes Recorded on GA1 Improved Agricultural Grassland

Otter

No evidence of Annex II species was recorded within the project study area. No evidence of otter (*Lutra lutra*) activity, such as holts, pawprints or scat, were recorded within the study area during the survey. The watercourse was assessed as having no fishery value, and likely to be unfavourable for otter.

Bats

Potential bat roost assessment was undertaken at a derelict, abandoned house and nearby treeline northeast of the waste water treatment plant. The assessment involve an inspection of the building's features and surrounding habitats for signs of bat activity, such as droppings, staining, or the presence of bats themselves. Numerous gaps or crevices were identified as

potential roosts while the surrounding habitats, including the treeline, and adjacent agricultural land, may provide foraging areas and commuting routes for bats.



Plate 3-4: Bat Roost Potential at Abandoned Derelict House

3.2.4 Birds

No Annex I bird species listed on the EU Birds Directive (2009/147/EC) were recorded during the ecological survey.

Bird species recorded included common bird species typically found within the Irish countryside, including Grey Heron (*Ardea cinerea*) and Yellow Wagtail (YW).

3.2.5 Invasive Alien Plant Species

Extensive stands of the Third Schedule invasive plant species Japanese knotweed (*Fallopia japonica*) were recorded in the treeline boundary of the WD1 - (Mixed) Broadleaved Woodland and GA1 - Improved Agricultural Grassland in the west of the site.



Plate 3-5: Extensive Japanese Knotweed in West of Study Area

3.3 FLOOD RISK ASSESSMENT

Key points of Stage 1 Flood Risk Assessment are shown below:

- **Fluvial Flooding:** Based on a review of available information, it is estimated that there is a risk of fluvial flooding to the subject site. The closest fluvial flood extents to the subject site are the west of the subject site boundary in a 1 in 1000-year (0.1% AEP) Current event and in a 1 in 1000-year (0.1% AEP) MRFS event.
- **Coastal Flooding:** The subject site is not at risk of coastal flooding due to its distance inland from coastal waters.
- **Pluvial Flooding:** The available PFRA mapping indicates that a portion of the subject site is at risk of pluvial flooding during extreme flood events.
- **Groundwater Flooding:** There is no evidence to suggest groundwater as a potential source of flood risk to the proposed subject site.

The full Stage 1 Flood Risk Assessment is provided in Appendix B.

3.4 GEOLOGY & HYDROGEOLOGY

The Geological Survey of Ireland (GSI) online database was consulted for available hydrogeological information for the proposed development area. The aquifer potential of a bedrock unit is determined by the groundwater productivity. The productivity is determined based on hydraulic characteristics compiled from borehole data throughout the county.

The study area is underlain by a Regionally Important Aquifer – Fissured Bedrock – There are minimal karst features within the proposed application area.

Groundwater vulnerability represents the intrinsic geological and hydrogeological characteristics that determine how easily groundwater may be contaminated by activities at the surface. Vulnerability depends on the quantity of contaminants that can reach the groundwater, the time taken by water to infiltrate to the water table and the attenuating capacity of the geological deposits through which the water travels.

A review of the GSI Vulnerability Map highlights the area is underlain by a Medium Vulnerability groundwater rising to High Vulnerability approaching the Ulster Canal and Shambles River.

A desktop Geological study has consulted the following sources of information:

- Environmental protection Agency (EPA)/European Environment Agency CORINE 2018 land cover mapping⁹;
- Teagasc Irish Soil Information System mapping¹⁰;

⁹ <https://data.gov.ie/dataset/corine-landcover-2018>

¹⁰ <http://gis.teagasc.ie/soils/>



- EPA soils and subsoils mapping¹¹; and
- Geological Survey of Ireland (GSI) online geological mapping¹².

There is no significant groundwater issues identified. Siting of a possible road will need to be careful attention not to channel flows. Drainage design with a strong CEMP will reduce risk of outfall into the Shambles River and Ulster Canal.

3.5 LANDSCAPE

The majority of the study area is sited in pasture lands used for cattle or access to local properties given the proximity to Monaghan Town Centre. Surrounding lands are typically Urban and manmade with the N2 sited at the connection point to the east and town centre to the west.

Crucially within the study area is sited a section of the Ulster Canal Greenway and Shambles River. The Ulster Canal Greenway has been upgraded in recent years and is a location of natural beauty alongside the Shambles River and is currently used by the public for passive recreation with associated health and wellbeing benefits and represents a valuable green infrastructural asset with amenity and landscape value and environmental value.

The proposal to develop a road to link from the Old Cross to Annahagh Roundabouts will require a sensitive response that adequately considers and responds to the policies and objectives set out under the County Development Plan 2019-25 and outlined in section 2.3 above.

3.6 CULTURAL HERITAGE

This section has been prepared to assess the impact, if any, on the archaeological and cultural heritage resource arising from the proposed development. The assessment determines, as far as reasonably possible from existing records, the nature of the archaeological and cultural heritage resource in and within the vicinity of the proposed development using appropriate methods of study. An impact assessment was undertaken to identify potential adverse impacts that the proposed development may have on the cultural heritage resource, while the mitigation strategy is designed to avoid, reduce, or offset such adverse impacts.

The proposed development will be located in the townlands of Annahagh and Tirkeenan in Monaghan Town. Based on a desktop assessment, there are recorded archaeological monuments (RMPs) within 100m of the proposed development site. These include the following with further information provided in section 2.6 above.

- 41303055 – Bridge (Regional Importance): Single-arch limestone canal bridge and adjacent stone culvert, built c.1840, carrying access lane from Asylum Farm over Ulster Canal and towpath and sluiceway short distance south of seventeenth lock to small roadway and associated farmland to south-east.

¹¹ <https://gis.epa.ie/>

¹² <https://www.gsi.ie>



- 41303056 – Lock Keepers House (Regional Importance): Detached three-bay single-storey building, constructed c.1840, having canted porch to west, canal-front, elevation.

In addition, the following architectural monuments have been recorded within 250m of the scheme:

- MO009-075 Fulacht fia: Annahagh
- MO009-077 Stone Head: Latlorcan
- 41303054 – Saint Davnet’s Hospital: Farmyard Complex

Due to the proximity of the proposed development to archaeological monuments, it is likely that other unrecorded sites and/or artefacts may be discovered.

Field inspection is necessary to determine the extent and nature of archaeological, architectural, and historical remains and can also lead to the identification of previously unrecorded or suspected sites and portable finds through topographical observation and local information. The archaeological field inspection should entail:

- Walking the proposed development and its immediate environs.
- Noting and recording the terrain type and land usage.
- Noting and recording the presence of features of archaeological or historical significance.
- Verifying the extent and condition of any recorded sites.
- Visually investigating any suspect landscape anomalies to determine the possibility of their being anthropogenic in origin.

Proposed works must have regard to all relevant policies in relation to protected structures to ensure no negative impacts on the integrity of the protected structure to comply with the map based objective to ‘protect the extensive archaeological remains identified by geo-physical survey within this area’, as set out in Appendix 8 of the CDP.

The main RMPs in proximity to the study area are shown in Figure 3-66. These protected structures are located within the Study Area and adjacent to potential route option.



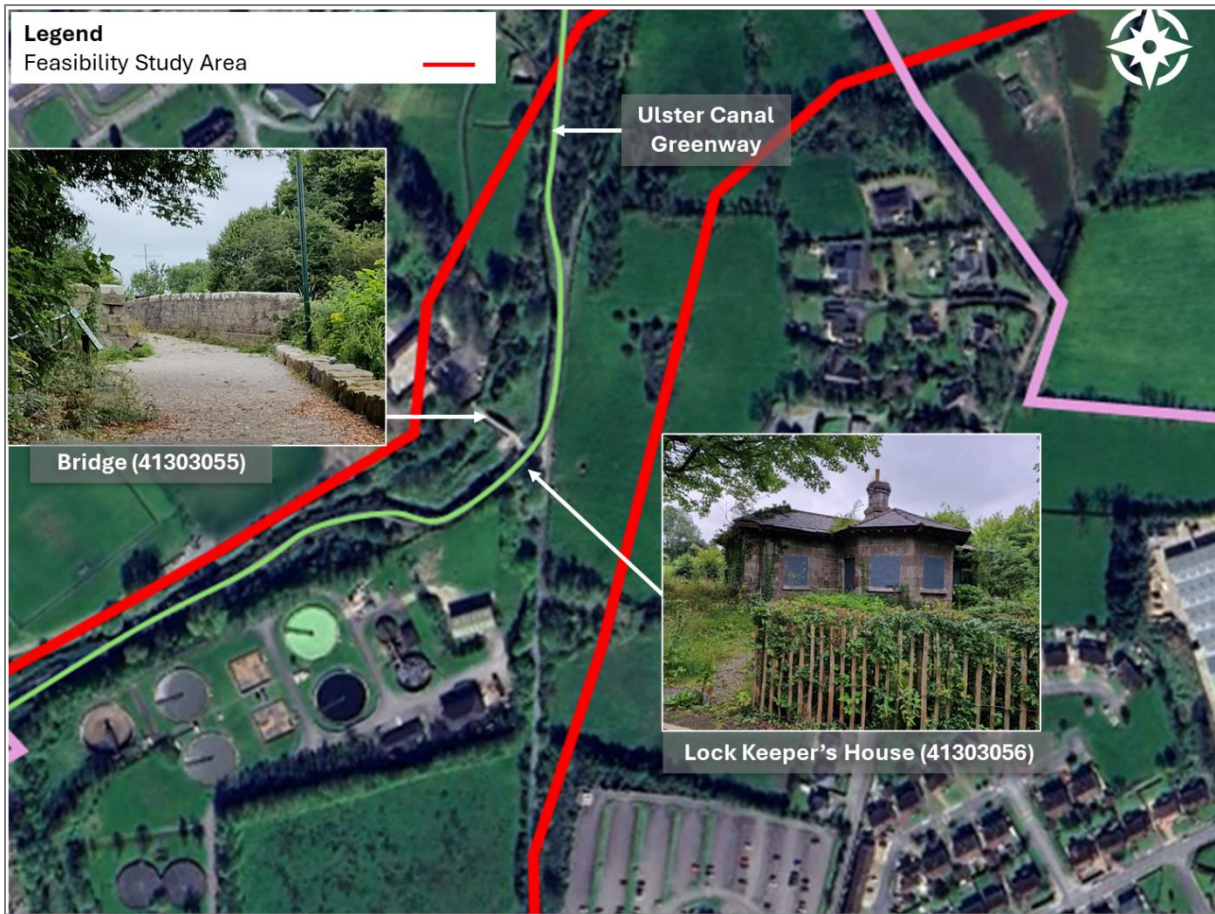


Figure 3-6 Key Protected Structures Location



4. DESIGN PRINCIPLES

This section will outline the broad design principles that will be adopted when assessing design options for this scheme. As the scheme would be located within urban area, DMURS and NTA Cycle Design Manual (September 2023) design principles are discussed below in terms specific to the scheme. While these principles are taken into consideration, project operational goals are defined under the headings of the Transport Appraisal Framework (TAF).

4.1 SAFE SYSTEM APPROACH

The Safe System Approach to be taken will include minimising the frequency of active travel provision including cycle facilities interacting with motorised traffic and take into account human error by providing sufficient width, segregation, lower vehicle speeds and dedicated crossing facilities.

Adequate segregation will provide a safe environment for all cyclists. Closer to the town, the number of pedestrians increase, and this must also be considered in terms of conflict with cyclists.

There are several wide junctions along the scheme, and these can be reduced under the guidelines of DMURS to provide for less conflict opportunities.

4.2 NETWORK APPROACH

The scheme shall connect the national road N2 with regional road R937 Dublin Road and national road N54 in Monaghan Town.

4.3 SEGREGATION

A key element of the safety and attractiveness of pedestrian and cycle facilities is segregation from motorised traffic. The means of segregation required is clearly outlined in the Cycle Design Manual (Section 2.4) but width restrictions nearer the town centre makes the provision of the full standard difficult. Cross Sectional Width for full standard cycle track options are available on approach to the town.

4.4 EVERYDAY MOBILITY

The scheme shall be a key connector of residential centres to employment areas in industrial zone and consideration of the connection of these centres to the facilities is key to encourage their use for everyday journeys.

4.5 UNIVERSAL DESIGN AND INCLUSIVE MOBILITY

The integration of the cycle route with other existing facilities and the ability to interchange with bus routes will be important in providing a robust and effective route. This will include safe accessibility for other cyclists to safely and easily access/egress the cycle route at various points. Furthermore, the provision of safe crossing facilities for other road users such as pedestrians and people needing to access/egress their properties will also have to be considered. This would include providing raised priority crossings for pedestrians across the cycle track or providing a design that avoids property accesses.



4.6 JUNCTIONS

Tight kerb radii and entry treatments such as raised tables and continuous footpaths across the mouth of the side road will help reduce turning vehicle speeds making it safer for cyclists passing through the junction.

The safe progression of cyclists through signalised junctions in a timely manner will have to be considered carefully. This will ensure that the cyclists are effectively separated from larger traffic, particularly heavy vehicles (HV's), when performing turning manoeuvres.

A second design principle that will have to be considered is ensuring that cyclists are not impeded when looking to access the stop line of a junction. This could include providing dedicated segregation in advance of the stop line so that cyclists will not be impeded by other queuing vehicles or parked vehicles.

4.7 TRANSITIONS

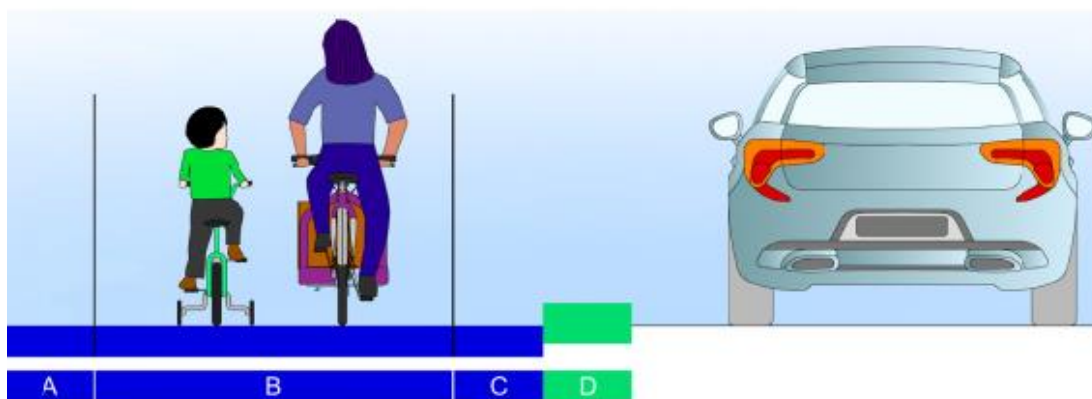
Over the 1.5km length of the route between Old Cross Square Roundabout in Monaghan Town and the Annahagh Roundabout on the N2 national road, the proposed cross sections shall be consistent throughout the scheme.

Any necessary transition arrangements will be dealt with at the latter stage of the assessment process as the preferred layouts in each section of the route emerge.

4.8 WIDTH

Road carriageway width advised by DMURS should be taken as advised. The guidance of the Cycle Design Manual should be taken as a minimum provision, and the general objective will be to provide cycle lane widths in line with guidance provided in the Cycle Design Manual. This will include reference to the width calculator and providing the maximum possible widths for cyclists along the route where practicable.





A. Inside Clearance	
Feature	Additional width required (m)
Flush or near-flush surface including low and splayed kerbs up to 60mm high	0.00
Kerbs 61mm to 150mm high	0.20
Vertical feature from 151mm to 600mm high	0.25
Vertical feature above 600mm high	0.50

B. Central Width			
Type of Facility	Flow (cycles per peak hour)	Desirable minimum width (m)	Absolute minimum width (m)
One-way cycle track	<300	2.00	1.50*
	>300	2.50	2.00
Two-way cycle track	<300	3.00	2.00
	>300	4.00	3.00
Cycle lane	All	2.00	1.50
Shared Active Travel Facility	<300	4.00	3.00
	>300	5.00	4.00

*May not cater for comfortable overtaking or cycling two abreast

C. Outside Clearance	
Feature	Additional width required (m)
Flush or near-flush surface including low and splayed kerbs up to 60mm high	0.00
Kerbs 61mm to 150mm high	0.20
Vertical feature from 151mm to 600mm high	0.25
Vertical feature above 600mm high	0.50

D. Buffer Width	One-way cycle track		Two-way cycle track	
	Desirable min buffer (m)	Absolute min buffer (m)	Desirable min buffer (m)	Absolute min buffer (m)
Speed limit (kph)				
≤30	0.00	0.00	0.50	0.30
40/50	0.50	0.00	0.50	0.30
60	1.00	0.50	1.00	0.50
80	2.00**	1.50**	2.00**	1.50**
100	3.50***	1.50***	3.50***	1.50***

Figure 4-1 Width Calculator (Section 2.6 Cycle Design Manual)

4.9 IMPACT ON OTHER MODES OF TRANSPORT

The impact of any proposed interventions will need to be cognisant of the capacity of certain key junctions along the route. Consideration will be given to existing and proposed public transport connections regarding bus routes, in particular, and the maintenance of appropriate stop facilities. While junction narrowing will be included in the proposed options, HV movements will need to be considered, and adequate vehicle tracking carried out on any proposals.



4.10 URBAN CROSS SECTION - DMURS

The scheme shall provide access to the planned industrial development area to all vehicle types and active travel. The proposed link road is likely envisaged to primarily accommodate light vehicles and public transport as well as active travel infrastructure. The presence of the Dublin Road and N54 to the South and North respectively connecting to the N2 reduce requirement to provide HGV linkage via the link road. Development of Industrial zoned lands off the Annahagh Roundabout would increase attractiveness of use to the N54 west and would need to be considered in the selection of an appropriate cross section. Narrowed carriageway cross sections along this section would be in line with DMURS guidance and may be appropriate given alternative routes available. Under Table 3.1 of DMURS, the scheme could be classified as a local distributor because it shall connect the planned industrial development and planned Transport Hub on edge of town with Monaghan town centre as a simple link function.

DMURS Description	Roads Act/ DN-GEO-03031	Traffic Management Guidelines	National Cycle Manual
Arterial	National	Primary Distributor Roads	Distributor
Link	Regional (see note 1)	District Distributor Local Collector (see Notes 1 and 2)	Local Collector
Local	Local	Access	Access

Notes

Note 1: Larger Regional/District Distributors may fall into the category of *Arterial* where they are the main links between major centres (i.e. towns) or have an orbital function.

Note 2: Local Distributors may fall into the category of *Local* street where they are relatively short in length and simply link a neighbourhood to the broader street network.

Figure 4-2 Extracts from Terminology of Street/ Roads hierarchies by DMURS (Table 3.1)

Using design guidance from DMURS, cross sections will be proposed (Figure 4-3). Cross sections catering for infrequent HGV use would range from 5.5 – 6.5m carriageway width (including bus route usage) in a low to moderate design speed. For regular HGV usage, a 6.5 – 7.0m carriageway width would be recommended.



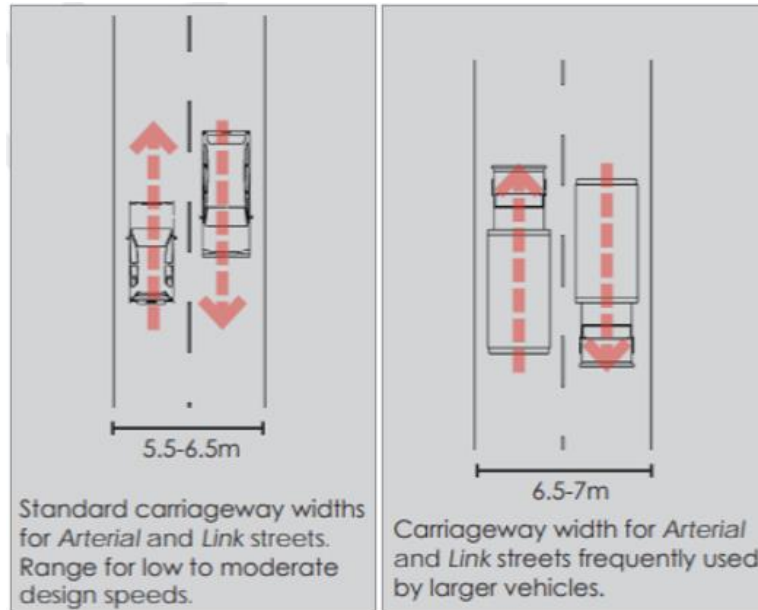


Figure 4-3 Extracts from Carriageway Widths DMURS (Figure 4.55)



5. TRANSPORT ASSESSMENT / EXISTING TRANSPORT INFRASTRUCTURE

This section summarises the findings of an assessment of the existing transport conditions throughout the scheme. This effectively represents a documentation of our understanding of the existing issues and problems of relevance to motorists, pedestrians and cyclists specific to this scheme. It is based on our assessment of the needs of pedestrians and cyclists, general road safety issues, road and public infrastructure, and points of congestion/ conflict.

5.1 EXISTING SITE DESCRIPTION

Currently, the Annahagh Roundabout links to Old Cross Square Roundabout in Monaghan Town via a 3.0km route from the N2, passing by Corlat Roundabout, into R397 Dublin Road to the South or alternatively, via a second route, 3.0km in length via Monaghan Town to the North. Both route options do not provide walking or cycling infrastructure option given the interface with the high-speed national road N2 (100 kph).

The feasibility study area primarily consists of greenfield sites and includes the local roads L14105 and Dummys Lane, and the Ulster Canal Greenway.

5.2 STUDY AREA CHARACTERISTICS

The study area is approximately 1.5km comprising greenfield, and local access roads to private dwellings and land. The Ulster Canal Greenway is also part of the study area. It is part of the scheme's objective to provide connectivity between the proposed link road to the Ulster Canal Greenway.

5.3 PUBLIC TRANSPORT

Monaghan Bus station is located on the North Road approximately 650m from Monaghan Town centre.

- The M2 bus route from Ballybay to Monaghan Institute serves residents along the Cootehill Road stopping at Beechgrove, the Hospital and Monaghan Bus Station.
- The 175 Cavan to Monaghan bus also stops on the Cootehill road outside the Monaghan County Council offices before arriving at Monaghan Bus station.
- No Rail infrastructure is present in the environs of Monaghan Town

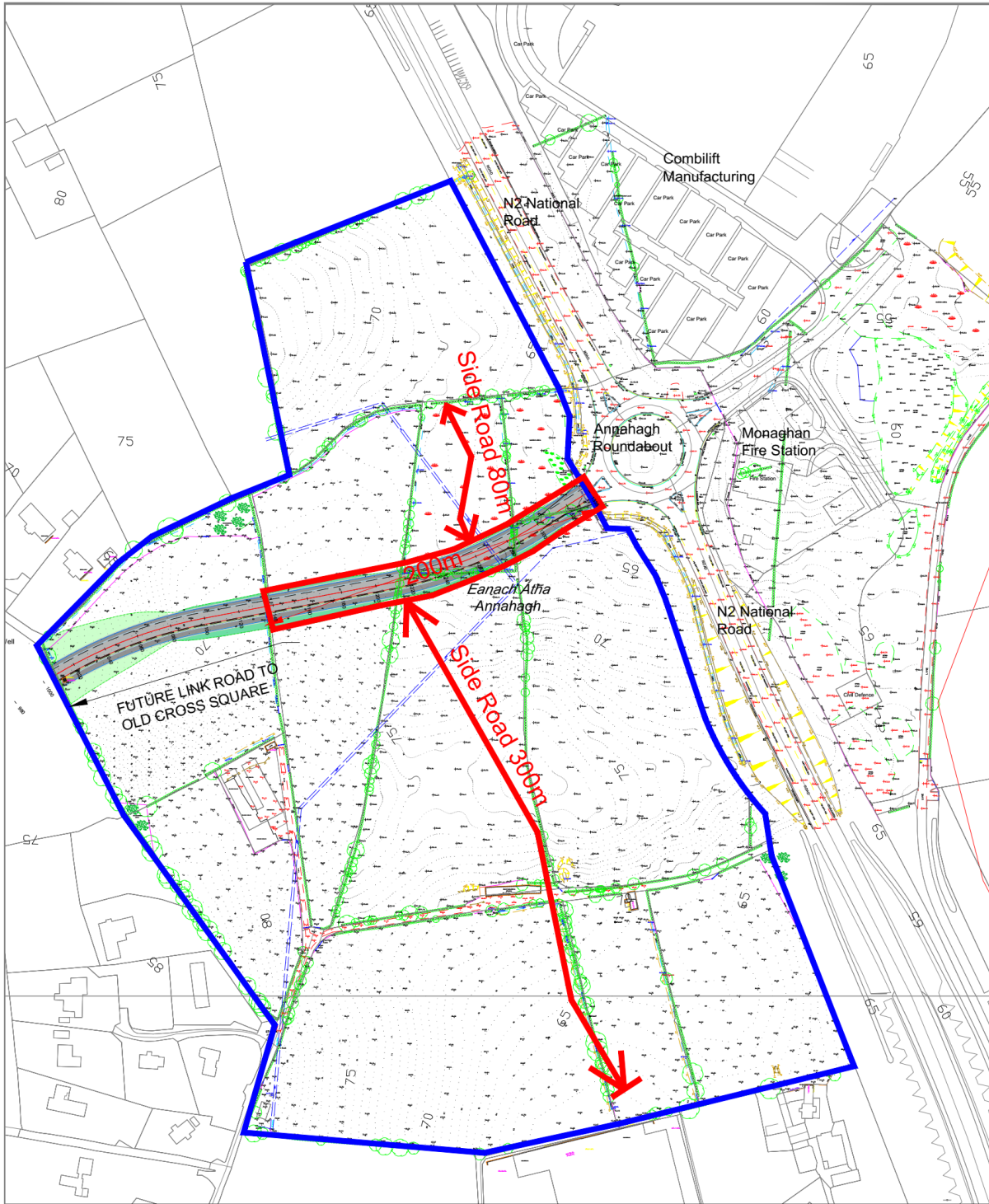
5.4 COLLISION DATA






Collision data has not been supplied with this scheme. Road Collision Data is not currently available on the Road Safety Authority Database, and therefore the Audit Team has no access to the historical collision information for this site and / or adjacent roads.

5.5 OTHER PLANNED SCHEMES AND PROJECTS

The proposed scheme also considers the planned new civic offices and planned industrial development and associated access roads. Particularly the first 200m of the proposed link road from Annahagh roundabout to the industrial zoned lands, which is currently at tender stage for design and construction to open lands for future development (see Figure 5-1).





	Area proposed for Business Park on Industrial Zoned Lands		Proposed Carriageway
			Proposed Footway/Cycleway
			Proposed Cut Embankment
			Proposed Fill Embankment


DESIGN PC	DRN PC	TITLE SITE BOUNDARY PLAN - CONCEPT PLAN	PROJECT INDUSTRIAL ZONED LANDS AT ANNAHAGH,	NOTES: DO NOT SCALE DRAWING WORK TO FIGURE DIMENSIONS ONLY	CAPITAL PROJECTS MONAGHAN COUNTY COUNCIL COUNTY OFFICES, THE GLEN, MONAGHAN. PHONE 047-30500 EMAIL info@monaghancoco.ie		CAPITAL PROJECTS DWG No: 001 JOB No: TBC
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Figure 5-1 Industrial Zone Access Road (Etenders Project Information)



6. CONSTRAINTS STUDY

6.1 NATURAL CONSTRAINTS

- Ulster Canal & Greenway and Shambles River running through the west section of the Study Area.
- Existing ground level difference may impact the volume of earthworks required

6.2 ARTIFICIAL CONSTRAINTS

- Existing protected structures, existing dwellings along Ulster Canal Greenway and stone bridge.
- Black lane level difference and carriageway width.
- Proximity to Ulster Canal Greenway development and Shambles River.

6.3 EXTERNAL PARAMETERS

External Parameters to be considered in the route selection stage include the following:

- Existing National, Regional and Local Development Plans – As outlined in Chapter 2, a goal of the scheme is to integrate the scheme with these policies and plans.
- Irish/ EU legislation – This is particularly relevant in the context of environmental issues.
- National Guidance on the planning and delivery of cycleways – Guidelines on cycleway provision are included in TII Publications, NTA, DMURS, Cycle Design Manual and various tourist agencies.
- National Transport Authority (funding agency) approval procedures
- The Design Manual for Urban Roads and Streets is to be used as the design manual for this scheme.



7. OPTIONS IDENTIFICATION

For the development of Options for the proposed link road, TOBIN adopted a design approach of developing options for the limited study area while catering for the future needs of the urban area. This approach was linked with adopting guidance from DMURS and the Cycle Design Manual to ensure best Engineering practise for motorised and non-motorised traffic alike.

A description of each design option is outlined below to accompany the designs in the appendices.

7.1 DO NOTHING' OPTION

The 'Do-Nothing' option would involve no provision a direct link between the two roundabouts. At present there are two options, one of which is a through traffic in town centre. A 'do-nothing' option would not meet any of the objectives of the scheme and as such is not being considered for further assessment.

'Do Nothing' - is not considered a feasible option for assessment against project objectives.

7.2 'DO-MINIMUM' OPTION

The 'Do-Minimum' Option proposes minimum works to be carried out. This option considers only the planned developments at the Annahagh Roundabout Industrial Area and Civic Offices and associated access roads. This 'Do-Minimum' does not consider linkage between both.

This option would increase traffic within the Town Centre to the Civic Office site, not provide any western vehicular access or Active Travel access to or from the proposed Transport Hub to the N2 and maintain only access to Industrial lands from the N2 side which as noted previously does not have safe access for Vulnerable Road Users. It is deemed that such limitations would not meet the project objectives as outlined and as such is not being considered for further assessment.

'Do Minimum' - is not considered a feasible option for assessment against project objectives.

7.3 ROUTE OPTIONS

There are three main Route Options and associated variations, resulting in 6 route options assessed in this report. All options start in a straight alignment from Annahagh roundabout to facilitate development to the north and south under the lands zoned for development. The alignment then turns in a south-westerly direction across all options towards the Ulster Canal Greenway. The main differences between options developed is at the connection between Ulster Canal Greenway and Black Lane and surrounding areas to route the proposed road. All route options consider the siting of a proposed transport hub towards the southwest side of the scheme for accessibility to the main areas of non-motorised user activity.

Route Options 1a, 1b and 1c propose to turn south-west around Monaghan County Council Depot Lands until heading north to meet L14015. Route Options 2a and 2b propose to be parallel to Ulster Canal Greenway until L14015. Route Option 3 proposes to continue south and upgrade Black Lane connecting to the Old Armagh Road.



All Route Options consider the creation of the Old Cross to Annahagh Roundabout Link Road as the main distributor road with accesses to the proposed MCC civic offices, Monaghan Harps, MCC depot and WWTW as minor junctions and accesses off the link road.

7.3.1 Route Option 1a

Route Option 1a begins at the Annahagh Roundabout to the east of Monaghan town, following a southwest direction tying in with proposed link road, which provides access to the planned industrial development area. Route Option 1a slightly bends to southwest, parallel to Ulster Canal Greenway through Strategic Residential Reserve lands. The route continues south in parallel with Black Lane, crossing the Black Lane with a gentle curve towards the greenfield south to Monaghan Sewage treatment plant, passing south of Monaghan CC Depot lands and eventually links with L14105 and Old Cross Square Roundabout. Access to the civic office development, residential area and Monaghan Harps will form a minor junction with the main link road.

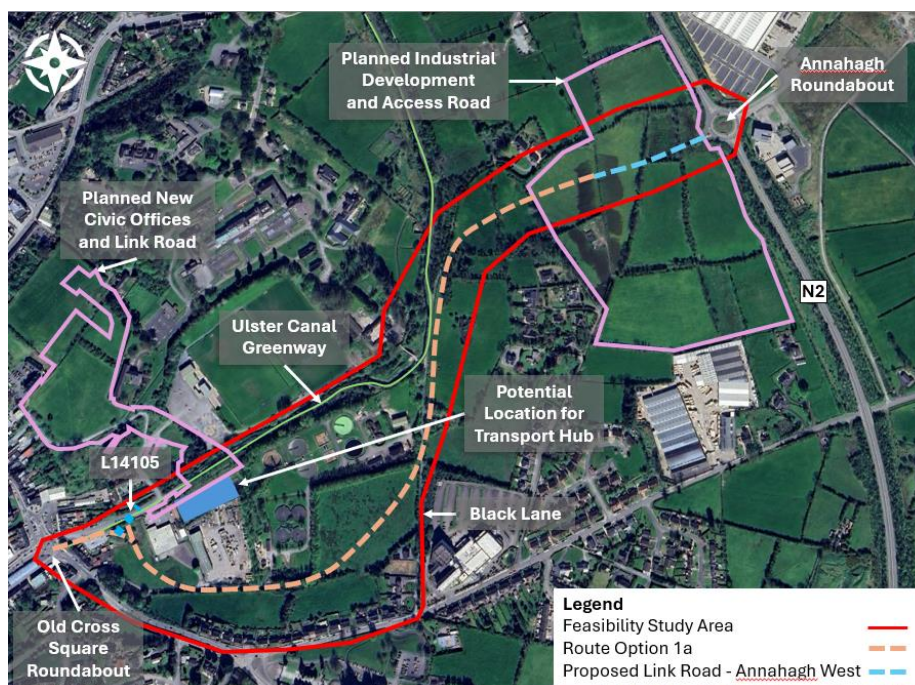


Figure 7-1 Route Option 1a (©GoogleMaps)

7.3.2 Route Option 1b

Route Option 1b follows similar route to Route Option 1a, with a difference of a minimum offset distance of 25m to be provided at all times from the Ulster Canal Greenway and provision of dedicated connection between the greenway and shared active travel facilities associated with the link road development. From this point, the proposed Route Option 1b continues with a footpath and carriageway all the way to link with L14105 and Old Cross Square Roundabout following same alignment as Route Option 1a. Access to the civic office development, residential area and Monaghan Harps will form a minor junction with the main link road.



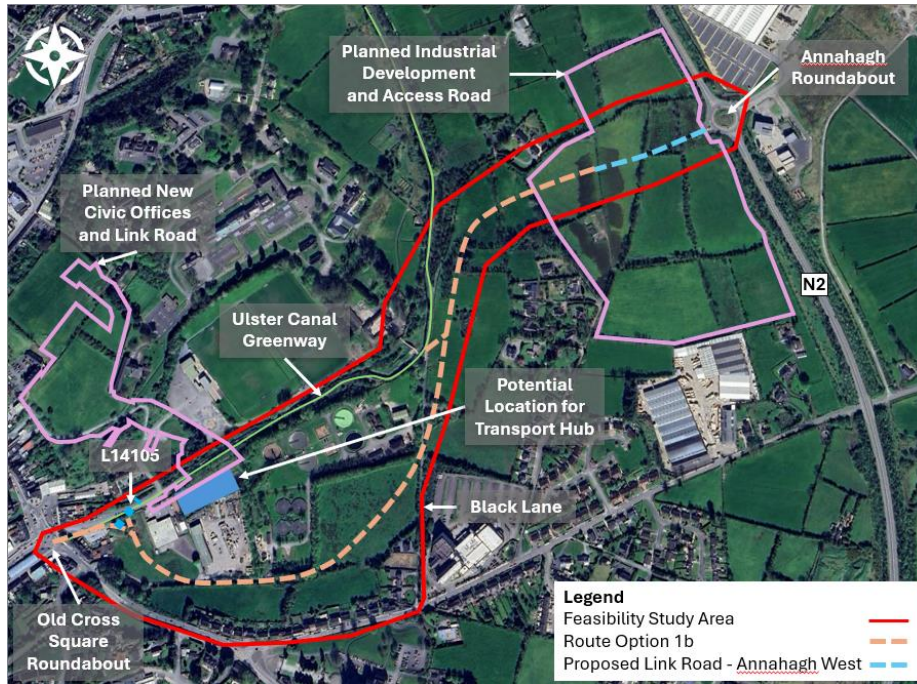


Figure 7-2 Route Option 1b (©GoogleMaps)

7.3.3 Route Option 1c

Route Option 1c is a variation of Route Option 1b. The main difference includes the incorporation of a crossroad (signalised / unsignalised) junction with the access to the planned new civic office access road. This option would require development within existing depot lands owned and used by Monaghan County Council. This option would also require the acquisition of lands to the west of the proposed junction to facilitate a location for the Transport Hub

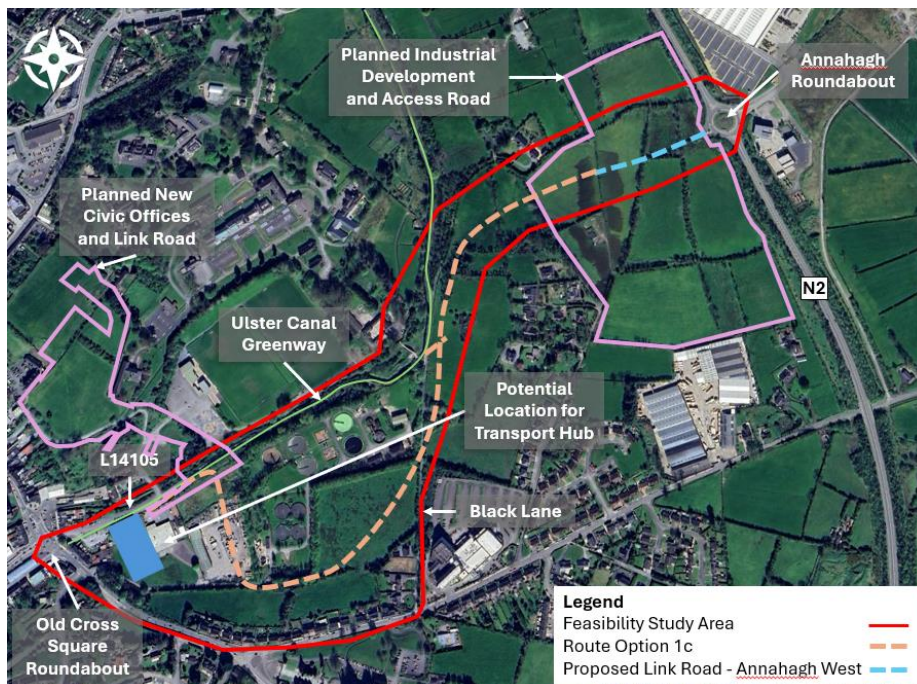


Figure 7-3 Route Option 1c (©GoogleMaps)



7.3.4 Route Option 2a

Route Option 2a begins at the Annahagh Roundabout to the east of Monaghan town, following a southwest direction, providing access to the planned industrial development area. The route continues southwest and connects to the Ulster Canal Greenway running parallel with the existing development, continuing straight to the L14105 and Old Cross Square Roundabout. This Route Option envisage to modify the first 500m of Ulster Canal Greenway to a shared facility with motorised users. This option and may impact protected structures along the route.

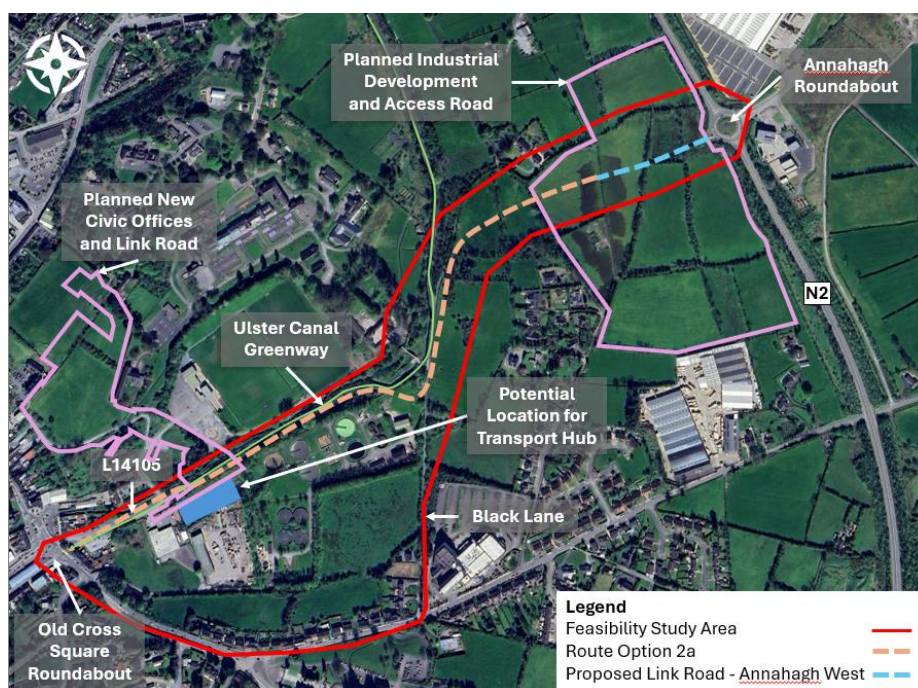


Figure 7-4 Route Option 2a (©GoogleMaps)

7.3.5 Route Option 2b

In contrast with Route Option 2a, the Route Option 2b runs along the north side of Shambles River / Ulster Canal Greenway, crossing over the watercourse and running along the south side of the of Monaghan Harps GAA pitches. Route Option 2b would require land acquisition from Monaghan Harps GAA pitches and a new bridge over Shambles River / Ulster Canal Greenway and may impact protected structures.



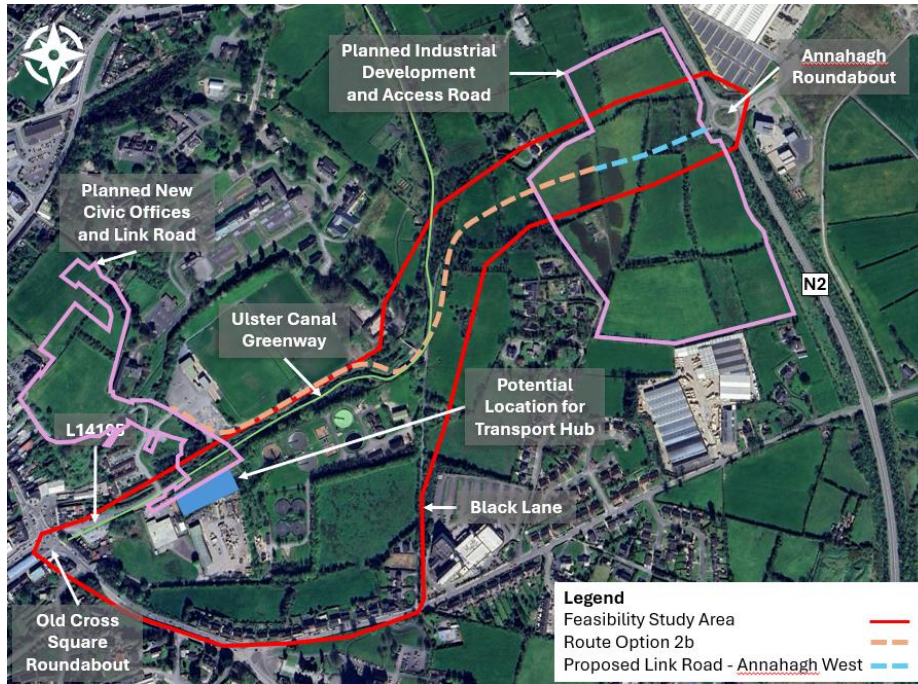


Figure 7-5 Route Option 2b (©GoogleMaps)

7.3.6 Route Option 3

Route Option 3 begins at the Annahagh Roundabout to the east of Monaghan town, following a southwest direction, with a gentle curve to south direction, and connects to the Black Lane and onto the Old Armagh Road. Route Option 3 will connect Annahagh roundabout with Old Armagh Road, and an active travel connection with Ulster Canal Greenway. This Route Option requires Black Lane to be modified to accommodate a two-way traffic and a footpath.

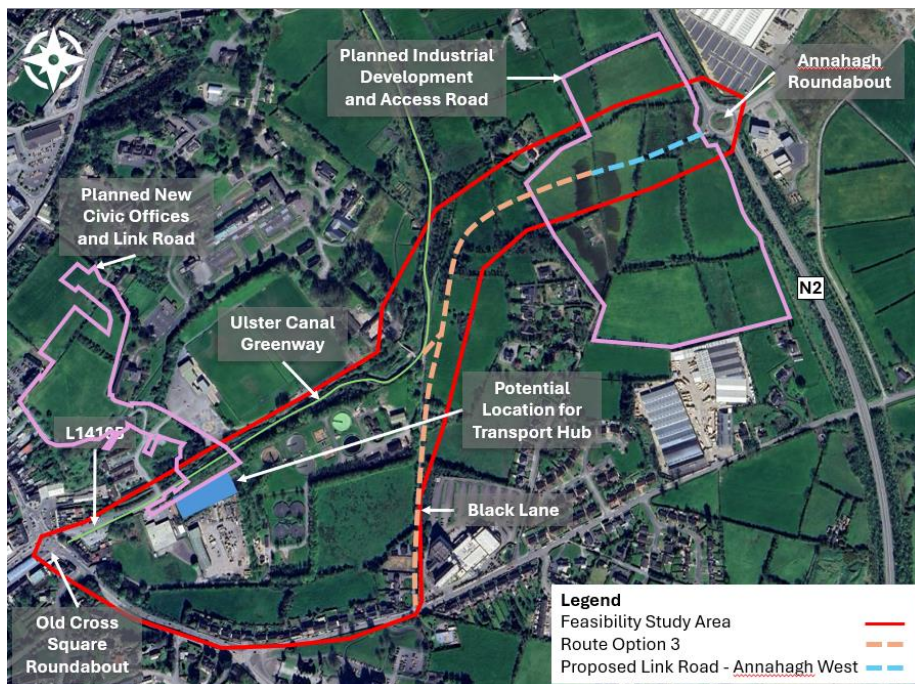


Figure 7-6 Route Option 3 (©GoogleMaps)



8. OPTIONS ASSESSMENT

8.1 ASSESSMENT OF AVAILABLE OPTIONS

A multi-criteria assessment (MCA) was carried out on the feasible options for the link route road options in accordance with TII publications PAG Unit 7.0. Once the preferred option is identified through the multi-criteria analysis, a further investigation of the cross-sections proposed along its length will subsequently be assessed.

8.2 PHASE 1 STRATEGIC OPTION

The colour scoring is shown in Table 8-1 and assessment of Phase 1 Strategic Option Assessment is shown in Table 8-2.

Table 8-1 Colour Scoring as per TII Publication PAG Unit 7.0 (PE-PAG-02031Table 7.0.3)

Colour	Description
	Strategic Option meets the requirements of the project objectives
	Strategic Option partially meets the requirements of the project objectives
	Strategic Option will not meet the requirements of the project objectives

As highlighted in Section 1.4, the following objectives were used to assess Phase 1 Strategic Option:

Objective 1: The provision Active Travel infrastructure

Objective 2: Include planned developments (new Civic Offices and Industrial Development)

Objective 3: Linkage to the existing Ulster Canal Greenway

Objective 4: A planned Transport Hub to include park and ride facilities, bus set down areas, cycle parking facilities and any other facility that will improve the user experience of the transport hub.

Table 8-2 MCA Table for Phase 1 Strategic Option Assessment

Strategic Options	Project Objectives				Proceed to Phase 2?	Justification
	Objective #1	Objective #2	Objective #3	Objective #4		
Route Option 1a					No	It does not meet all objectives. Route Option removes segregation to Ulster Canal Greenway and connects directly
Route Option 1b					Yes	Meets all objectives
Route Option 1c					Yes	Meets all objectives
Route Option 2a					Yes	Meets all objectives
Route Option 2b					Yes	Meets all objectives



Route Option 3					No	It does not meet all objectives. No direct connection to all planned developments or proposed transport hub.
----------------	--	--	--	--	----	---

As can be seen from Table 8-2, only Route Options 1b, 1c, 2a and 2b were identified for Phase 2 for further considerations.

8.3 PHASE 2 PRELIMINARY OPTIONS ASSESSMENT

The qualitative scores which should be used for the scoring of options under the Transport and Accessibility Appraisal (TAA) criteria and sub-criteria are as follows:

- 7 – Major or highly positive
- 6 – Moderately positive
- 5 – Minor or slightly positive
- 4 – Not significant or neutral
- 3 – Minor or slightly negative
- 2 – Moderately negative
- 1 – Major or highly negative

Table 8-3 Multi-criteria Analysis

Criterion	Assessment Sub-Criteria	Route Option 1b	Route Option 1c	Route Option 2a	Route Option 2b	Justification
Economy	Travel Time	5	5	5	5	All options shall provide a shorter and direct route to industrial development lands from town centre
	Journey Quality	5	5	4	4	Option 1b and 1c provide full segregated infrastructure to active travel users
	Wider Economic Impacts	7	7	4	4	All options will provide access to undeveloped areas between town centre and industrial lands. Options 2A and 2B incur significant additional construction costs
Accessibility	Access to Key Services/ Access to jobs/ Regional Balance	7	7	5	5	All options will provide access from town centre to industrial lands and a transport hub, which may connect Monaghan town to other employment areas.
	Freight Access	5	5	5	5	All options are providing a proper access from the National Road N7 to the industrial zone



Criterion	Assessment Sub-Criteria	Route Option 1b	Route Option 1c	Route Option 2a	Route Option 2b	Justification
Social	Vulnerable user groups	7	7	2	2	Options 1b and 1c proposed a full segregated infrastructure to active travel, making the route safe for vulnerable users. Options 2a and 2b impact significantly on fully accessible greenway infrastructure
Land Use	Non-Agricultural Impacts	5	4	1	1	Option 1b is the least impactful option on undeveloped lands, Option 1c shall require Monaghan County Council Depot land, Option 2a shall change the Ulster Canal Greenway to include motorised vehicles access and Option 2b shall require lands from the north side of Shambles River at the pitches land
	Change in Quality of Public Realm	5	5	3	3	Options 1b and 1c will create a segregated connection to the Ulster Canal Greenway. Options 2a will change the use of the Greenway and Option 2b will require change of land use along the pitches land boundary
	Existing Transport Network and Service Impact	7	7	7	7	All options can accommodate future bus routes.
	Zoned Land, Land Use Planning and Spatial Planning	4	4	3	2	Option 1b is the only option with less impact on land-use. Option 1b goes through Monaghan County Council depot lands, Option 2b goes through existing GAA lands. Both Options 2A and 2B may impact on protected structures
Safety Impact	Other Safety Impacts	5	4	4	4	Option 1b will provide a full segregated active travel infrastructure, providing safety to vulnerable users and a staggered junction with the planned new civic offices



Criterion	Assessment Sub-Criteria	Route Option 1b	Route Option 1c	Route Option 2a	Route Option 2b	Justification
Climate Change Impact	Climate Action Impacts	3	3	3	3	All route options will have a negative impact on climate action impacts as the link road may increase traffic in the current undeveloped lands. In addition, the proximity to Ulster Canal Greenway will have a negative impact to vulnerable road users.
Local Environmental Impact	Agricultural Impacts/ Non-Agricultural Property Impacts	4	3	3	3	Option 1b is the least impactful option, Option 1c shall require Monaghan CC Depot land, Option 2a shall change the Ulster Canal Greenway to include motorised vehicles access and Option 2b shall require lands from the north side of Shannon River at the pitches land
	Air Quality/ Noise and Vibration	3	3	3	3	All route options will have a negative impact on air/ noise as the link road will increase traffic in the current undeveloped lands. In addition, the proximity to Ulster Canal Greenway will have a negative impact to vulnerable road users.
	Biodiversity (Flora and Fauna) / Architectural Heritage / Soils and Geology / Hydrology / Hydrogeology	2	2	2	2	No perceptible advantage, all route options require change to existing environment for the construction of new link road
Total Score		74	71	54	53	Route Option 1b obtained the highest scoring of all four options.

Route Option 1b was identified as least impactful of the six route options in Options Identification (Section 7). It meets all objectives as highlighted in Table 8-2 and obtained the highest score when comparing the four options in Table 8-3. As result from the three assessments, the preferred Route Option is Option 1b, and a drawing of the preferred option is included in Appendix A.



8.4 PREFERRED ROUTE CROSS-SECTIONS

The preferred route cross-sections were determined by location and type of users. The preferred route is proposed to have two different cross-sections as the following and illustrated in Figure 8-1:

- Cross-section 1:** From Annahagh roundabout within lands proposed for industrial development, a two-way cycle facility is considered on the northbound side (to connect to the Ulster Canal Greenway) (minimum 3.0m wide), along with footpaths (typical 2.5m wide) and carriageway with to accommodate Heavy Good Vehicles (maximum 6.5m wide).
- Cross-section 2:** From lands zoned as industrial development to the Ulster Canal Greenway connection a two-way cycle facility is considered (minimum 3.0m wide) on the northbound side and includes a connection to the Greenway. This preferred option may consider a reduced carriageway width (or alternate restrictions) to calm speeds and deter heavy usage of the route by HGVs (maximum 5.5-6.0m wide to accommodate infrequent HGV but typically LGV and Public Transport Usage. Considerations can be extended to continue the two-way cycle facility for the extent of the scheme and include connections to Blacks Lane.

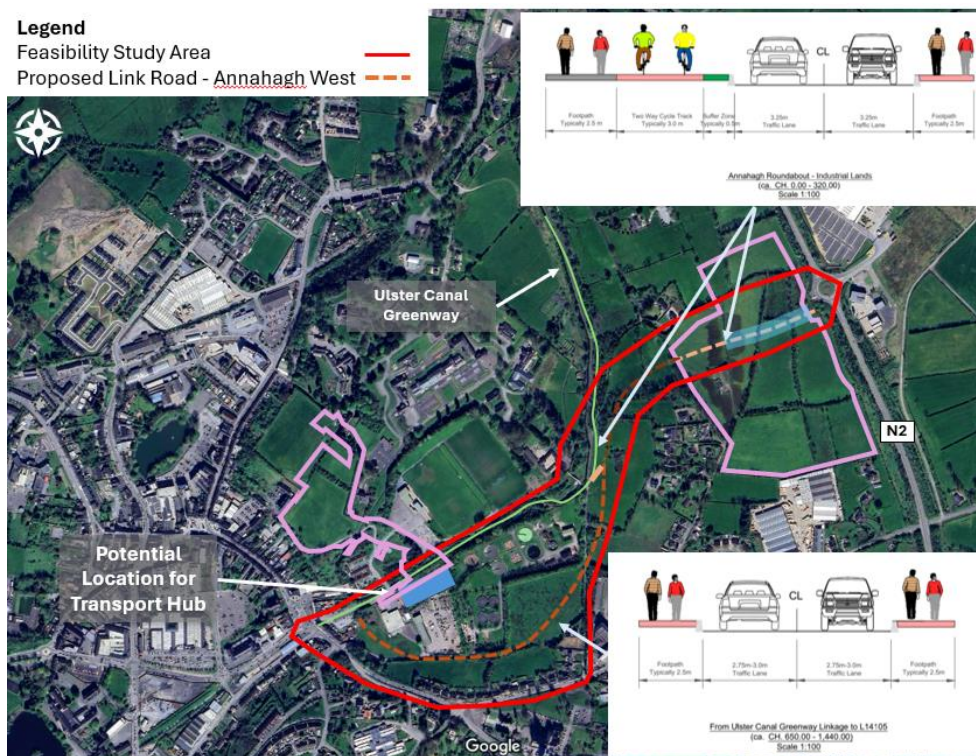


Figure 8-1 Preferred Route and Indicative Cross-Sections (©GoogleMaps)



9. COST ESTIMATE & PROJECT TIMELINE FOR PROGRESSION

9.1 COST ESTIMATE

A high-level cost estimate for the preferred Route Option 1b is shown in Table 9-1. This cost estimate has been prepared for the full extent of the scheme including connection points at Old Cross and Annahagh Roundabout.

Table 9-1 High Level Cost Estimate

Item	Cost Estimate Total (ex. VAT)
Construction Costs	€3,157,560.00
Preparation and Administration Costs	€250,000.00
Adjustments (Inflation, risk and contingency) as per NTA Cost Management Guidelines for Phase 2	€1,105,146.00
Total Cost	€4,512,706.00

9.2 PROJECT TIMELINE FOR PROGRESSION

Estimated project timeline for progression and completion of preferred route option considering full extent from Old Cross to Annahagh Roundabout

	Year / Quarter (1-4)
Preliminary Design and Planning Application	2025 Q1-Q3
Detailed Design and Tender Package	2025 Q4 - Q1 2026
Construction	2026 Q2 (6month duration)



10. CONCLUSION

Monaghan County Council identified that there are no road connections between the two planned developments (i.e. new civic offices in Monaghan town and industrial development adjacent to national road N2). As such, Monaghan County Council required a feasibility study and options analysis for a direct link road between the Old Cross Square Roundabout in Monaghan Town and the Annahagh Roundabout on the N2 national road located circa 1.3km to the east.

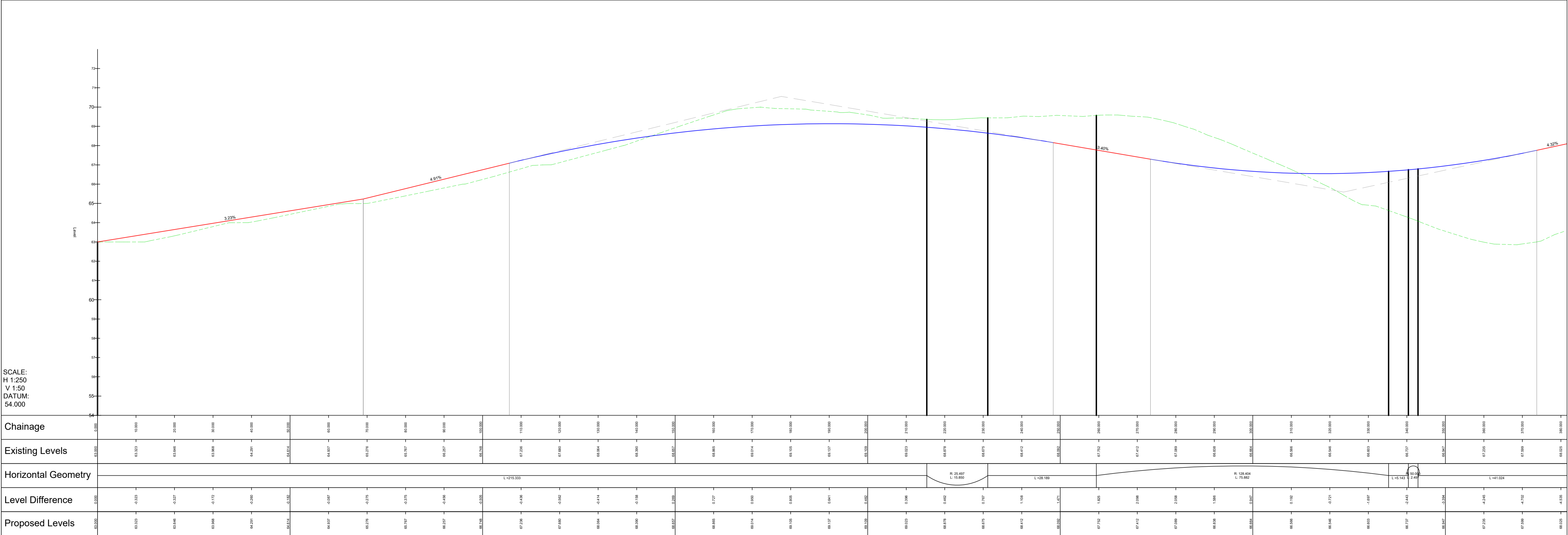
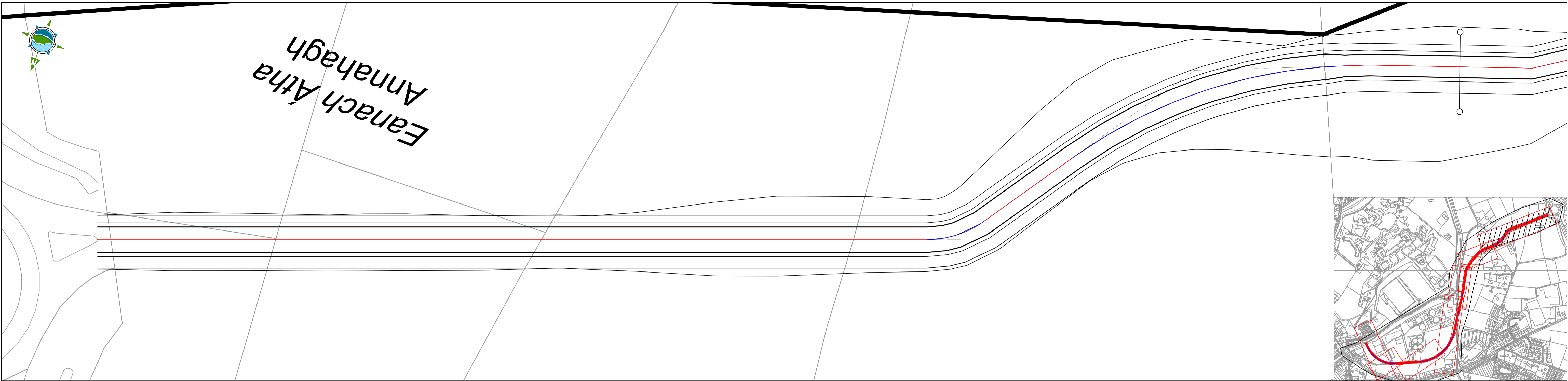
The preferred option for the proposed link road requires three different cross-sections to accommodate heavy vehicles around the industrial zone, a narrower carriageway width to allow light vehicles and a potential bus route along its entire length. In addition, shared space to connect active travel users to travel from Ulster Canal Greenway uninterrupted to the lands proposed for industrial use development.

The proposed link road has been envisaged with the goal of linking Monaghan town to the new industrial development area, with a potential to future access to undeveloped lands for both active travel users and motorised users.



Appendix A PREFERRED OPTION





NOTES:

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- ALL LEVELS SHOWN RELATE TO ORDANCE SURVEY DATUM AT MALIN HEAD.

LEGEND:

- Existing Ground Level
- Proposed Road Center Line/Design Level

Rev	Date	Description	By	Chkd.
D00	09-2024	Concept Design	KP	RM

Client:	Monaghan County Council			
Project:	The Old Cross Square to Annahagh Roundabout Link Road Feasibility Study and Options Report			
Title:	Geometric Plan and Profile Sheet 1 of 5			

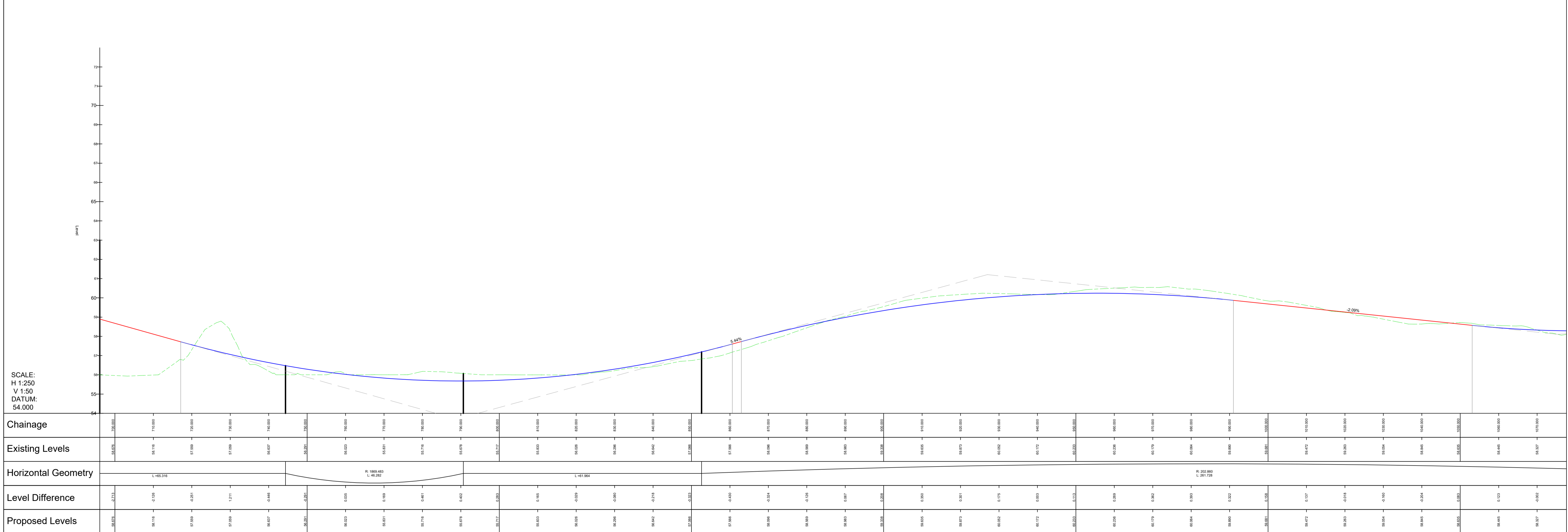
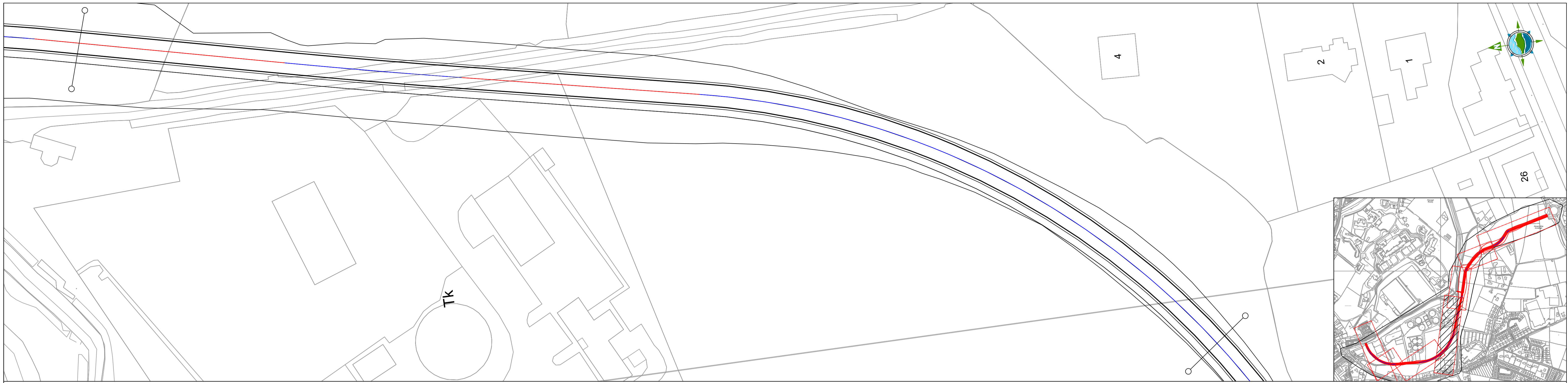
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LEGEND:

- Existing Ground Level
- Proposed Road Center Line/Design Level

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Rev	Date	Description	By	Chkd.
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Project: The Old Cross Square to Annahagh Roundabout Link Road Feasibility Study and Options Report

Title: Geometric Plan and Profile Sheet 3 of 5

Prepared by: K.P.

Checked by: R.M.

Date: Sep 2024

Drawing Status: DRAFT

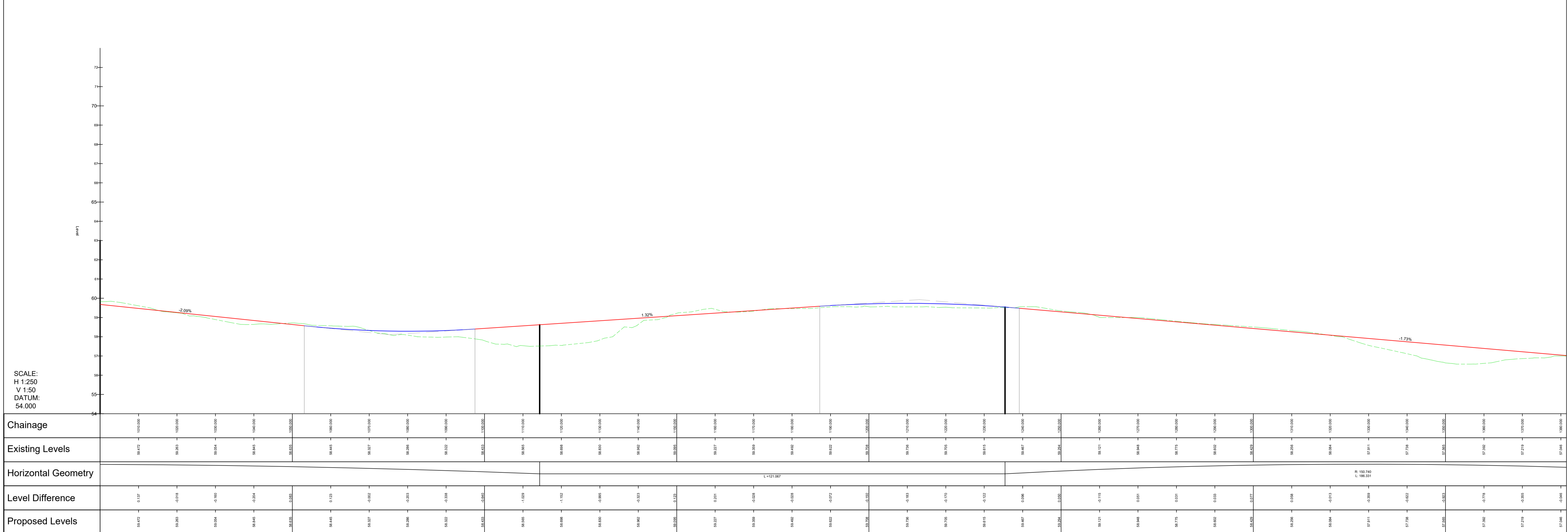
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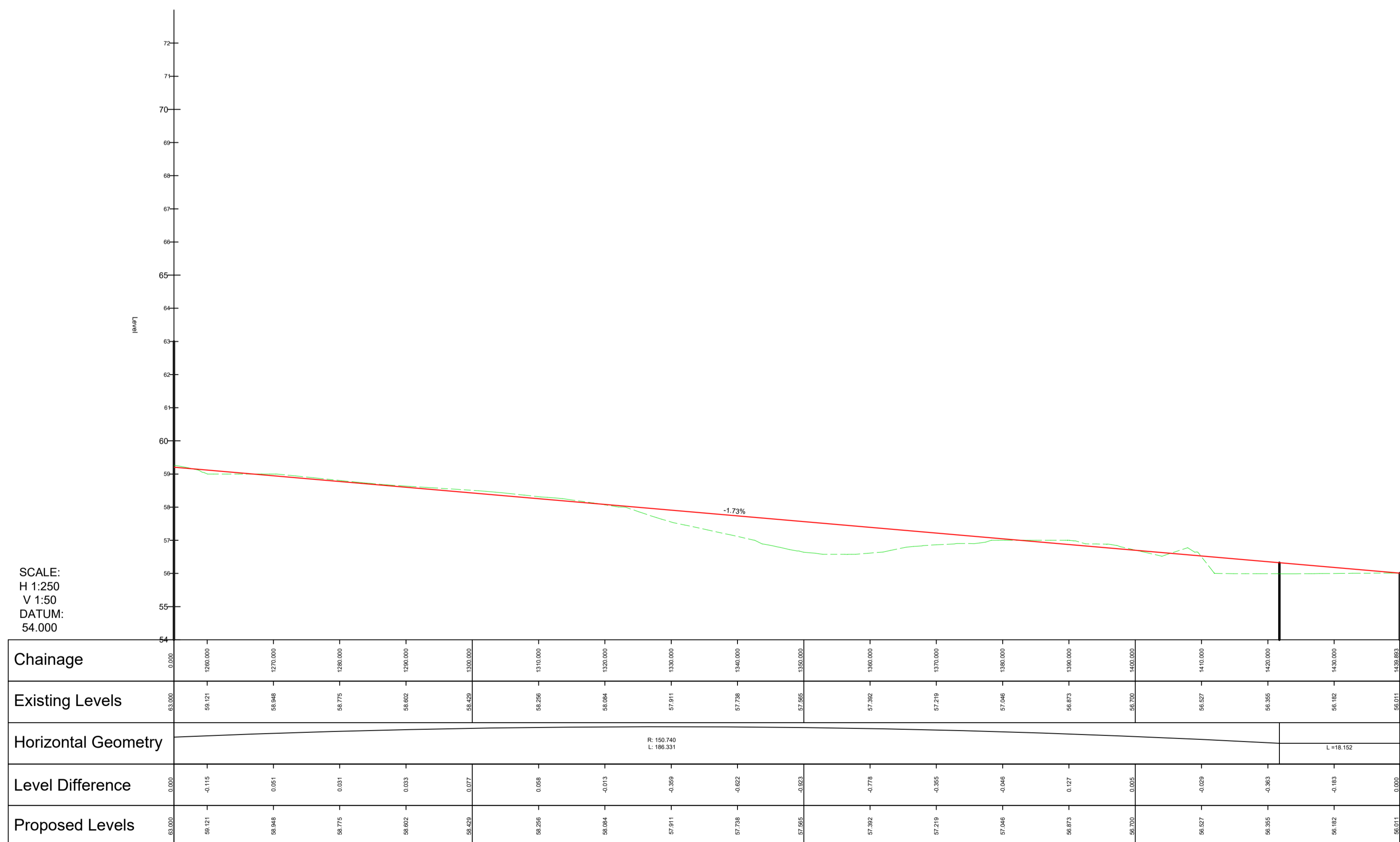
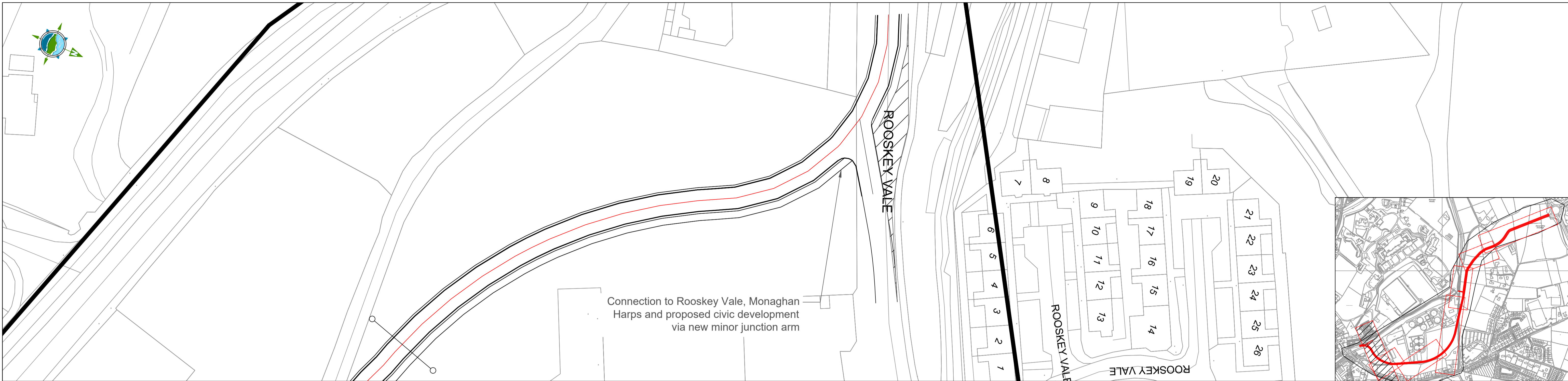
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Drawing No.: 11970-1012

Revision: D00





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 5. ALL LEVELS SHOWN RELATE TO ORDANCE SURVEY DATUM AT MALIN HEAD.

- LEGEND:**
- Existing Ground Level
 - Proposed Road Center Line/Design Level

Rev	Date	Description	By	Chkd.
D00	09-2024	Concept Design	KP	RM

Client: Monaghan County Council
 Project: The Old Cross Square to Annahagh Roundabout Link Road Feasibility Study and Options Report
 Title: Geometric Plan and Profile Sheet 5 of 5

Prepared by: K.P.
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 Revision: D00

Appendix B FLOOD RISK ASSESSMENT REPORT



TOBIN

The Old Cross Square to Annahagh
Roundabout Link Road, Co. Monaghan

Flood Risk Assessment



BUILT ON KNOWLEDGE

Document Control Sheet	
Document Reference	Stage 1 - Flood Risk Assessment
Client:	Monaghan County Council
Project Reference	11970

Rev	Description	Author	Date	Reviewer	Date	Approval	Date
A	Draft Issue	JR	19/08/2024	ST	22/08/2024	KD	23/08/2024
B	Final Issue	JR	08/10/2024	ST	08/10/2024	KD	08/10/2024

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1. INTRODUCTION

Referring to Section 2.21 of The Planning System and Flood Risk Management guidelines, in reference to the flood risk assessment process:

"A staged approach should be adopted, carrying out only such appraisal and or assessment as is needed for the purposes of decision-making at the regional, development and local area plan levels, and also at the site-specific level."

This report comprises a Stage 1 'Flood risk identification' whereby the purpose of this report is to *"to identify whether there may be any flooding or surface water management issues related a proposed development site that may warrant further investigation at the planning application level."*

TOBIN were appointed by Monaghan County Council to undertake a Flood Risk Assessment (FRA) for lands (see Figure 1-1) in Monaghan Town, Co. Monaghan. The development involves options available to construct a link road between the Old Cross Square roundabout in Monaghan Town and the Annahagh roundabout on the N2 Road located circa 1.3km to the east (see Figure 1-1). The subject site is bounded to the west by the Shambles River. The subject site is bordered by agricultural lands to the north and east, with the N2 running along the northeast corner. The south and southwest to the subject site comprises of a small number of residential properties. The Shambles River flows from the Twin Lake to the southwest of the subject site for approximately 2.3km before reaching the subject site. The river then flows in a northerly direction before joining the Blackwater (Monaghan)_040 approximately 1.1km north of the subject site.

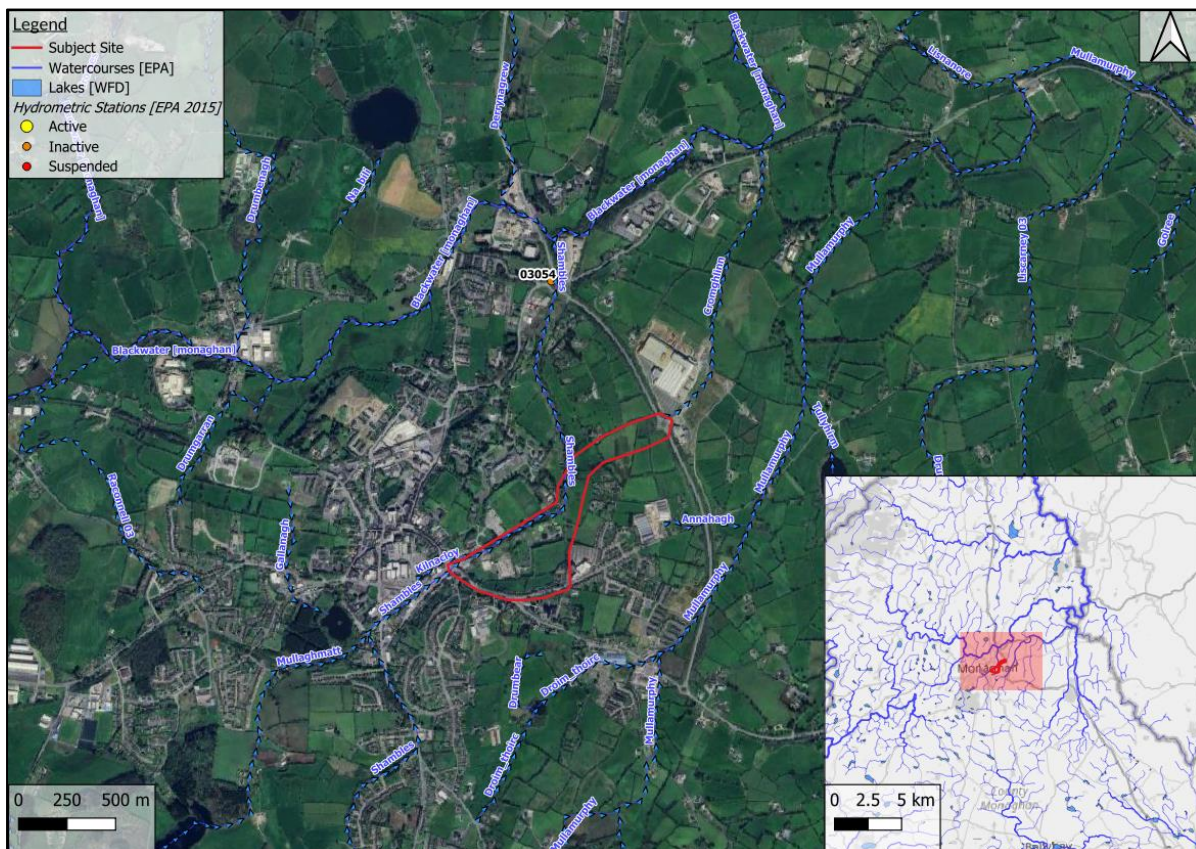


Figure 1-1 Site Location

2. FLOOD RISK MANAGEMENT GUIDANCE

This Stage 1 Flood Risk Assessment was carried out in accordance with the following flood risk management guidance documents:

- The Planning System and Flood Risk Management Guidelines for Planning Authorities
- Flood Risk Management Climate Change Sectoral Adaptation Plan
- Monaghan County Development Plan (2019-2025)

2.1 THE PLANNING SYSTEM AND FLOOD RISK MANAGEMENT GUIDELINES

The Planning System and Flood Risk Management Guidelines for Planning Authorities (PSFRM Guidelines) were published in 2009 by the Office of Public Works (OPW) and Department of the Environment, Heritage, and Local Government (DoEHLG). Their aim is to ensure that flood risk is considered in development proposals and the assessment of planning applications.

2.1.1 Flood Zones and Vulnerability Classes

The PSFRM Guidelines discuss flood risk in terms of three flood zones (A, B, and C), which correspond to areas of high, medium, or low probability of flooding, respectively. The extents of each flood zone are based on the Annual Exceedance Probability (AEP) of various flood events.

The PSFRM Guidelines also categorise different types of development into three vulnerability classes based on their sensitivity to flooding. The PSFRM guidelines state local transport infrastructure is classed as “less vulnerable”. The proposed link road is therefore appropriate in Flood Zone B (medium probability of flooding i.e., 0.1% to 1% AEP).

Table 2.1 shows a decision matrix that indicates which types of development are appropriate in each flood zone and when the Justification Test (see Section 2.1.2) must be satisfied. The annual exceedance probabilities used to define each flood zone are also provided.

Table 2.1: Decision Matrix for Determining the Appropriateness of a Development

Flood Zone: (Probability)	Annual Exceedance Probability (AEP)	Highly Vulnerable	Less Vulnerable	Water Compatible
A (High)	<u>Coastal Flooding</u> More frequent than 0.5% AEP	Justification Test Required	Justification Test Required	Appropriate
	<u>Fluvial & Pluvial Flooding</u> More frequent than 1% AEP			
B (Medium)	<u>Coastal Flooding</u> 0.1% to 0.5% to AEP	Justification Test Required	Appropriate	Appropriate
	<u>Fluvial & Pluvial Flooding</u> 0.1% to 1% AEP			
C (Low)	<u>Fluvial, Pluvial & Coastal Flooding</u> Less frequent than 0.1% AEP	Appropriate	Appropriate	Appropriate



2.1.2 Justification Test

Any proposed development being considered in an inappropriate flood zone (as determined by Table 2.1) must satisfy the criteria of the Justification Test outlined in Figure 2-1 (taken from the PSFRM Guidelines).

Box 5.1 Justification Test for development management (to be submitted by the applicant)

When considering proposals for development, which may be vulnerable to flooding, and that would generally be inappropriate as set out in Table 3.2, the following criteria must be satisfied:

1. The subject lands have been zoned or otherwise designated for the particular use or form of development in an operative development plan, which has been adopted or varied taking account of these Guidelines.
2. The proposal has been subject to an appropriate flood risk assessment that demonstrates:
 - (i) The development proposed will not increase flood risk elsewhere and, if practicable, will reduce overall flood risk;
 - (ii) The development proposal includes measures to minimise flood risk to people, property, the economy and the environment as far as reasonably possible;
 - (iii) The development proposed includes measures to ensure that residual risks to the area and/or development can be managed to an acceptable level as regards the adequacy of existing flood protection measures or the design, implementation and funding of any future flood risk management measures and provisions for emergency services access; and
 - (iv) The development proposed addresses the above in a manner that is also compatible with the achievement of wider planning objectives in relation to development of good urban design and vibrant and active streetscapes.

The acceptability or otherwise of levels of residual risk should be made with consideration of the type and foreseen use of the development and the local development context.

Note: See section 5.27 in relation to major development on zoned lands where sequential approach has not been applied in the operative development plan.

Refer to section 5.28 in relation to minor and infill developments.

Figure 2-1: Criteria of the Justification Test



2.2 THE FLOOD RISK MANAGEMENT CLIMATE ADAPTION PLAN

The Flood Risk Management Climate Change Sectoral Adaptation Plan was published in 2019 under the National Adaptation Framework and Climate Action Plan. This plan outlines the OPW’s approach to climate change adaptation in terms of flood risk management.

This approach is based on a current understanding of the potential impacts of climate change on flooding and flood risk. Research has shown that climate change is likely to worsen flooding through more extreme rainfall patterns, more severe river flows, and rising mean sea levels.

To account for these changes, the Adaptation Plan presents two future flood risk scenarios to consider when assessing flood risk:

- Mid-Range Future Scenario (MRFS)
- High-End Future Scenario (HEFS)

Table 2.2 indicates the allowances that should be added to estimates of extreme rainfall depths, peak flood flows, and mean sea levels for the future scenarios.

Table 2.2: Climate Change Adaptation Allowances for Future Flood Risk Scenarios

Parameter	Mid-Range Future Scenario (MRFS)	High-End Future Scenario (HEFS)
Extreme Rainfall Depths	+ 20%	+ 30%
Peak River Flood Flows	+ 20%	+ 30%
Mean Sea Level Rise	+ 0.5 m	+ 1 m

For the purpose of this flood risk assessment, the proposed development has been assessed against the Mid-Range Future Scenario as it represents a likely future scenario.

2.3 MONAGHAN COUNTY DEVELOPMENT PLAN (2019-2025)

The Monaghan County Development Plan provides an overall strategy for the proper planning and sustainable development of County Monaghan over the timescale of the Plan. At a meeting of the Council on the 4th of March 2019, the Elected Members, by resolution, made the Monaghan County Development Plan 2019-2025. The plan comes into effect on the 1st of April 2019.

Flood management objectives are given in Chapter 8: Environment, Energy & Climate Change with Section 8.34 detailing the proposed approach to Flood Risk Management, Specific Development Standards. The Flood Risk Management recommends the following relevant policies for development in Co. Monaghan:



Flood Risk Management Policies	
FMP 1	To fully implement and support, in conjunction with the OPW, the provisions of the EU Flood Risk Directive, The Flood Risk Regulations, The Planning System and Flood
Flood Risk Management Policies	
	Risk Management- Guidelines for Planning Authorities and any updated legislation or guidelines issued during this plan period.
FMP 2	To restrict development in areas susceptible to flooding except where; <ul style="list-style-type: none"> a) The proposed development can be justified on strategic grounds. b) The flood risk can be managed to an acceptable degree and without increasing flood risk beyond the site itself. c) Appropriate and detailed mitigation measures can be implemented to remove/minimise flood effects.
FMP 3	Development proposals on land identified as being at risk of flooding shall be accompanied by a site-specific Flood Risk Assessment (FRA) carried out in accordance with the methodology set out in The Planning System and Flood Risk Management – Guidelines for Planning Authorities, 2009. Such assessments shall be carried out by competent professionals with hydrological experience and identify the risk and extent of any proposed mitigation measures.
FMP 4	All applications in areas prone to flooding shall be subject to the justification test set out in the Flood Risk Management Guidelines. Compensatory flood storage provision or the provision of flood defences will not override the need for completion of the justification test.
FMP 5	To protect the capacity of rivers, streams, riparian corridors, flood plains and wetlands from inappropriate development which will contribute to increased flood risk. Development on or within a floodplain will not be permitted.

A Strategic Flood Risk Assessment (SFRA) has been prepared for the Monaghan County Development Plan. The document has been prepared on the basis of the best available current data and is subject to change over the plan period as new data and maps become available.

The SFRA identifies and maps the locations that flooding is most likely to occur within the Tier 1, 2, 3 and 4 settlements of County Monaghan. Therein flood risk is categorised under two strands – Flood Risk A and Flood Risk B. Any development proposals located in such areas shall be required to prepare a site-specific Flood Risk Assessment in accordance with the



methodology set out in ‘The Planning System and Flood Risk Management- Guidelines for Planning Authorities’

The OPW carried out a national screening exercise in 2011 in order to assess and measure flood risk nationally. This study identified areas exposed to significant flood risk. These areas, referred to as Areas for Further Assessment (AFA) have been considered at greater detail as part of the Catchment Flood Risk Management Plan (CRFAM).

Monaghan is covered by the Neagh Bann CFRAM. Four AFA’s have been identified in County Monaghan:

- Monaghan
- Carrickmacross
- Ballybay
- Inniskeen

Chapter 15: Development Management Standards of the plan outlines specific controls to ensure that new development relates to the character, scale, layout and form of the wider areas with Section 15.34 setting out the following key policies:

Flood Risk Policies	
FLP 1	To require that planning applications within areas of at risk of flooding follow the sequential approach and justification test set out in the DECLG ‘The Planning System and Flood Risk Management Guidelines for Planning Authorities’
FLP 2	To require that site- specific Flood Risk Assessments (FRA) be prepared for sites at risk of flooding, even for developments appropriate to that flood zone. The detail of such an assessment will depend on the level of risk and scale of development and it must be demonstrated that any mitigation measures proposed will not exacerbate flood risk in the wider area.
FLP 3	To require that planning applications on lands identified within groundwater and pluvial PFRA areas are accompanied by a site-specific FRA that corresponds with Chapter 5 of the Planning System and Flood Risk Management Guidelines 2009. Such assessments shall be prepared by suitably qualified experts with hydrological experience and shall quantify the risk and the effects of any necessary mitigation together with the measures needed or proposed to manage residual risks.



3. INITIAL FLOOD RISK ASSESSMENT

3.1 PAST FLOOD EVENTS

The OPW's National Flood Information Portal¹ provides past flood event mapping with records of flooding reports, meeting minutes, photos, and/or hydrometric data. Based on the flood map shown in Figure 3-1, there are no historical flood events recorded within the subject site. The closest past flood event (ID: 10731) to the subject site is located approximately 0.2 km southwest of the subject site, the most recent past flood event (ID:13380) to the subject site is located approximately 0.3 southwest of the subject site.

The closest flood events located upstream of the subject site; most events were recurring flood events due to extreme weather. The details of the past flood event are as follows:

Flood ID	10731	13380
Date	20th Nov 2009	05th Dec 2015
Name	Shambles Monaghan Town	Flooding at Monaghan
Flood Sources:	n/a	Shambles River

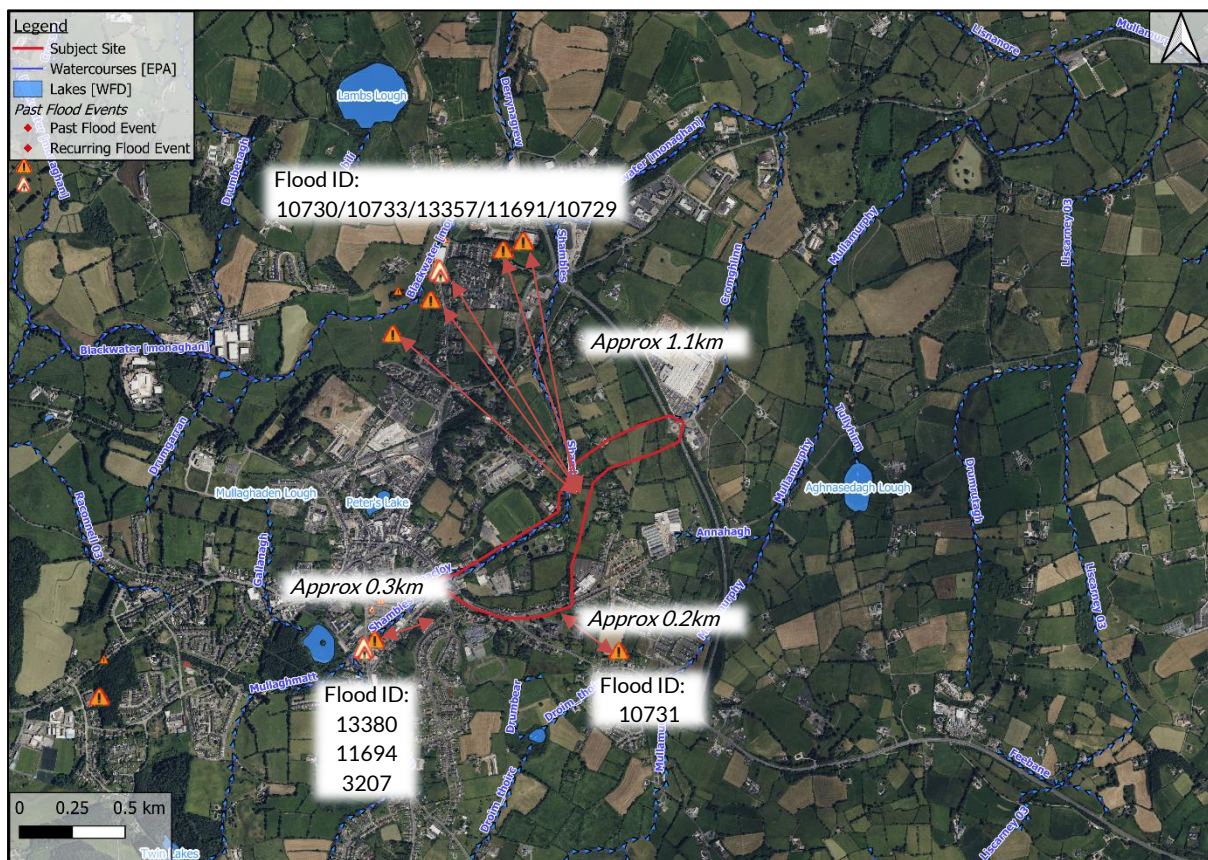


Figure 3-1: Past Flood Events

¹ floodinfo.ie



3.2 OPW PRELIMINARY FLOOD RISK ASSESSMENT (PFRA) STUDY

In 2009, the OPW produced a series of maps to assist in the development of a broad-scale FRA throughout Ireland. These maps were produced from several sources.

The OPW’s National Preliminary Flood Risk Assessment (PFRA) Overview Report from March 2012 noted that *“the flood extents shown on these maps are based on broad-scale simple analysis and may not be accurate for a specific location”*.

Figure 3-2 provides an overview of the fluvial, coastal, pluviol, and groundwater indicative flood extents in the vicinity of the subject site.

As per Figure 3-2, the subject site is not predicted to be liable to coastal or groundwater flooding during extreme events.

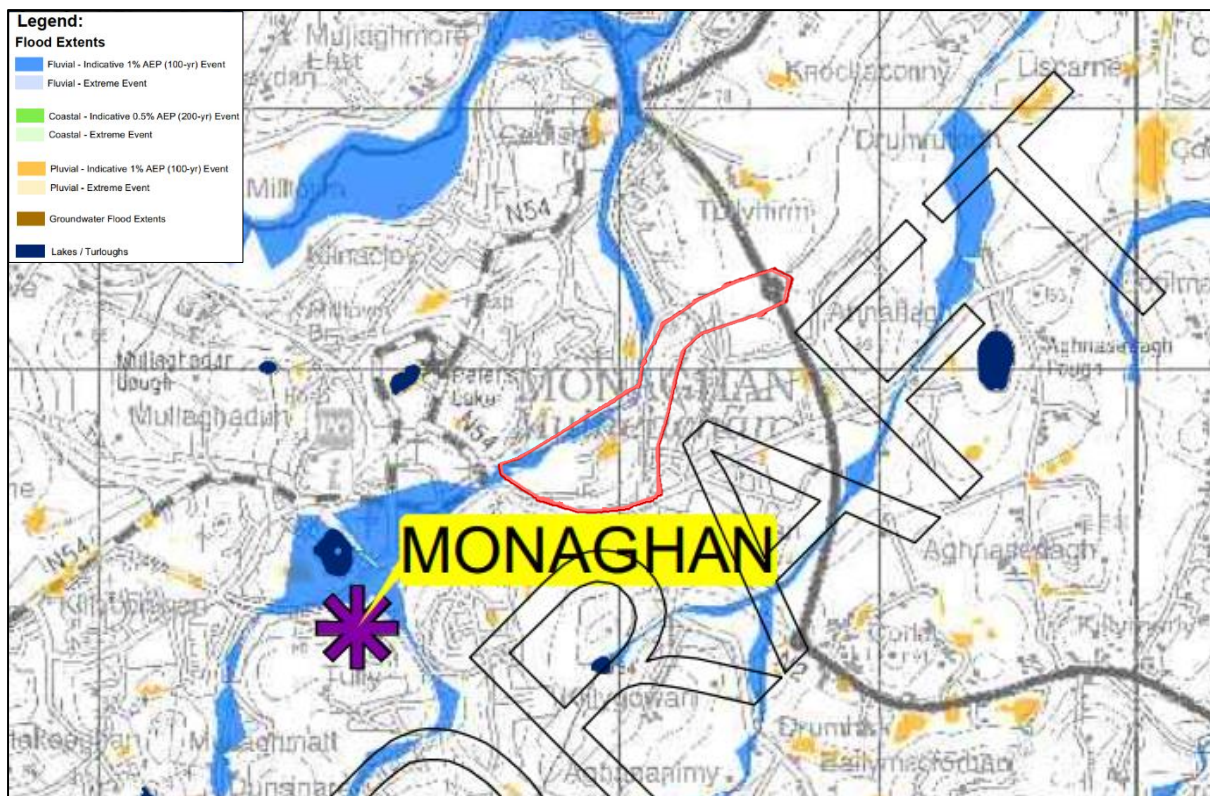


Figure 3-2: Indicative Flood Mapping

3.3 CATCHMENT FLOOD RISK ASSESSMENT AND MANAGEMENT STUDY

In 2015, the OPW produced flood maps as part of the Catchment Flood Risk Assessment and Management (CFRAM) Study. The flood extents in these maps are based on detailed modelling of Areas for Further Assessment identified by the National Preliminary Flood Risk Assessment.²

The Shambles River which bounds the subject site to the southwest was modelled as part of the CFRAM study. CFRAM mapping of the 1 in 100-year (1% AEP) and 1 in 1000-year (0.1% AEP) predicted fluvial flood extents is presented in Figure 3 4. The predicted flood mapping produced as part of the CFRAM study indicates that a portion of the subject site is liable to fluvial flooding in the 1 in 100-year (1% AEP) and the 1 in 1000-year (0.1% AEP) event. The areas which are inundated are located along the western boundary of the subject site.



Figure 3-4: CFRAM Existing Fluvial Flood Extents

² [https://www.floodinfo.ie/about frm/](https://www.floodinfo.ie/about_frm/)



The Shambles River CFRAM study also included an assessment of the likely impact of climate change on flood risk in the area. The flood extents for a Mid-Range Future Scenario (MRFS) are shown in Figure 3-5. Again, the subject site is seen as not liable to fluvial flooding, with minor fluvial flood extents along the western boundary of the subject site. In addition to this, there are also flood extents noted in the north of the subject site.



Figure 3-5: CFRAM MRFS Fluvial Flood Extents

3.4 OPW DRAINAGE DISTRICTS AND ARTERIAL DRAINAGE SCHEMES

The OPW Drainage Districts were carried out by the commissioners of Public Works under a number of drainage and navigation acts from 1842 to the 1930s to improve land for agriculture and to mitigate flooding.³ The local authorities are charged with the responsibility to maintain Drainage Districts.

Benefited lands are areas that were previously subject to poor drainage and/or flooding but that have benefited from the implementation of Arterial Drainage Schemes carried out under the Arterial Drainage Act 1945.

Figure 3-6 shows that the subject site has benefited from one arterial drainage scheme and is not located in a Drainage District.

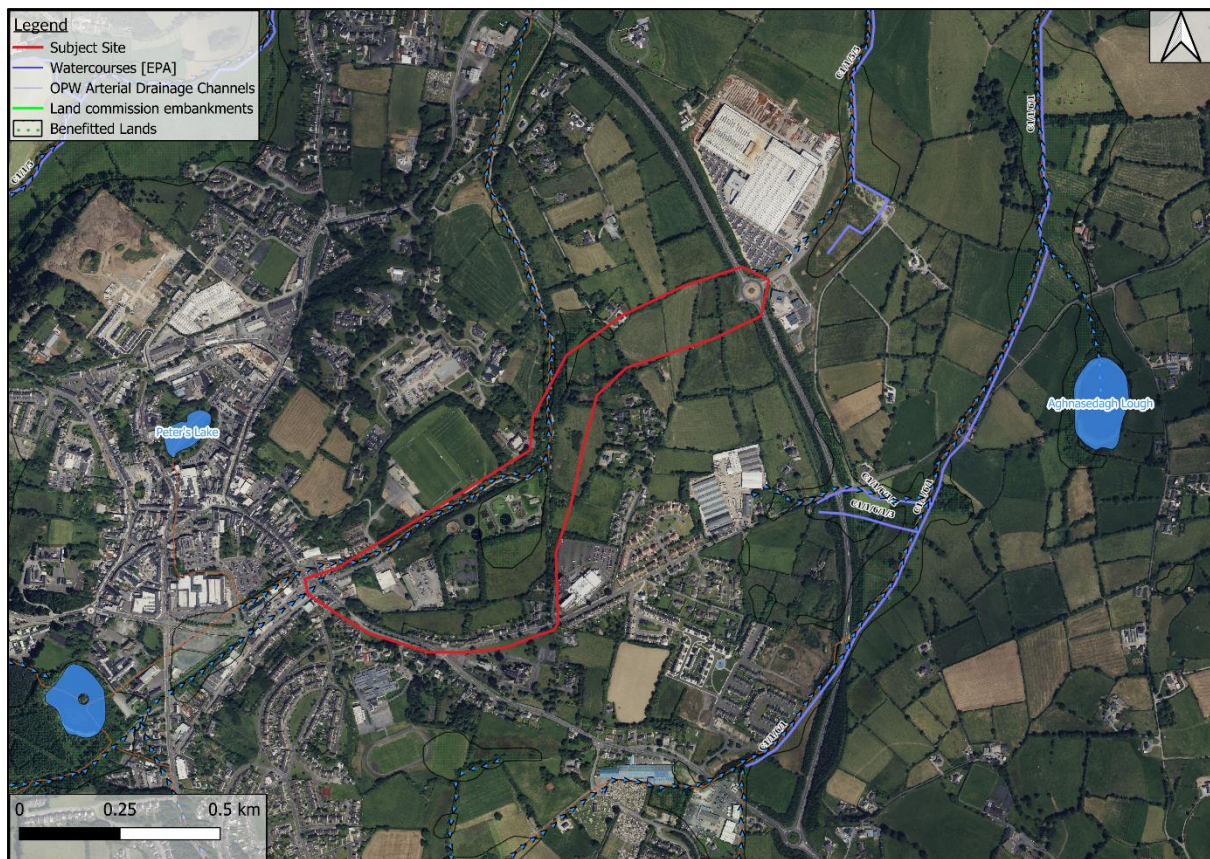


Figure 3-6 Arterial Drainage

³ www.floodinfo.ie



3.5 GEOLOGICAL SURVEY IRELAND MAPPING

Based on a review of the OPW’s Preliminary Flood Risk Assessment (PFRA) mapping (see Figure 3-7) there is no noted risk of groundwater flooding to the subject site.

Geological Survey Ireland (GSI) GWflood Groundwater Flooding Probability Maps⁴ for the subject site were reviewed. There are no areas of GSI predicted groundwater flood extents noted in the vicinity of the subject site.



Figure 3-7: GSI Mapping of Groundwater Flooding

The closest surface water feature to the subject site is approximately 0.5km west of the subject site, as a result of the lake north of subject site and is not expected to influence the subject sites hydrology.

GSI subsurface mapping of karst features⁵ in the area show that there are no karst features located in the vicinity of the subject site (see **Error! Reference source not found.**)

⁴FloodInfo.ie | National Flood Information Portal, Available at: <https://www.floodinfo.ie/map/floodmaps/>

⁵GSI Groundwater Data Viewer, Available at: <https://dcnr.maps.arcgis.com/apps/webappviewer/index.html?id=7e8a202301594687ab14629a10b748ef>



4. CONCLUSIONS

TOBIN was appointed by Monaghan County Council Ireland to carry out a Stage 1 FRA for lands in Monaghan Town, Co. Monaghan.

Fluvial Flooding

Based on a review of available information, it is estimated that there is a risk of fluvial flooding to the subject site. The closest fluvial flood extents to the subject site are the west of the subject site boundary in a 1 in 1000-year (0.1% AEP) Current event and in a 1 in 1000-year (0.1% AEP) MRFS event.

Coastal Flooding

The subject site is not at risk of coastal flooding due to its distance inland from coastal waters.

Pluvial Flooding

The available PFRA mapping indicates that a portion of the subject site is at risk of pluvial flooding during extreme flood events.

Groundwater Flooding

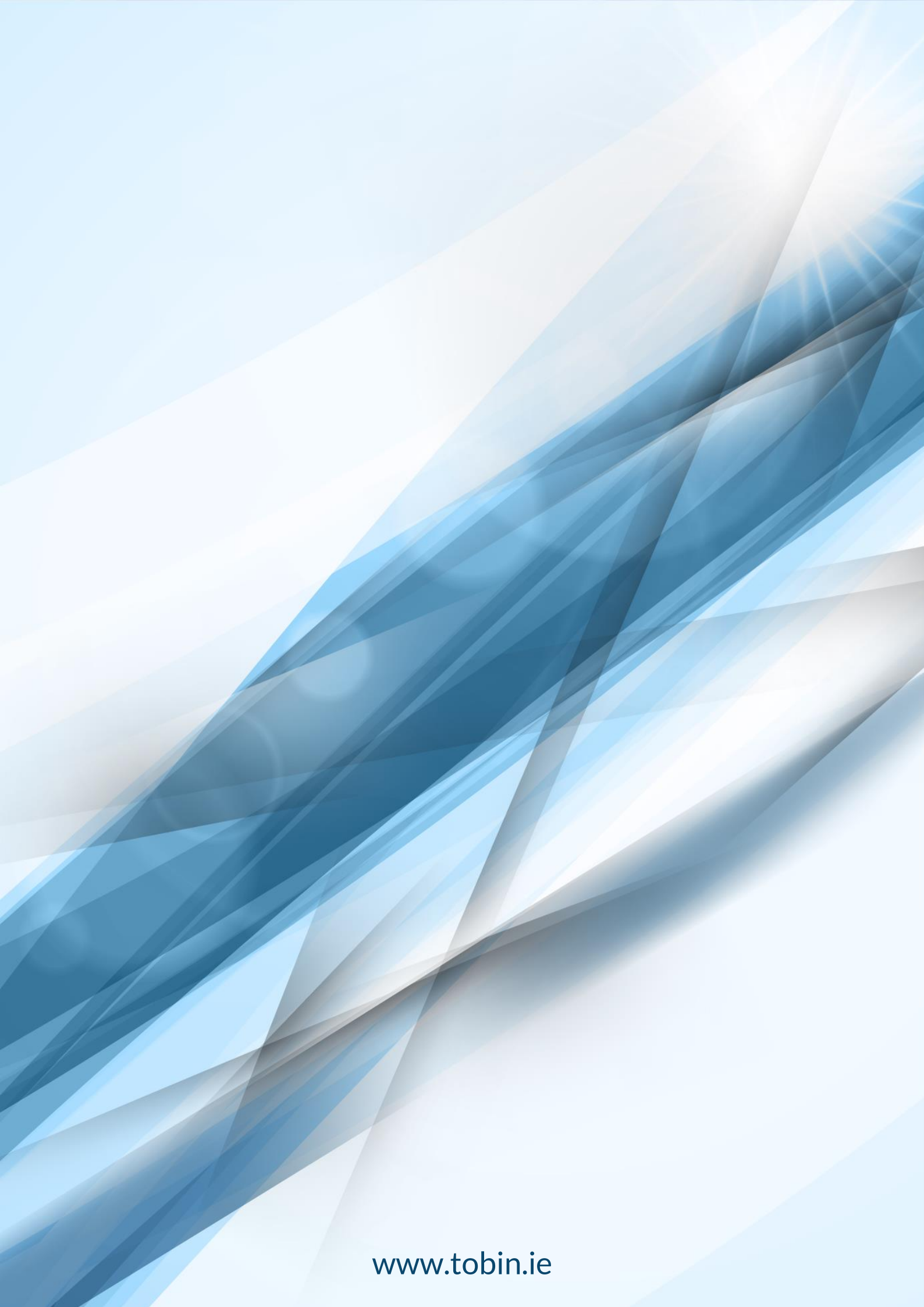
There is no evidence to suggest groundwater as a potential source of flood risk to the proposed subject site.

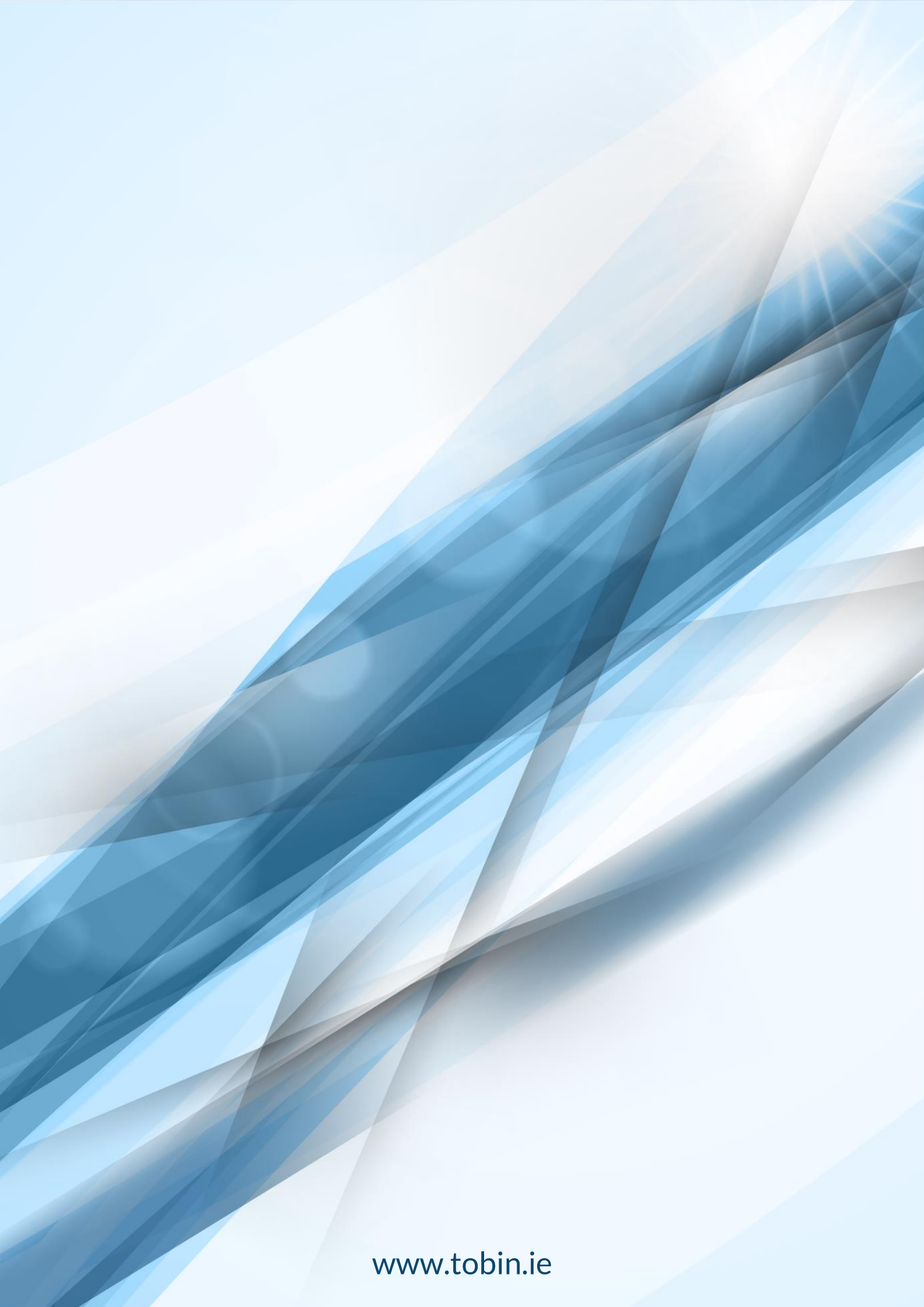
As per Section 1, this report has been developed in line with the Planning System and Flood Risk Management guidelines and comprises a Stage 1 'Flood risk identification'. The purpose of this report is to *"to identify whether there may be any flooding or surface water management issues related a proposed development site that may warrant further investigation at the planning application level."*

As per Appendix A of the Planning System and Flood Risk Management guidelines, if a potential flood risk issue is identified as part of a Stage 1 'Flood Risk Identification', the flood risk assessment process should move to a Stage 2 or 3.

As there is a fluvial flood risk to the subject site it is recommended that a Stage 3 FRA be undertaken to fully quantify the flood risk from the Shambles River to the proposed development..







www.tobin.ie