

Kildare County Council



**PLANNING AND DEVELOPMENT ACTS
2000 TO 2016
PART XI**

PLANNING AND DEVELOPMENT REGULATIONS 2001 TO 2016

PART 8

PROPOSAL

***SECTION OF CYCLEWAY & FOOTWAY ADJACENT TO ROYAL CANAL BETWEEN
FERRANS LOCK & CLONCURRY***

SEPTEMBER 2017

Shared Cycleway and Footway – Ferrans Lock to Cloncurry

Planning Proposal

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1.0 INTRODUCTION

Kildare County Council proposes to construct a 2.3km section of high quality cycleway and footway on the northern bank of the Royal Canal between Ferrans Lock and Cloncurry which is part of a larger proposal for a cycleway from Maynooth to Galway.

The length of the proposed route between Ferrans Lock and Cloncurry is 5.8 km in total. The remaining 3.5km is the subject of a separate Part 8 application being put forward by Meath County Council.

A previous Part 8 application which was approved by Kildare County Council (KCC Planning Ref 09/0713) in July 2013, included a high quality cycleway and footway on the southern bank of the Royal Canal between Ferrans Lock and Cloncurry.

The proposal to change to the northern bank of the canal is put forward for the following reasons:

1. The northern bank of the Royal Canal was the preferred choice but due to a landowner dispute at the time of the original Part 8 application the south bank was the only option. Negotiations with the particular landowner has since been concluded and this impediment has been removed.
2. There is an existing access road on the northern bank which serves three homes within county Kildare. This road is approximately 2 km long and would only require moderate widening and resurfacing in order to bring it a standard suitable for the cycleway and footway.
3. The use of the northern bank will simplify the road crossings for users of the route at Cloncurry Bridge and at Ferrans Lock. The approved route to the west of Cloncurry Bridge and to the east of Ferrans Lock in the existing Part 8 is located on the northern bank of the canal. Maintaining the cycleway and footway on the northern bank will allow users to cross the public roads at these locations directly, without the need to cross over the canal.
4. The near proximity of the Dublin to Sligo railway line to the tow path on the southern bank of the canal would present construction safety challenges, as the site to construct the cycleway and footway would be long and narrow, without opportunity for turning bays or intermediate access points.

1.1 Background to Project

The Irish Government policy entitled 'Smarter Travel: A Sustainable Transport Future', which runs from 2009 to 2020, identifies certain key goals and objectives to be met in order to introduce a national sustainable transport network. A National Cycle Policy (NCP) was implemented to run alongside the main 'Smarter Travel: A Sustainable Transport Future' document. The NCP mission states that it wants to *create a strong cycling culture in Ireland while also encouraging recreational cycling*. The NCP also outlines the importance of the National Cycle Network in attracting overseas tourists if the project is implemented.

2.0 PLANNING CONTEXT

2.1 Kildare County Council Development Plan 2017 – 2023

One of the primary aims of the movement and transport section of the Kildare County Development Plan is to “encourage and support the delivery of a high quality, permeable and attractive pedestrian and cycling network that allows for multiple direct connections between key destinations”.

Some specific walking and cycling objectives and policies are as follows:
It is the policy of the Council to:

WC 1: Prioritise sustainable modes of travel by the development of high quality walking and cycling facilities within a safe street environment.

WC 2: Promote the development of safe and convenient walking and cycling routes.

WC10: Support the implementation of the Greater Dublin Area Cycle Network Plan, NTA (2015), in a balanced way in County Kildare.

It is an objective of the Council to:

WCO 4: Secure the development of the following specific cycle schemes (subject to funding from the NTA) as part of GDA Cycle Networks Projects:

- Greater Dublin Area Cycle Network Plan Urban and Inter Urban Schemes;*
- North Kildare Cycleway (Dublin – Galway Route);*

WCO 5: Support green and blueway projects that promote walking and cycling in conjunction with the relevant organisations and bodies including:

- The delivery of Greenway projects as specified in the Greater Dublin Cycle Network.*

The Royal Canal corridor is identified in the development plan, as a key feature in the landscape of County Kildare. The relevant objectives and policies relating to the protection of the Royal canal are as follows:

EO 51: To promote and develop the towpaths along the Grand Canal, the Royal Canal (including from Maynooth to the Dublin County Boundary as part of the Dublin to Galway Greenway project), the Barrow Line and the Corbally Line as cycleways, in co-operation with Waterways Ireland and neighbouring Local Authorities.

ECD 48: To facilitate Waterways Ireland in the restoration of the Grand Canal and Royal Canal.

ECD 50: To reserve, where feasible, land adjacent to river banks and lakes for public access and to facilitate the creation of linear parks to accommodate walking/cycling routes.

ACO 2: To co-operate with Waterways Ireland in the management, maintenance and enhancement of the Royal Canal and Grand Canal and associated structures/features.

WC 3: To control development that will adversely affect the visual integrity of distinctive linear sections of water corridors and river valleys and open floodplains.

WC 4: To co-operate with the DHPCLG/DAHRRGA in the protection and conservation of both the Royal and Grand Canals and the River Barrow, designated as a pNHA and cSAC respectively and in the sections of the River Liffey designated as a pNHA.

WC 5: To promote the amenity, ecological and educational value of the canals and rivers within the county while at the same time ensuring the conservation of their fauna and flora, and protection of the quantity and quality of the water supply.

Chapter 12 of the plan outlines the objectives and policies relating to the protection, conservation and management of the Archaeological and Architectural Heritage of County Kildare. There are a large number of structures of special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest; contained in the Record of Protected Structures.

There are three structures located within or near the proposed works area, as follows:

- Cloncurry Church Ruins and Mausoleum
- Cloncurry Moat

Kildare County Council sets out the following policies and objectives relating to protected structures in the area:

PS 1: To conserve and protect buildings, structures and sites contained on the Record of Protected Structures of special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest.

PS 3: To require that new works will not obscure views of principal elevations of protected structures.

The Royal canal is specifically mentioned in this chapter; in the Architectural Conservation Objectives section.

ACO 2: To co-operate with Waterways Ireland in the management, maintenance and enhancement of the Royal Canal and Grand Canal and associated structures/features.

Chapters 13 and 14 of the Kildare County Development Plan deal with Natural Heritage and Green Infrastructure; and Landscape, Recreation and Amenity respectively. According to the plan, Green Infrastructure is broadly defined as “a strategically planned and managed network featuring areas with high quality biodiversity (uplands, wetlands, peatlands, rivers and coast), farmed and wooded lands and other green spaces that conserve ecosystem values which provide essential services to society”.

The council provides the following relevant policy in relation to green infrastructure:

GI 7: Promote a network of paths and cycle tracks to enhance accessibility to the Green Infrastructure network, while ensuring that the design and operation of the routes respect and where possible enhances the ecological potential of each site.

A major aim of the development plan is to promote countryside recreation through cycling and walking. Relevant objectives and policies provided are as follows:

CR 4: Develop, in conjunction with the Irish Sports Council and adjoining Local Authorities, long distance walking and cycling routes.

CR 7: Facilitate, where appropriate, the provision of cycle-ways or walkways along the extent of the canals and watercourses in the county in co-operation with landowners, Waterways Ireland, Government Departments and other Local Authorities.

CR 9: Promote the expansion of cycle facilities throughout the county and to liaise with Fáilte Ireland, the Sports Council, the National Transportation Authority and other bodies in the development of cycling touring routes throughout the county and adjoining counties, in particular in areas of high amenity.

RAO 1: Facilitate the provision of a variety of amenities within the county, including natural amenities, walking routes, cycling routes, and sports facilities.

RAO 13: Develop long distance walking routes throughout the county including along:

- The Royal Canal*
- The Grand Canal*
- The River Barrow*

2.2 National Cycling Policy Framework 2009 - 2020

In recognising cycling as one of the most important forms of sustainable transport the Department of Transport published a *National Cycling Policy Framework* in April 2009. The policy framework emanates from the Government's new transport policy for Ireland – *2009-2020 Smarter Travel – A Sustainable Transport Future*.

The framework sets out many policies and objectives in relation to cycling, with the ultimate aim of increasing cycling's share of the total travel market from 2% to 10% by 2020. The key objectives of the policy framework are as follows:

- Move 160,000 people a day to work by bike; an increase of 125,000 people;
- Invest in better, safer cycle routes around the country for commuters, leisure cyclists and visitors. (Improve existing cycle routes and introduce new routes to best international standards);
- Increase cycling's share of the total travel market, from 2% to 10%;
- Introduce a new approach to the design of urban roads to better recognise the needs of cyclists and pedestrians; and
- Retrofit major road junctions and roadways in key cities and towns to make them cycle-friendly.

A number of aims and objectives of the Framework Policy are of particular relevance to the Maynooth to Galway cycleway and state:

"We will support the provision of dedicated signed rural cycling networks building on Fáilte Ireland's Strategy to Develop Irish Cycling Tourism. This will cater for recreational cyclists as well as visitors."

"While the main target market of the cycle tourism strategy is visitors – both overseas and domestic – the secondary target market is recreational cyclists. From the perspective of the National Cycle Policy Framework, encouraging recreational cycling is a key element of creating a cycling culture in Ireland and recreational routes in and around areas, which, in turn link to rural areas are very important."

“To use existing traffic free routes such as canal and river tow paths”

3.0 PREVIOUS STUDIES

3.1 National Cycle Network – Scoping Study

The Department of Transport and the National Roads Authority carried out a scoping study to develop a National Cycle Network to include rural recreational routes around urban areas and connecting with major urban areas. As part of the study relevant stakeholders were brought together to ensure that the project supported the aims of Smarter Travel, including encouraging cycling as a leisure activity, boosting tourism and supporting economic growth.

Following a number of workshops with relevant stakeholders a number of possible route corridors were reviewed in relation to the relevant criteria and a recommended National Cycle Network was established.

The Scoping Study outlines the use of existing infrastructure in its Terms or Reference:

‘The network should use existing cycle routes if appropriate. Special attention should be given to the opportunities of using both the disused rail network and canal / river tow-path networks as cycling / walking routes.’

As such the Royal Canal was an obvious choice to include in the National Cycle Network due to its links to Dublin and Mullingar.

4.0 DESCRIPTION OF THE PROJECT

4.1 Site Description

As outlined in the Introduction the Proposal is to locate the cycleway and footway on the northern bank of the Royal Canal. The first 2 km along the north bank of the Royal Canal from Cloncurry to Ferrans Lock is an existing surface dressed or gravel access road which serves three houses and an agricultural field access. This is followed by approximately 200 metres of pasture land.

Site clearance of vegetation will be required to facilitate the proposed 3m wide cycleway and footway but it is anticipated that the felling of any large trees will be avoided as the proposed route can be detoured to avoid such obstacles.

The route between the Ferrans Lock and Cloncurry which is the subject of this Part 8 application will link to the Maynooth to Westmeath Border Shared Cycleway and Footway, which is located along the Royal Canal tow path for its entire length.

4.2 Route Description and Layout

The section of the route which is the subject of this Part 8 submission can be described as 3m wide cycleway and footway with bituminous bound surfacing as per drawings in Appendix A.

4.3 Access Controls

A number of access controls or gates are to be provided over the length of the route between Maynooth and the Westmeath border and two access controls are to be provided on this 5.8km section between Ferrans Lock and Cloncurry. These access controls are specifically designed for cyclist/pedestrian use while still providing sufficient security to the facility. A detail of the proposed access control is provided in the Part 8 Drawings provided with this submission.

4.4 Ducting

Twin ducts are to be provided under proposed Cycleway and Footway for Waterways Ireland use. The exact location of the ducts is to be confirmed but it is envisaged that they will be located adjacent to the hedge/boundary of the canal.

4.5 Boundary Treatment

The existing boundary treatment between the northern canal bank and the adjacent domestic properties is currently made of hedgerow and vegetation. As part of the proposed works a post and rail fencing or similar is to be provided where the proposed footway and cycleway is located directly parallel to domestic properties. The existing boundary treatment is to be retained where the cycleway is away from domestic properties and no fence is proposed. The extent of this fencing is shown on the Part 8 drawings outlined in Appendix A.

5.0 ENVIRONMENTAL ASSESSMENT

An EIA Screening was carried out as part of the Part 8 submission made in June 2013 (KCC Planning Ref 09/0713). This EIA Screening was updated in September 2017 to reflect Ireland's adoption of the new EIA Directive (Directive 2014/52/EU). The Screening allowed for a preliminary assessment of the environmental issues and identified those that require further consideration. The EIA Screening Report identified that, due to the design of the project, there is no potential for significant impact on the following environmental categories:

- Air quality and Climate;
- Noise and Vibration;
- Soils and Geology;
- Hydrogeology;
- Archaeology;
- Architectural Heritage
- Material Assets;
- Landscape and Visual Amenity;
- Socio economics;
- Resources and Waste Management;
- Human Health.

As the route adjustment from the south bank to the north bank of the canal is inconsequential in terms of the Zone of Influence, the EIA Screening Report for the overall scheme is valid for the purposes of the Part 8 application for this phase. Furthermore, the ecological survey carried out in March 2017 along the northern side of the canal between Cloncurry and Ferrans Lock supplemented the ecological assessment undertaken in 2014 as part of the Part 8 Report for the whole scheme.

5.1 Hydrology

The proposed cycleway is located along the Royal Canal. As a result, a number of mitigation measures have been identified in this report to ensure that water quality is maintained within the canal and adjoining rivers and streams (see Section 7.1.3 of this report for further information).

5.2 Ecology

5.2.1 Ecology of the Royal Canal (Carried out for original Part 8 – Summer 2013)

As part of the Part 8 application submitted in the summer of 2013 for the cycleway and footway between Maynooth and the Westmeath border, an ecology study was carried out along the corridor of the Royal Canal which included the section between Ferrans Lock and Cloncurry by McCarthy Keville and O'Sullivan (MKOS). The conclusion of the Appropriate Assessment (AA) Screening Report is reproduced below in italics.

“As a result of the assessment carried out it is the considered view of the author that the proposed development, with the implementation of the measures detailed at Section 7.0, will have no adverse effect on the integrity of any of the Natura 2000 sites listed and as such this report returns a conclusion that there is no potential for significant effects on the Natura 2000 sites. As such the project can be screened out under the Habitats Directive as not requiring a Stage 2 Appropriate Assessment.”

As the route adjustment from the south bank to the north bank of the canal is inconsequential in terms of the “likely zone of impact”, the AA Screening Report for the overall scheme is valid for the purposes of the Part 8 application for this phase. The ecological survey carried out in March 2017 along the northern side of the canal between Cloncurry and Ferrans Lock supplemented the ecological assessment undertaken in 2014 as part of the Part 8 Report for the whole scheme.

5.2.2 Ecological Impact Assessment (EclA)

An Ecological Impact Assessment (EclA) of the Kildare section of the northern bank between Ferrans Lock and Cloncurry was carried out by Roughan & O'Donovan (ROD) in March 2017. The EclA involved a walkover survey including a mammal and potential bat roost survey of the site. In addition to mammals, other features of ecological significance were also noted. Some of the conclusions of the EclA included:

- No otter signs were observed along the northern bank.
- No badger setts were recorded on the route within Co. Kildare.
- The trees present along the northern canal bank had no bat roost potential.
- The Royal Canal is ecologically sensitive and mitigation will be necessary to avoid the deterioration of these habitats.

The full EclA is included in Appendix B.

6.0 Local Domestic and Agricultural Properties

6.1 Domestic Properties

There are three adjoining domestic properties along the Co. Kildare section of route between Ferrans Lock and Cloncurry (refer to drawings for details).

6.2 Agricultural Properties

The proposed route between Ferrans Lock and Cloncurry does not pass through any agricultural properties but there is one agricultural access point located along its route in Kildare.

7.0 ENVIRONMENTAL MITIGATION

As a result of the above assessment and in order to ensure the proposed cycleway and footway does not significantly impact on the environment the following mitigation measures will be included within the Works Contract to ensure protection of the environment, in particular flora and fauna, landscape and visual and cultural heritage.

7.1 Flora and Fauna Mitigation

- A Project ecologist will be appointed for the construction duration of the project and will have particular regard to the sensitivity of the site including the findings of all mammal and habitats surveys.

7.1.1 Protection of the Royal Canal linear habitat

- All tree felling and scrub removal will be kept to a minimum during construction phase
- The footprint of works will be identified at the onset of works and will be demarcated to avoid unnecessary disturbance to habitats outside the works area.
- Felling of trees within the woodland will be agreed with the Project Ecologist.

7.1.2 Protection of wildlife

- Any hedgerow clearance will be carried out outside the bird nesting season (1st March to the 31st August), in order to avoid damage to nests and young.

7.1.3 Best Practice Water Quality / Pollution Prevention Measures

- All material including oils, solvents and paints will be stored within temporary bunded areas or dedicated bunded containers;
- Where possible refuelling will take place in a designated bunded area away from surface water gullies, drains and water bodies. In the event of refuelling outside of this area, fuel will be transported in a mobile double skinned tank;
- All machinery and plant used will be regularly maintained and serviced and will comply with appropriate standards to ensure that leakage of diesel, oil and lubricants is prevented.
- Spill kits and hydrocarbon absorbent packs will be available and drip trays will be used during refuelling;
- The excavation and handling of inert material will be carefully managed in such a way as to prevent any potential negative impact on the receiving water environment;

7.2 Architectural Heritage and landscape

- All design features will be sympathetic to Cloncurry Bridge, a heritage feature.
- Further consultation will be undertaken with the conservation officer from Kildare County Council at detailed design stage.

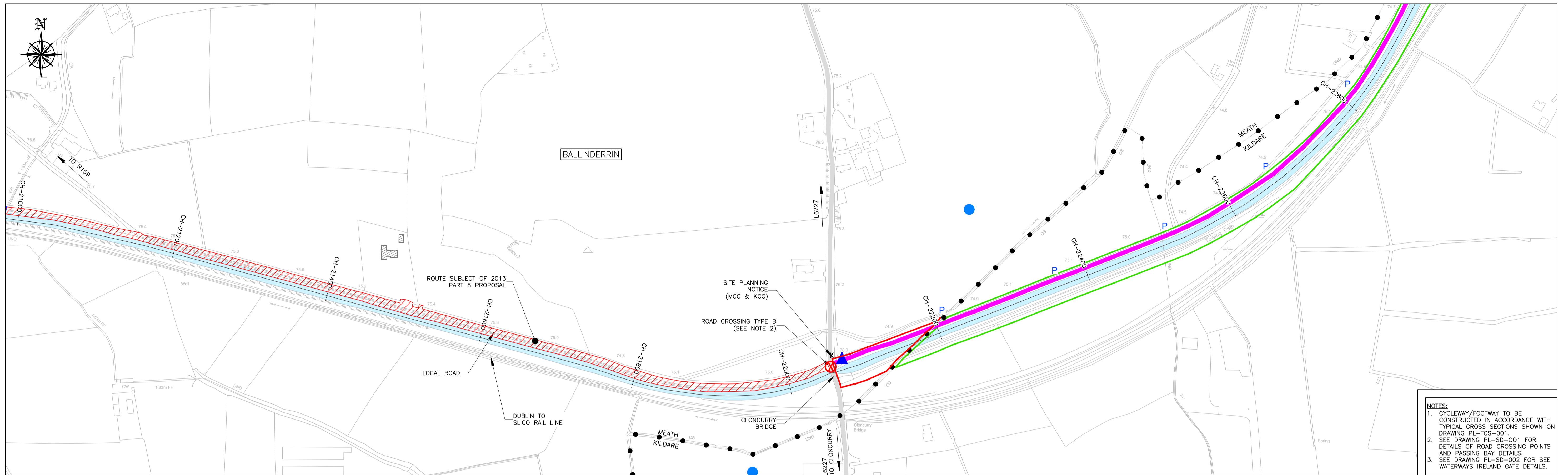
8.0 PUBLIC CONSULTATION PROCESS

The project is formally advertised for public consultation in line with dates advertised on the site notice and will be available for inspection during office hours at the offices of Kildare County Council, Planning Department, Áras Chill Dara, Devoy Park, Naas and Kildare County Council, Northern Area Office, Leinster Street, Maynooth. Submissions and observations may be made in writing to: The Transportation Section, County Buildings, Naas.

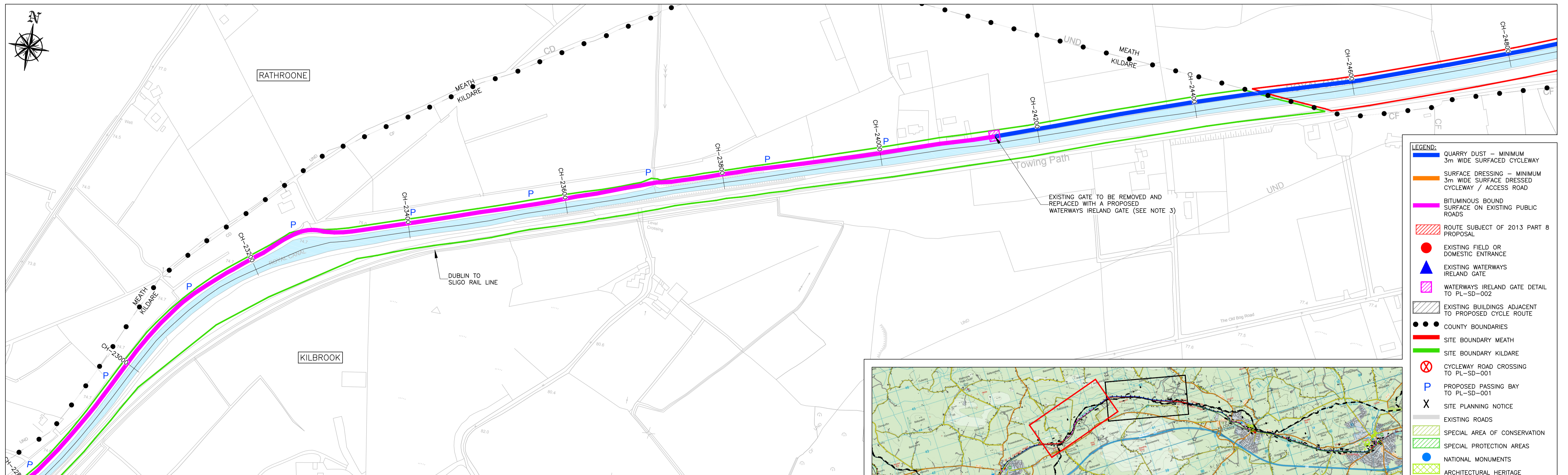
9.0 PROJECT DELIVERY

It is estimated that the proposed scheme will cost in the region of €0.3 million. It is anticipated that construction would take a period of approximately 2-3 months.

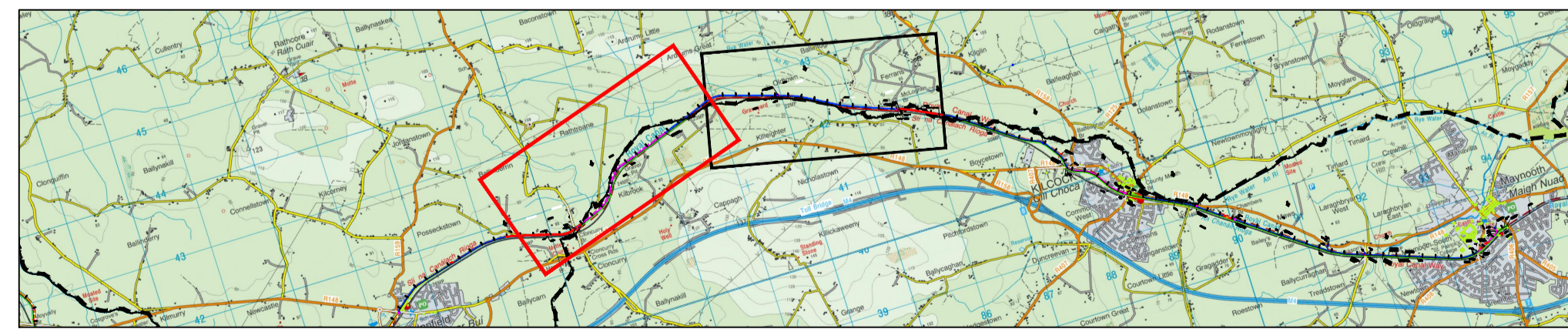
Appendix A – Drawings



- NOTES:**
1. CYCLEWAY/FOOTWAY TO BE CONSTRUCTED IN ACCORDANCE WITH TYPICAL CROSS SECTIONS SHOWN ON DRAWING PL-TCS-001.
 2. SEE DRAWING PL-SD-001 FOR DETAILS OF ROAD CROSSING POINTS AND PASSING BAY DETAILS.
 3. SEE DRAWING PL-SD-002 FOR SEE WATERWAYS IRELAND GATE DETAILS.



- LEGEND:**
- QUARRY DUST - MINIMUM 3m WIDE SURFACED CYCLEWAY
 - SURFACE DRESSING - MINIMUM 3m WIDE SURFACE DRESSED CYCLEWAY / ACCESS ROAD
 - BITUMINOUS BOUND SURFACE ON EXISTING PUBLIC ROADS
 - ROUTE SUBJECT OF 2013 PART 8 PROPOSAL
 - EXISTING FIELD OR DOMESTIC ENTRANCE
 - ▲ EXISTING WATERWAYS IRELAND GATE
 - WATERWAYS IRELAND GATE DETAIL TO PL-SD-002
 - EXISTING BUILDINGS ADJACENT TO PROPOSED CYCLE ROUTE
 - COUNTY BOUNDARIES
 - SITE BOUNDARY MEATH
 - SITE BOUNDARY KILDARE
 - ⊗ CYCLEWAY ROAD CROSSING TO PL-SD-001
 - P PROPOSED PASSING BAY TO PL-SD-001
 - X SITE PLANNING NOTICE
 - EXISTING ROADS
 - SPECIAL AREA OF CONSERVATION
 - SPECIAL PROTECTION AREAS
 - NATIONAL MONUMENTS
 - ARCHITECTURAL HERITAGE



No.	Revision	Date	By	Chkd	App'd
	Stage				
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	APPROVAL				
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	CONSTRUCTION				

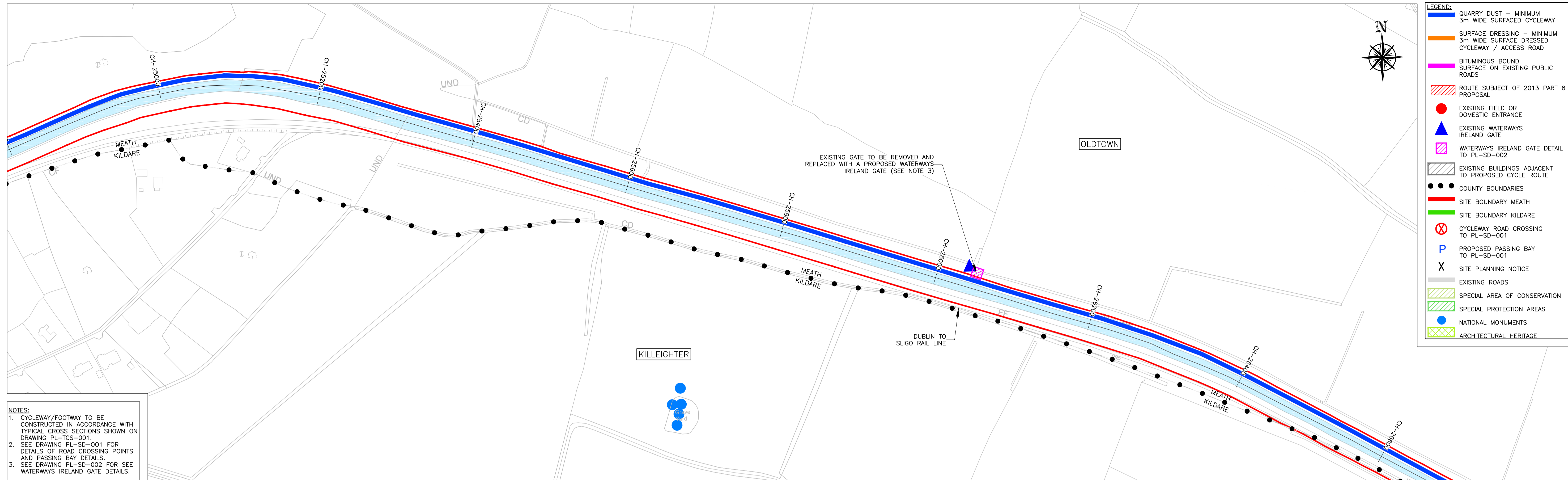
Roughan & O'Donovan-AECOM Alliance

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ROUGHAN & O'DONOVAN

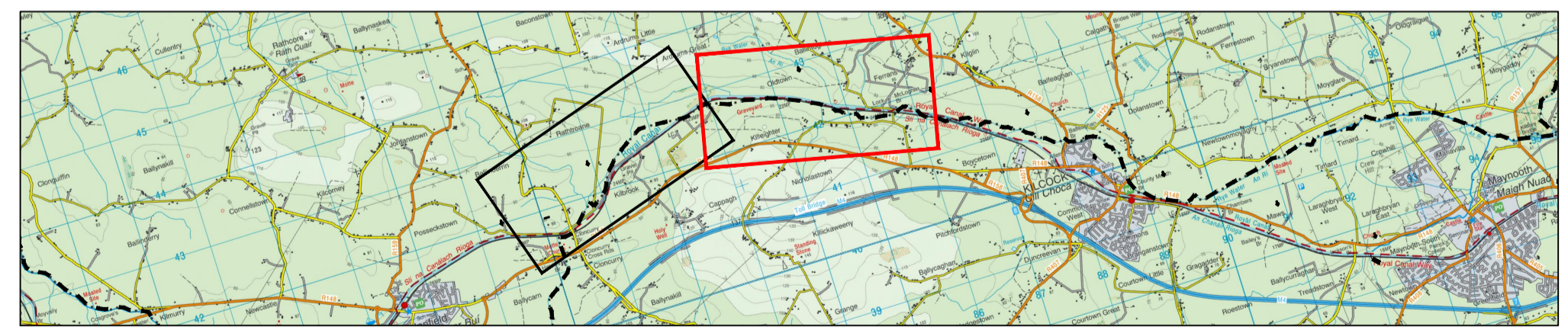
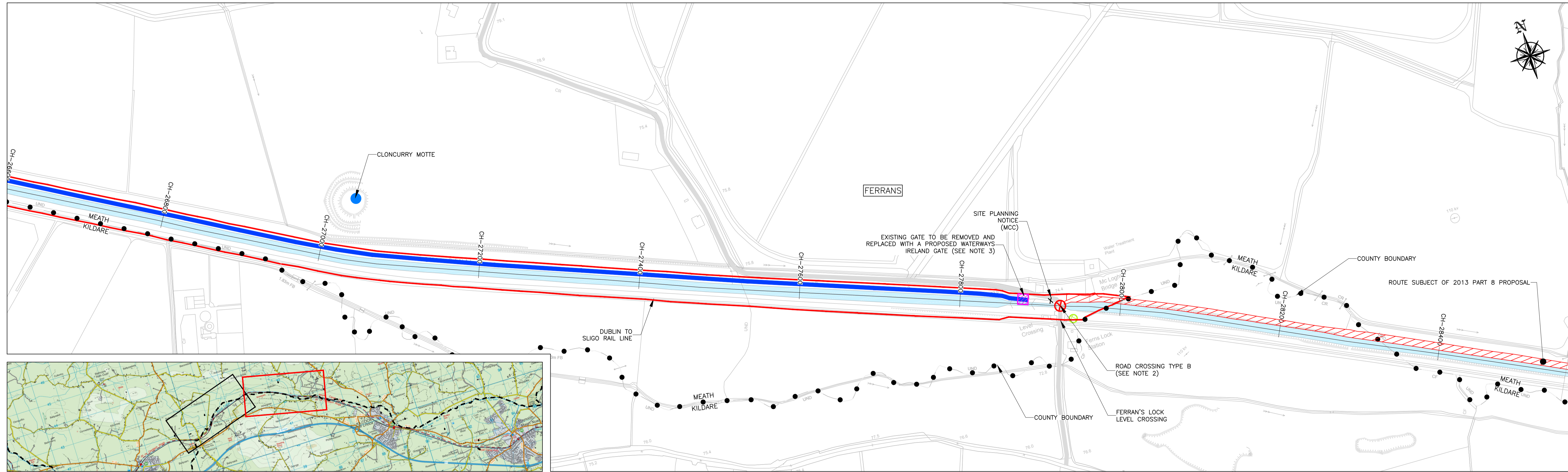
AECOM

Arena House, Arena Road,
Sandyford, Dublin 18.
Tel : +353 (1) 2940800
Fax : +353 (1) 2940820
e-mail : info@rod.ie
Website : www.rod.ie
www.aecom.com

Project Title		MAYNOOTH TO WESTMEATH BORDER SHARED CYCLEWAY & FOOTWAY	
Drawing Title		CLONCURRY TO FERRAN'S LOCK PROPOSED ALIGNMENT SHEET 1 OF 2	
Drawn: JMK	Job No: 12.221	Drawing No: PLA-201	Rev: -
Scale: 1:2500 (A1)	Date: MAY '17		



NOTES:
 1. CYCLEWAY/FOOTWAY TO BE CONSTRUCTED IN ACCORDANCE WITH TYPICAL CROSS SECTIONS SHOWN ON DRAWING PL-TCS-001.
 2. SEE DRAWING PL-SD-001 FOR DETAILS OF ROAD CROSSING POINTS AND PASSING BAY DETAILS.
 3. SEE DRAWING PL-SD-002 FOR SEE WATERWAYS IRELAND GATE DETAILS.



No.	Revision	Date	By	Chk'd	App'd
	Stage				
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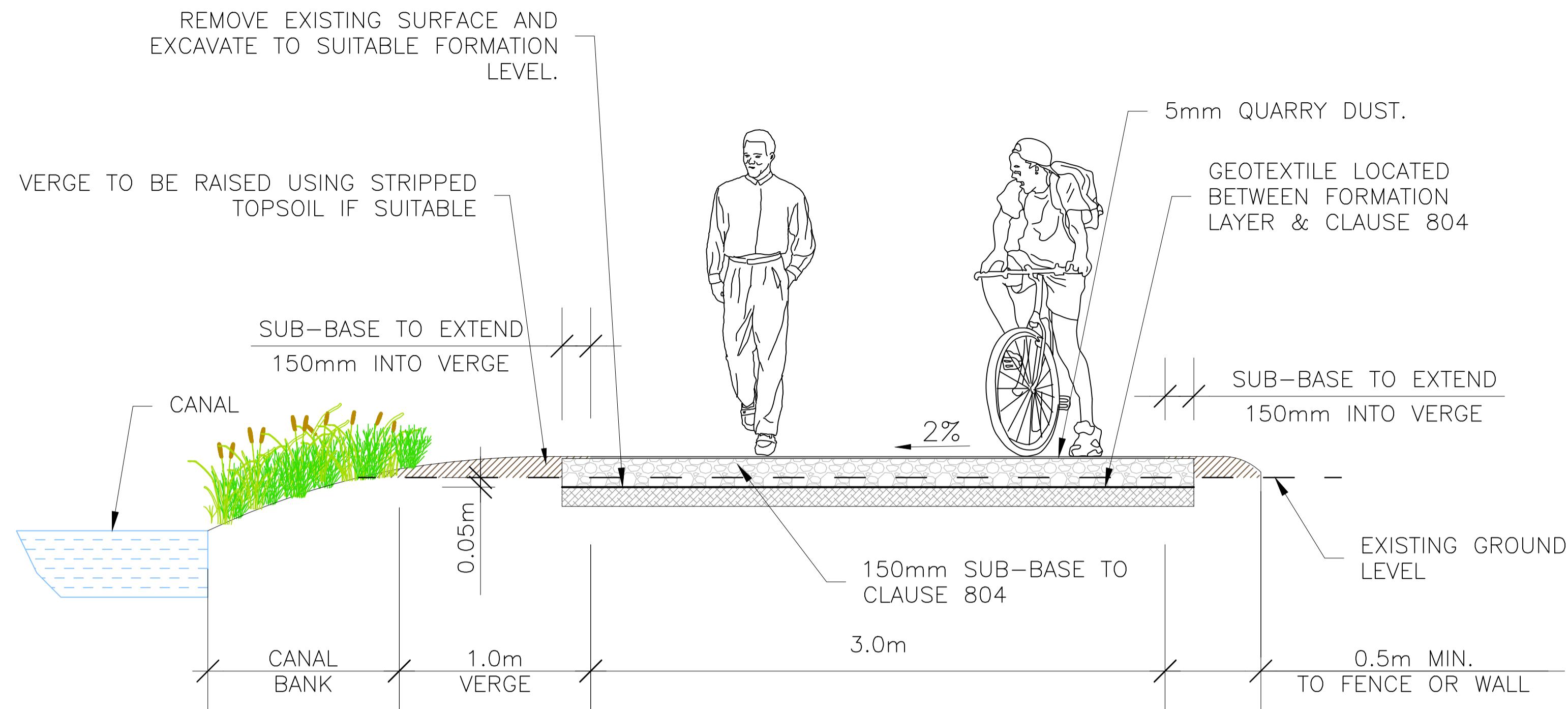
ROD
ROUGHAN & O'DONOVAN

AECOM

Arena House, Arena Road,
Sandyford, Dublin 18.
Tel : +353 (1) 2940800
Fax : +353 (1) 2940820
e-mail : info@rod.ie
Website : www.rod.ie
www.aecom.com

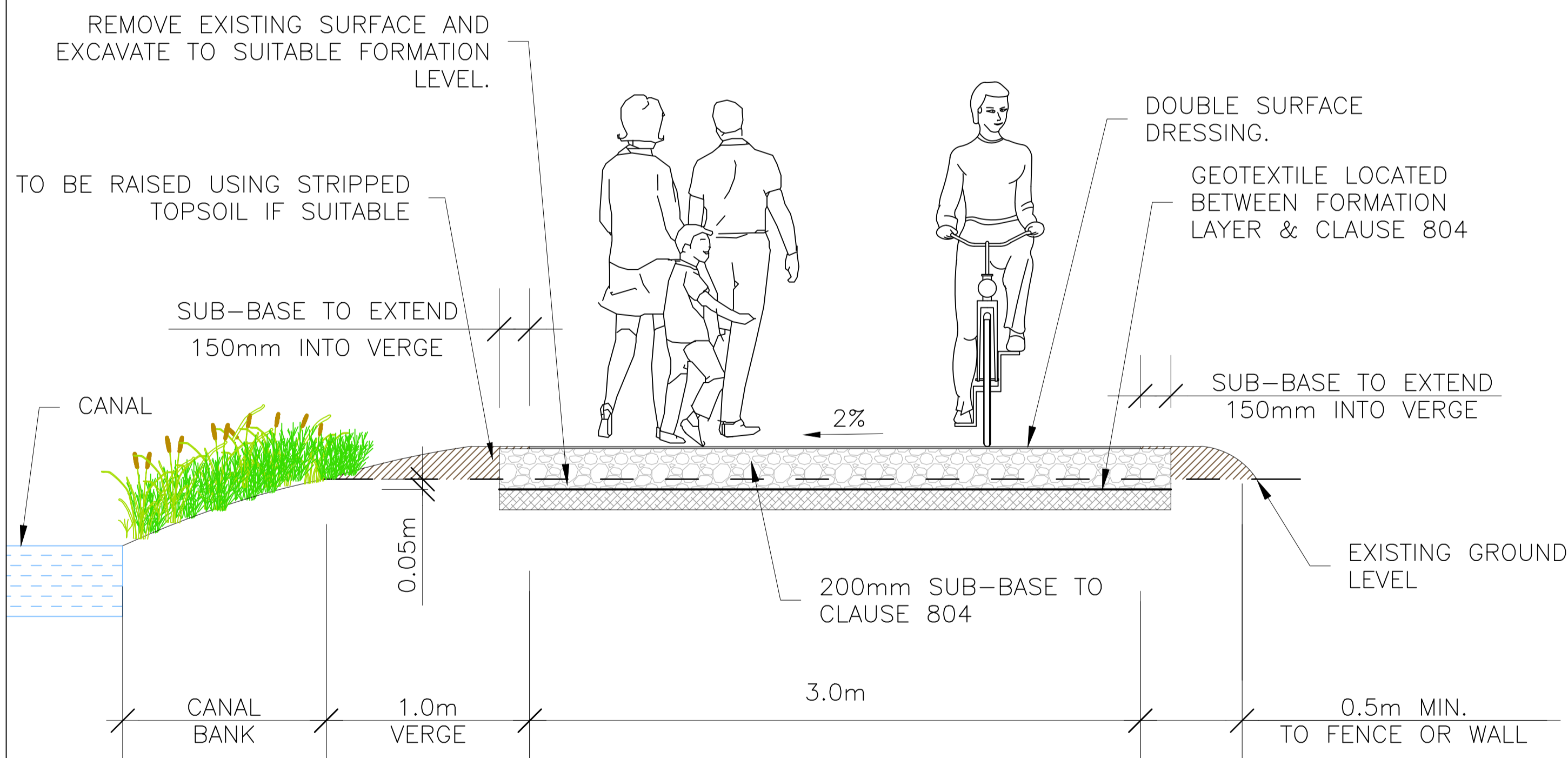
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Project Title		MAYNOOTH TO WESTMEATH BORDER SHARED CYCLEWAY & FOOTWAY	
Drawing Title		CLONCURRY TO FERRAN'S LOCK PROPOSED ALIGNMENT SHEET 2 OF 2	
Drawn: JMK	Job No: 12.221	Drawing No: PLA-202	Rev: -
Scale: 1:2500 (A1)	Date: MAY '17		

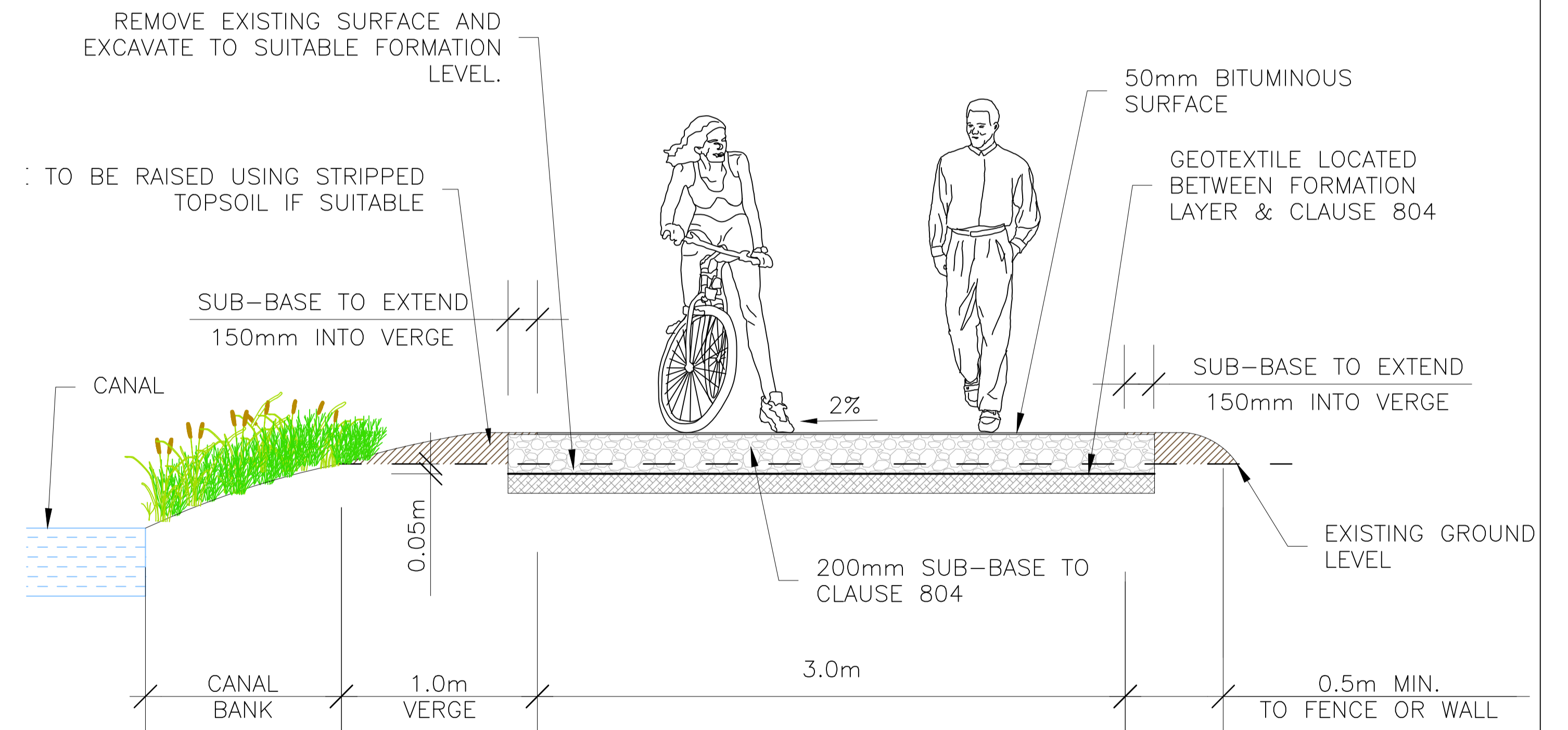


QUARRY DUST SURFACED SHARED CYCLEWAY & FOOTWAY
SCALE 1:20

- NOTES:
1. REFER TO DRAWINGS PLA-201 & PLA-202 FOR PROPOSED CYCLEWAY ROUTE.
 2. CLAUSE 804 SUB-BASE TO BE REDUCED TO 150mm WHERE BITUMINOUS OR SURFACE DRESSED MATERIAL IS USED AT PEDESTRIAN /CYCLE ONLY AREAS.
 3. SPARE DUCTS TO BE PROVIDED FOR WATERWAYS IRELAND USE. EXACT SIZE & LOCATION TO BE CONFIRMED.



SURFACE DRESSING SURFACED SHARED CYCLEWAY & FOOTWAY
SCALE 1:20



BITUMINOUS SURFACED SHARED CYCLEWAY & FOOTWAY
SCALE 1:20



No.	Revision	Date	By	Chkd	App'd
	Stage				
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	CONSTRUCTION				

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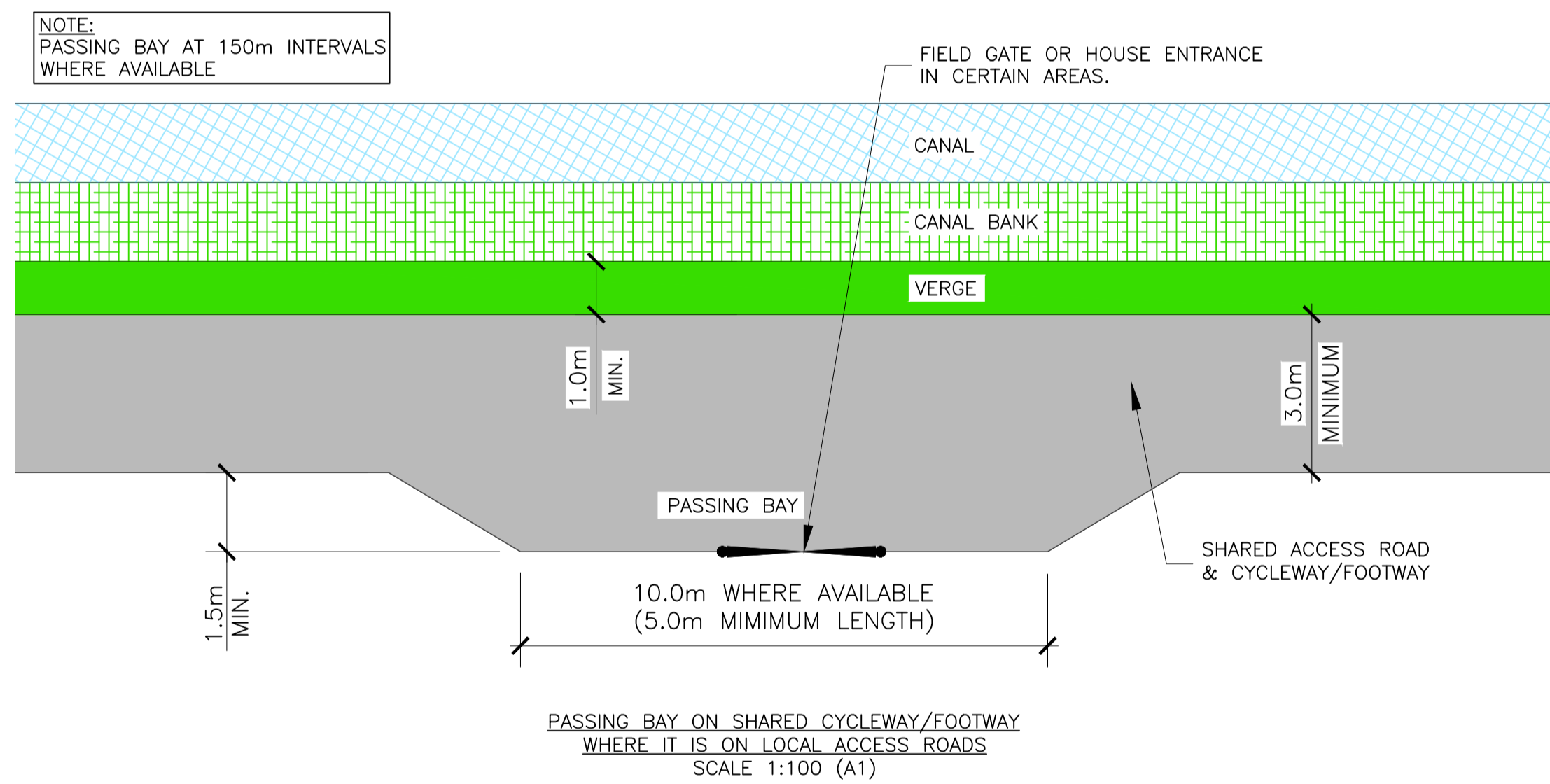
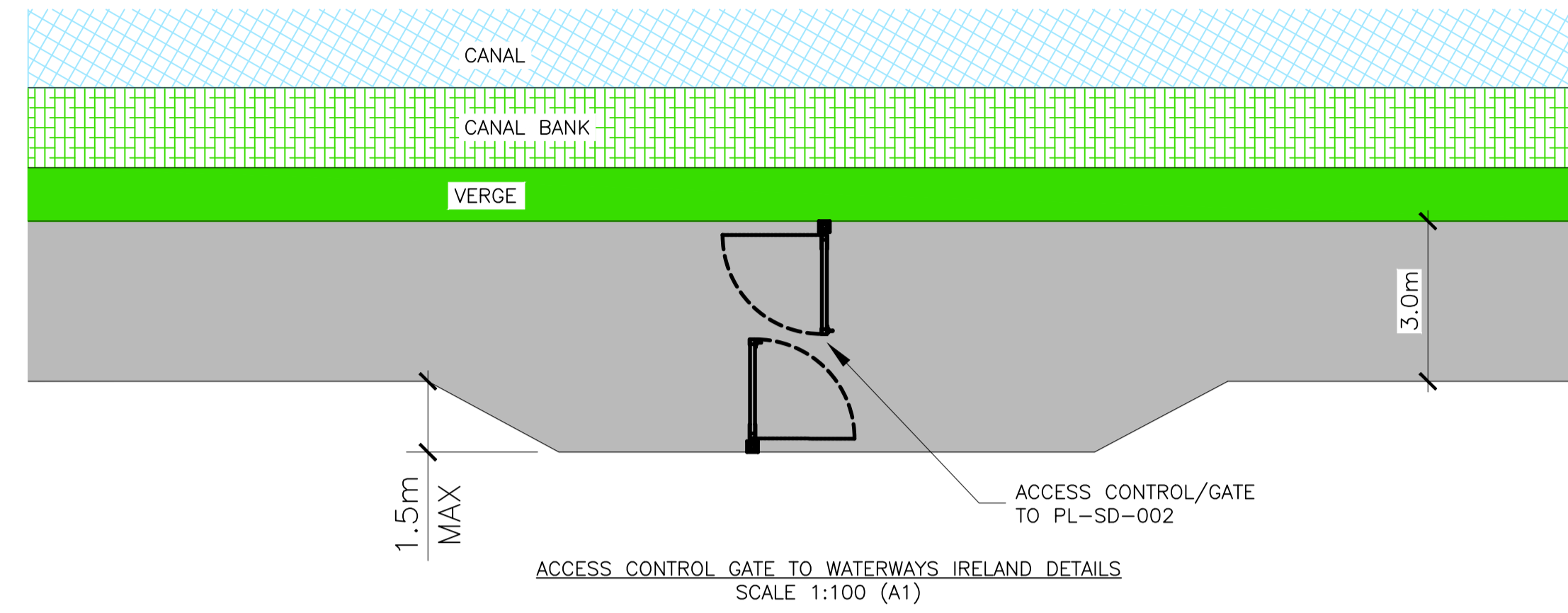
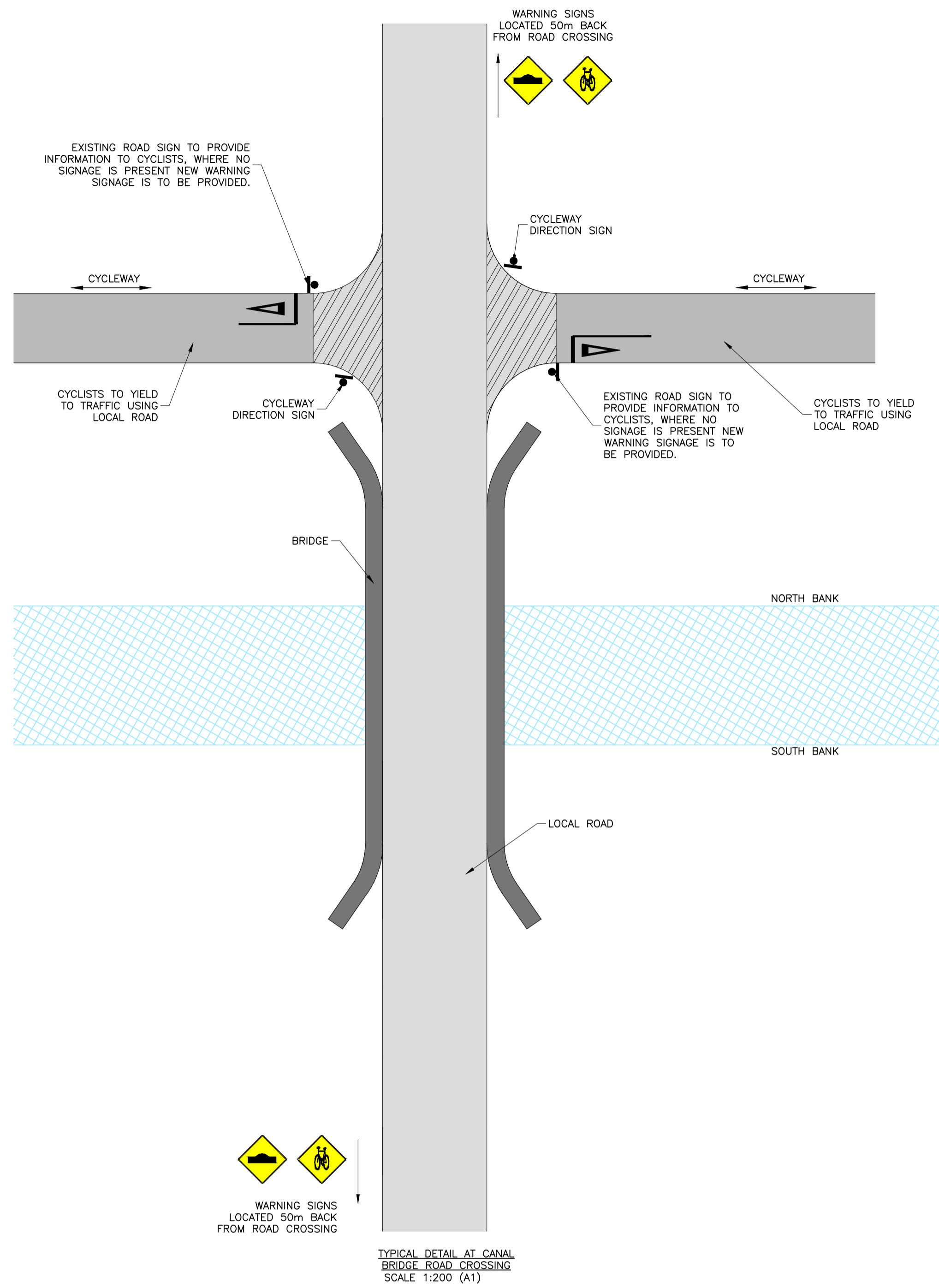
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Sandyford, Dublin 18.
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Designed: DC Checked: HOS Approved: SMG Status: PART 8

Project Title		MAYNOOTH TO WESTMEATH BORDER SHARED CYCLEWAY & FOOTWAY	
Drawing Title		TYPICAL CROSS SECTIONS	
Drawn: JMK	Job No: 12.221	Drawing No:	Rev:
Scale: AS SHOWN	Date: APR '13	PL-TCS-001	-



NOTES

1. ACCESS CONTROL POINTS SUCH AS GATES, BOLLARDS ETC. MAY BE REQUIRED ON APPROACH TO LOCAL ROAD SEE PROPOSED ALIGNMENT SERIES OF DRAWINGS PLA-201 TO PLA-202 FOR LOCATION OF ACCESS CONTROLS.
2. LAYOUTS ARE INDICATIVE ONLY AND SUBJECT TO CHANGE. A MORE DETAILED LAYOUT AT EACH ROAD CROSSING ALONG THE PROPOSED ROUTE IS TO BE PROVIDED AT DETAILED DESIGN STAGE/CONSTRUCTION STAGE.



No.	Revision	Date	By	Chk'd	App'd
	Stage				
	PRELIMINARY				
	APPROVAL				
	TENDER				
	CONSTRUCTION				

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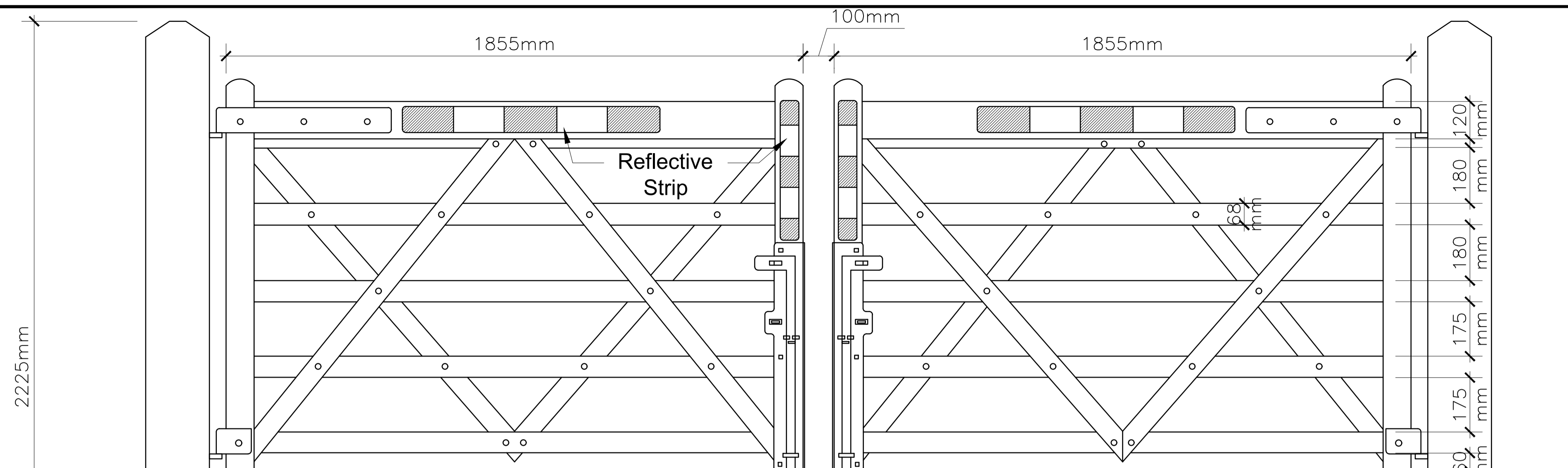
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Arena House, Arena Road,
Sandyford, Dublin 18.
Tel : +353 (1) 2940800
Fax : +353 (1) 2940820
e-mail : info@rod.ie
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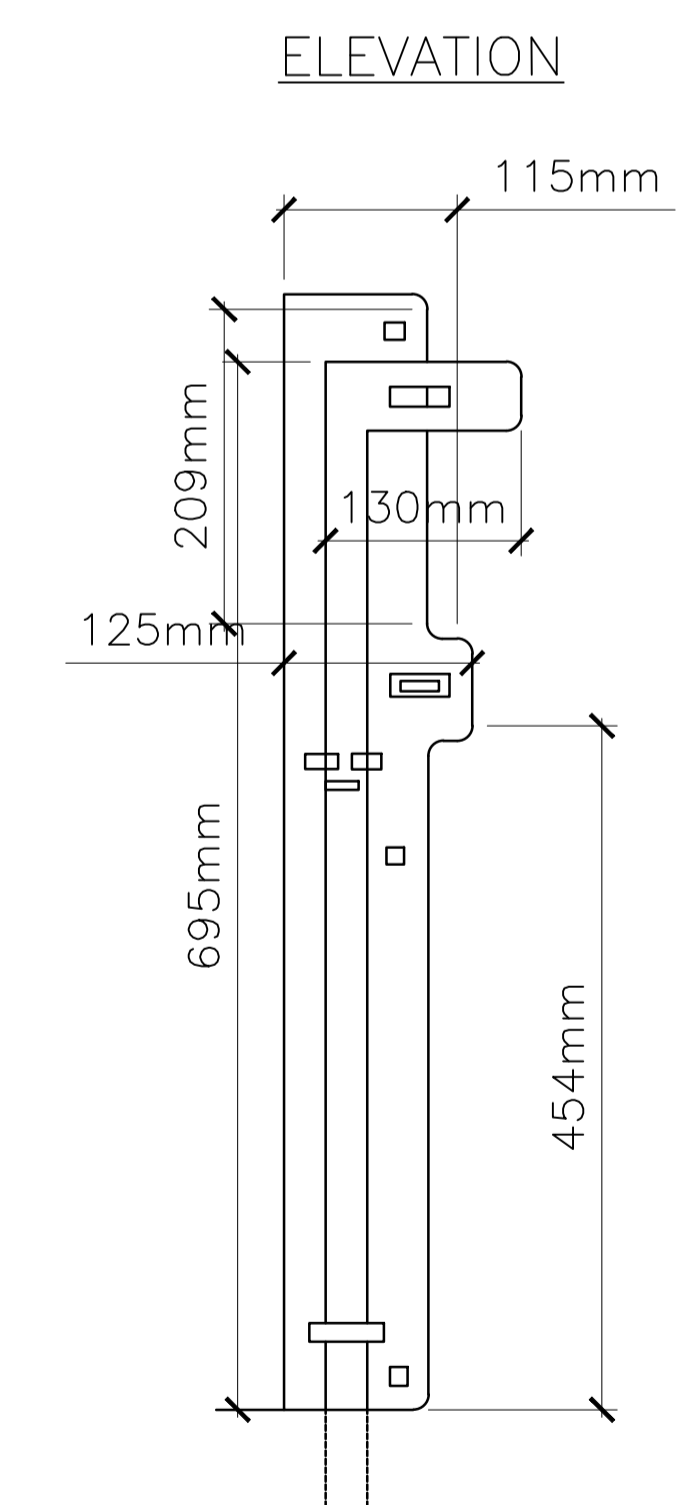
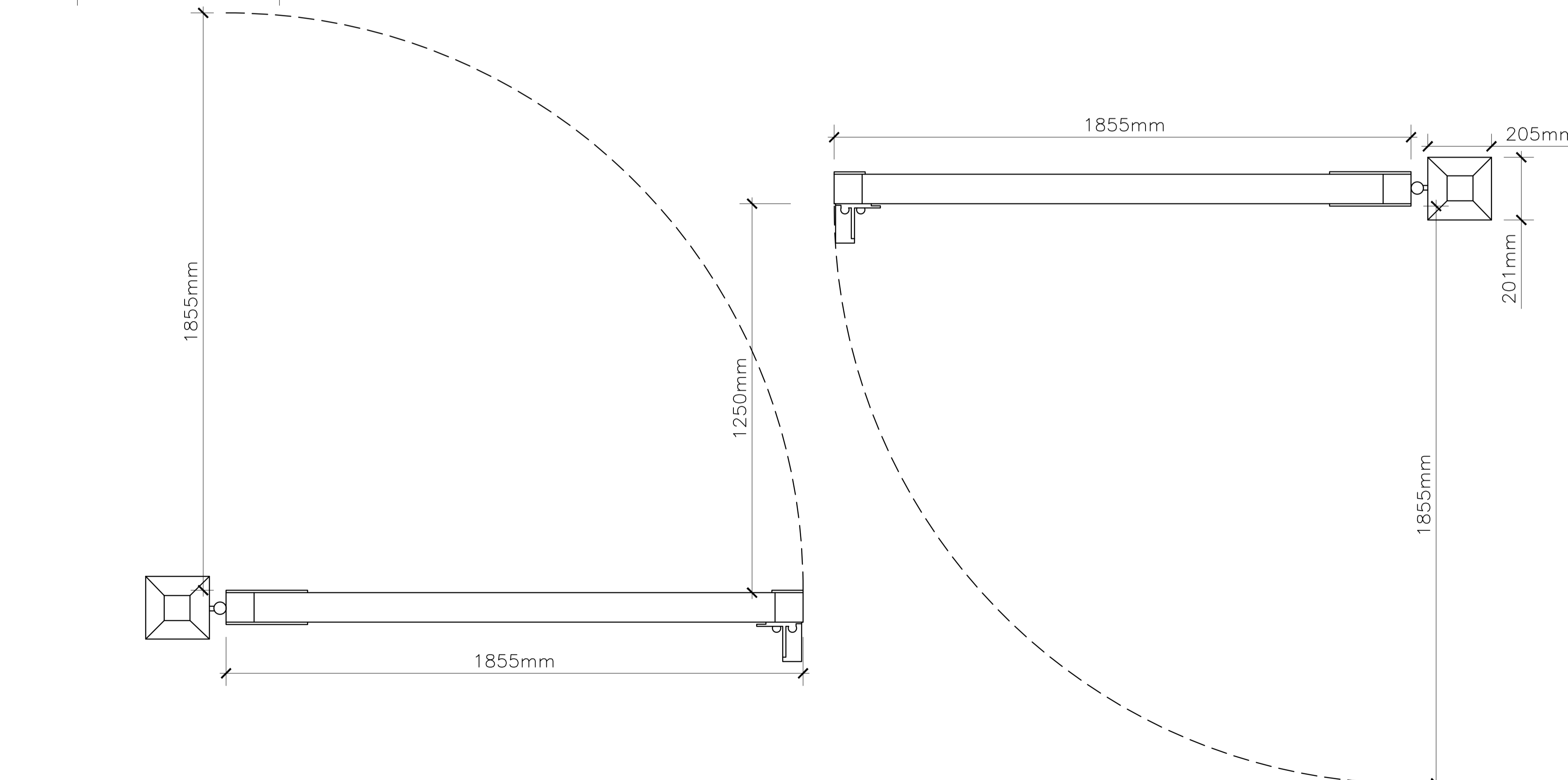
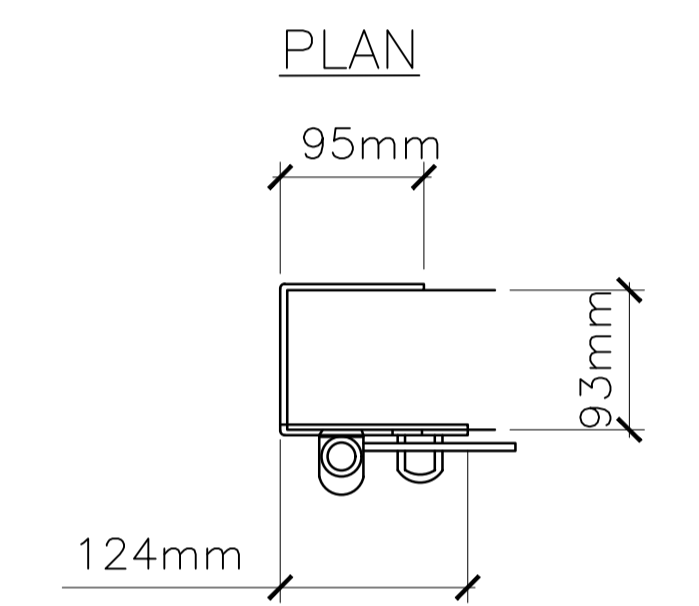
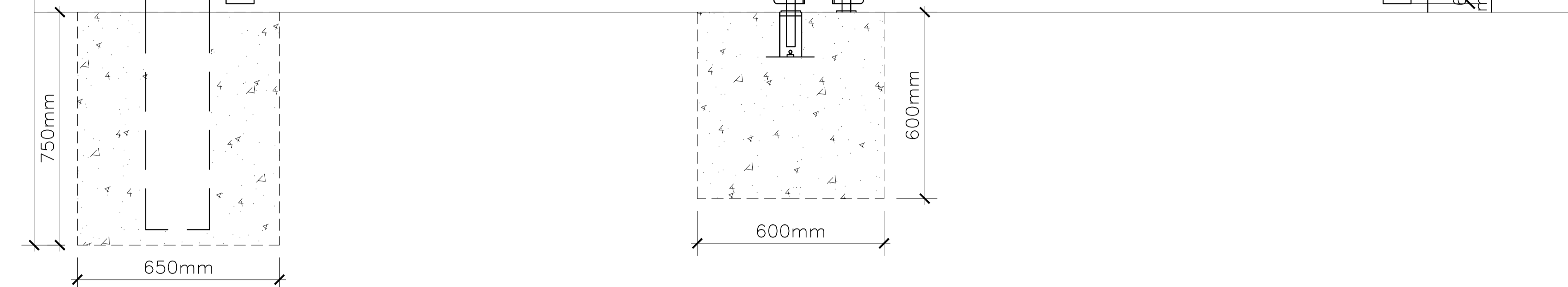
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Project Title		MAYNOOTH TO WESTMEATH SHARED CYCLEWAY & FOOTWAY	
Drawing Title		STANDARD DETAILS SHEET 1 OF 2	
Drawn: KT	Job No: 12.221	Drawing No: PL-SD-001	Rev: -
Scale: AS SHOWN	Date: MAR '13		



NOTES:
 1. ALL DIMENSIONS ARE IN MILLIMETRES.
 2. GATES SHALL COMPLY WITH APPROPRIATE CLAUSES IN THE 300 SERIES
 3. ALL THROUGH TENDONS SHALL BE PEGGED WITH 13Ø OAK DOWELS.
 4. FOR DETAILS OF HANGING SEE DRAWING RCD/300/13.
 5. CLOSING LATCHES AS PER DRAWING WITH GALVANISED FINISH.
 6. TIMBER TO BE TREATED IN ACCORDANCE WITH IS 435 COPPER CHROME ARSENIC (RC 25).

DESCRIPTION OF TIMBER MATERIALS	SIZE
HANGING POST	200X200X2225L
HANGING STYLE	90X90
SHUTTING STYLE	90X90
TOP RAIL	90X120
UNDER RAIL	68X38
BRACING RAILS	68X25



Fixing points to take M10 Cup-heads

				Roughan & O'Donovan-AECOM Alliance Arena House, Arena Road, Sandycove, Dublin 18. Tel: +353 (1) 2940800 Fax: +353 (1) 2940820 e-mail: info@rod.ie Website: www.rod.ie www.aecom.com		Project Title MAYNOOTH TO WESTMEATH BORDER SHARED CYCLEWAY & FOOTWAY			
		No. Revision Date By Chkd App'd Stage Date App'd PRELIMINARY APPROVAL TENDER CONSTRUCTION		ROD AECOM		Drawing Title STANDARD DETAILS SHEET 2 OF 2			
Ordnance Survey Ireland Licence No EN 0006514 © Ordnance Survey Ireland and Government of Ireland.		Jun 16, 2017 - 11:33am Drawing Location: \\rodubfp1\J\2012\12221\Dwg\Route\Area East\Part 8\12221 SD 002.dwg		Designed: DC Checked: HOS Approved: SMG Status: PART 8		Drawn: SC Job No: 12.221 Drawing No: PL-SD-002 Rev: - Scale: NTS Date: APR '13			

Appendix B – Ecological Impact Assessment (EclA)



Ferrans Lock to Cloncurry Shared Cycleway and Footway

Ecological Impact Assessment (EcIA)



June 2017

Consulting Engineer

Roughan & O'Donovan
Arena House
Arena Road
Sandyford
Dublin 18

Client

Westmeath County Council
County Buildings,
Mount St,
Bellview,
Mullingar,
Co. Westmeath

Ferran's Lock to Cloncurry Shared Cycleway and Footway

Ecological Impact Assessment

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APPENDIX A Badger Licence Application

1. INTRODUCTION

1.1 Background

Roughan & O'Donovan (ROD Environmental) was appointed by Kildare County Council to undertake an Ecological Impact Assessment (EclA) for the proposed Ferrans Lock to Cloncurry Shared Cycleway and Footway, hereafter referred to as "the Greenway", to inform a planning application under Section 179 of the Planning and Development Acts, 2000-2016 and Part VIII of the Planning and Development Regulations, 2001-2016. This section of the Maynooth to the Westmeath Border Shared Cycleway and Footway was planned to be constructed on the southern bank of the Royal Canal. However, due to the proximity of the southern bank to the Dublin-Sligo railway line it was decided to move the Greenway to the northern bank for this section. The Greenway consists of a 5.8 km shared cycling and pedestrian facility along the northern bank of the Royal Canal between Ferrans Lock and Cloncurry, as shown in Figure 1.

When preparing submissions for such a development, an EclA must be made available for public consultation. The aim of the EclA process is to ensure that projects that may potentially affect protected and/or ecologically sensitive sites, habitats and/or species are assessed in advance so that the competent authority is aware of what those effects are likely to be. To ensure that full consideration can be given to the impacts of the proposed development on strictly protected species listed on Annex IV of Council Directive 92/43/EEC (the Habitats Directive), and to avoid the possibility of delay to the project or the refusal of a derogation licence, which would prevent the works being carried out as planned, any application for such a derogation licence should be made in advance of seeking approval under Part VIII.

During the desk study for this EclA, the statutory consultee, the National Parks & Wildlife Service (NPWS) provided data on designations of habitats and species of nature conservation interest within the zone of influence of the Greenway. Of particular interest were potentially adverse direct, indirect or cumulative impacts on designated and non-designated areas of importance for biodiversity.

This EclA identifies, quantifies and evaluates the potential effects of the Greenway-related or other proposed actions on the ecology of the receiving environment surrounding the preferred route. It provides an assessment of the baseline ecological conditions in the area and of the nature, magnitude and significance of the Greenway's impacts. In addition, it proposes appropriate mitigation measures to eliminate those impacts or, where this has not been possible, to minimise their effects such that they can no longer be judged significant.

1.2 Requirement for an Ecological Impact Assessment (EclA)

Ireland's national biodiversity action plan *Actions for Biodiversity 2011-2016* (DAHG, 2011), in accordance with the Convention on Biological Diversity, is a framework for the conservation and protection of Ireland's biodiversity, with an overall objective to secure the conservation, including, where possible, the enhancement and sustainable use of biological diversity in Ireland and to contribute to collective efforts for conservation of biodiversity globally. The plan is implemented through legislation and statutory instruments concerned with nature conservation. The Planning and Development Acts, 2000-2016 and the European Communities (Environmental Impact Assessment) Regulations, 1989 (as amended) are particularly important in that regard and include a number of provisions directly concerned with the protection of natural heritage and biodiversity.

The Wildlife Acts, 1976-2012 are the principle mechanism for the legal protection of wildlife in Ireland. They outline strict protection for species that have significant conservation value. In summary, the Wildlife Acts protect species from injury, disturbance and damage to breeding and resting sites. All species listed in the Wildlife Acts must, therefore, be a material consideration in the planning process. An important piece of national legislation for the protection of wild flora, *i.e.* vascular plants, mosses, liverworts, lichens and stoneworts, is the Flora (Protection) Order, 2015, which makes it illegal to cut, uproot or damage a listed species in any way or to alter, damage or interfere in any way with its habitat. This protection applies wherever the species listed in the Schedules to the Order are found.

The European Communities (Birds and Natural Habitats) Regulations, 2011-2015 transpose into Irish law Directive 2009/147/EC (the Birds Directive) and the Habitats Directive, which list habitats and species of Community, *i.e.* European Union (EU), importance for conservation and that require protection. This protection is afforded in part through the designation of areas that represent significant populations of listed species within a European context, *i.e.* Natura 2000 sites. An area designated for bird species is classed as a Special Protection Area (SPA), and an area designated for other protected species and habitats is classed as a Special Area of Conservation (SAC). Birds listed on Annex I of the Birds Directive in SPAs and habitats and species listed on Annexes I and II, respectively, of the Habitats Directive in SACs in which they are designated features have full European protection. Species listed on Annex IV of the Habitats Directive are strictly protected wherever they occur, whether inside or outside the Natura 2000 network. Annex I habitats outside of SACs are still considered to be of national and international importance and, under Article 27(4)(b) of the European Communities (Birds and Natural Habitats) Regulations, 2011, public authorities have a duty to strive to avoid the pollution or deterioration of Annex I habitats and habitats integral to the functioning of SPAs.

Sites of national importance for nature conservation are afforded protection under planning policy and the Wildlife Acts, 1976–2012. Natural Heritage Areas (NHAs) are sites that are designated under statute for the protection of flora, fauna, habitats and geological interest. Proposed NHAs (pNHAs) are published sites identified as of similar conservation interest but have not been statutorily proposed or designated.

The International Union for the Conservation of Nature and Natural Resources (IUCN) provides a global approach for evaluating the conservation status of species to inform and catalyse action for biodiversity conservation through the Red List of Threatened Species.

1.3 Approach and Objectives

A habitat is the environment in which an animal or plant lives, generally defined in terms of vegetation and physical structures. Features of ecological significance occurring or likely to occur within the zone of influence (ZOI) of the Greenway were classified as Key Ecological Receptors (KERs). Features of ecological significance are designations for nature conservation, *i.e.* habitats and species protected under the Habitats Directive, the Birds Directive, the Wildlife Acts, 1976-2012 and the Flora (Protection) Order, 2015 and species subject to restrictions listed on the Third Schedule to the European Communities (Birds and Natural Habitats) Regulations, 2011-2015, *i.e.* invasive alien species (IAS). A KER can therefore be defined as any site, habitat, ecological feature, vegetative assemblage, community, species or individual:

- Occurring within the ZOI of the Greenway;
- Considered likely to be impacted upon by the Greenway; and,
- Requiring further survey in order to more accurately predict the nature, magnitude and significance of those impacts.

The ZOI was derived, reviewed and amended as the Project evolved through consultation with Ecological specialists, Project Engineers, Geologists, Hydrologists, Hydrogeologists and Landscape Architects on the basis of analysis of the possible interaction with Environmental Resources and Receptors that are likely to be affected by any biophysical changes caused by the Greenway. These included interactions between the Greenway and the Qualifying Interests of European (Natura 2000) sites, as appropriate, taking their sensitivities, ecological functions and processes that support them into account. In this regard, the ZOI for the Greenway includes the route corridor and a 1 km buffer (Figure 2). The study area was defined as the route corridor and incorporated an additional 100 m buffer (150 m for Otter), where access allowed, adhering to best practice guidelines (TII, 2009a; Smith *et al.*, 2011).

On completion of scoping, a desk study was undertaken to review all available published data on European and nationally designated sites for nature conservation, other ecologically sensitive sites and habitats and species of interest within the ZOI. Published data describing

ecological conditions was then cross-referenced with publicly available maps and aerial orthophotography from Ordnance Survey Ireland (OSi), the NPWS and the Environmental Protection Agency (EPA) to identify important ecological features.

This EclA quantifies the potential impacts on Key Ecological Receptors and identifies the mitigation measures required to avoid and reduce any likely significant impacts. The results of the ecological surveys informed the Greenway design, thereby addressing potential impacts on habitats and species of conservation interest.

Determining the ecological issues to be addressed in the EclA was informed by early engagement with relevant parties/stakeholders who were provided key information about the Greenway. During this scoping process, selected consultees were provided the opportunity to input into the scheme through preliminary discussions on ecological features that could be affected, potential strategies to avoid negative impacts and possible compensation or enhancement measures.

Following the scoping and desk study, multidisciplinary ecological walkover surveys were conducted along the entire preferred route option adhering to *Ecological Survey Techniques for Protected Flora and Fauna during the Planning of National Road Schemes* (TII, 2008a) and *Best Practice Guidance for Habitat Survey and Mapping* (Smith *et al.*, 2011). The walkovers classified habitats according to *A Guide to Habitats in Ireland* (Fossitt, 2000) and identified corresponding habitats listed on Annex I of the Habitats Directive. The findings of these habitat surveys are presented in contemporary thematic maps for ease of geospatial reference and interpretation (Appendix A). Multidisciplinary surveys also included watercourse assessments, Bat roost suitability assessments and Bat activity surveys, specialist non-volant terrestrial protected mammal surveys, e.g. for Otter and Badger. The surveys provided vital information regarding ecological conditions on the route corridor, identifying KERs and the need for specialist surveys, licensing and mitigation in specific locations.

Using the comprehensive assessment of the existing environment (baseline conditions), it has been possible to accurately predict the likely impacts of the Greenway on the KERs and correctly assign an ecological significance to them.

Where detrimental impacts have been identified, they have been examined and specific mitigation measures developed in accordance with the hierarchy of options suggested by the European Commission in Managing Natura 2000 sites: *The Provisions of Article 6 of the Habitats Directive 92/43/EEC* (EC, 2000). The adopted approach was:

- Avoid at source;
- Reduce at source;
- Abate on site; and, finally,
- Abate at receptor.

The information provided in this EclA accurately and comprehensively describes the baseline ecological environment, provides an accurate prediction of the likely ecological impacts of the Greenway, prescribes mitigation as necessary and describes the residual ecological impacts. The surveys, analysis and reporting have been undertaken in accordance with the appropriate best practice guidelines for EclA, as described in Section 2.

1.4 Main Sources of Consultation

- NPWS (2007) *Circular Letter NPWS 2/07 Guidance on Compliance with Regulation 23 of the Habitats Regulations 1997 – strict protection of certain species/applications for derogation licences*. Department of the Environment, Heritage and Local Government;
- NPWS (2010) *Circular NPW 1/10 & PSSP 2/10 Appropriate Assessment under Article 6 of the Habitats Directive: Guidance for Planning Authorities*. Department of Environment, Heritage and Local Government;

- NPWS (2013) *The Status of EU Protected Habitats and Species in Ireland. Volume 2 & 3: Article 17 Assessments*. National Parks & Wildlife Service, Department of Arts, Heritage and Gaeltacht; and,
- Eionet (2015) *Reporting under Article 12 of the Birds Directive (Period 2008-2012)*. European Topic Centre on Biological Diversity.

2. SCOPING

2.1 Overview

The Irish Government policy entitled *Smarter Travel: A Sustainable Transport Future*, which runs from 2009 to 2020, identifies key goals and objectives to be met in order to introduce a national sustainable transport network. A National Cycle Policy (NCP) was implemented in conjunction with this policy. The NCP mission aims to “create a strong cycling culture in Ireland” while also “encouraging recreational cycling”. The NCP also outlines the importance of the National Cycle Network in attracting overseas tourists if the project is implemented.

The proposed Greenway will form part of the route providing a safe recreational facility for tourists and local users to cycle between Dublin and Galway. The Greenway aims to feed into the local and national tourism strategies and complement the existing natural, cultural and built heritage along the route. The Greenway forms part of the National Cycling Plan K1 Royal Canal Greenway (Clonsilla-Leixlip-Maynooth-Kilcock-Enfield) outlined in the Scoping Study of the same name in 2010. The Greenway will for its entire length be segregated from vehicular traffic and will provide a safe route for cyclists.

A single Screening for Appropriate Assessment (AA) and Screening for Environmental Impact Assessment (EIA) has been carried out for the Greenway.

2.2 Existing Land-Use

The footprint of the proposed route is entirely along northern bank of the Royal Canal. The existing land-use along the route is predominantly agricultural. From Ferrans Lock at the eastern end, the proposed Greenway runs parallel to the L5027 on an embankment next to the canal for 350m. The road then diverges from the canal and the Greenway will run through agricultural land grazed by cattle. The Greenway then passes through a 300 m section of mixed broad-leaved woodland. The western end of the route is used for access to three private properties.

2.3 Material Assets

The proposed route is 5.8 km in length. The entire route of the Greenway is proposed within a 5 m footprint on the northern bank of the Royal Canal consisting of a 3 m wide quarry dust surfaced path and 1 m verges on either side, where practicable. The existing vegetation and topsoil will be removed and a 3 m wide path with quarry dust surfacing will be constructed in its place for the entire length.

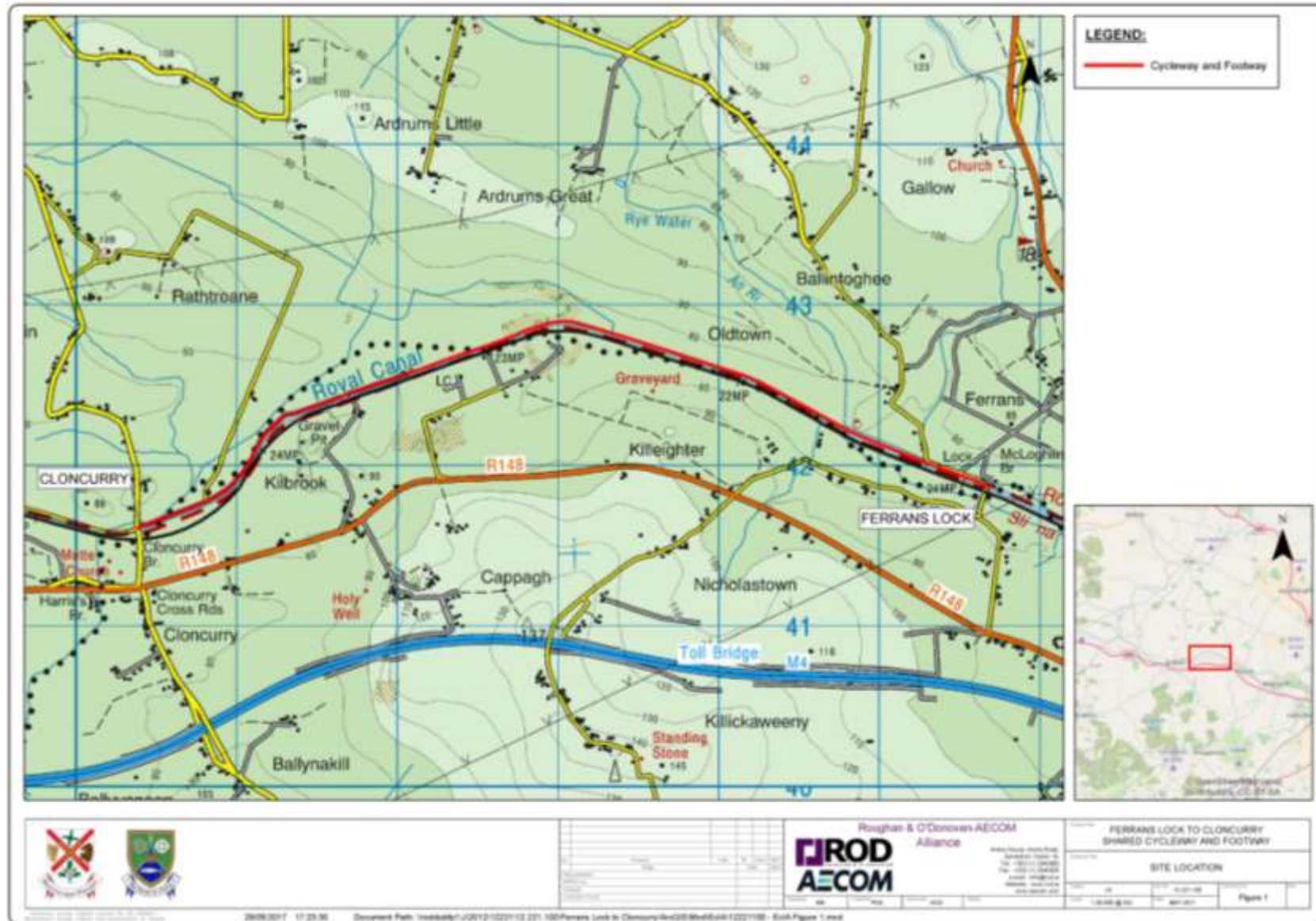


Figure 1. Location of the proposed Greenway.

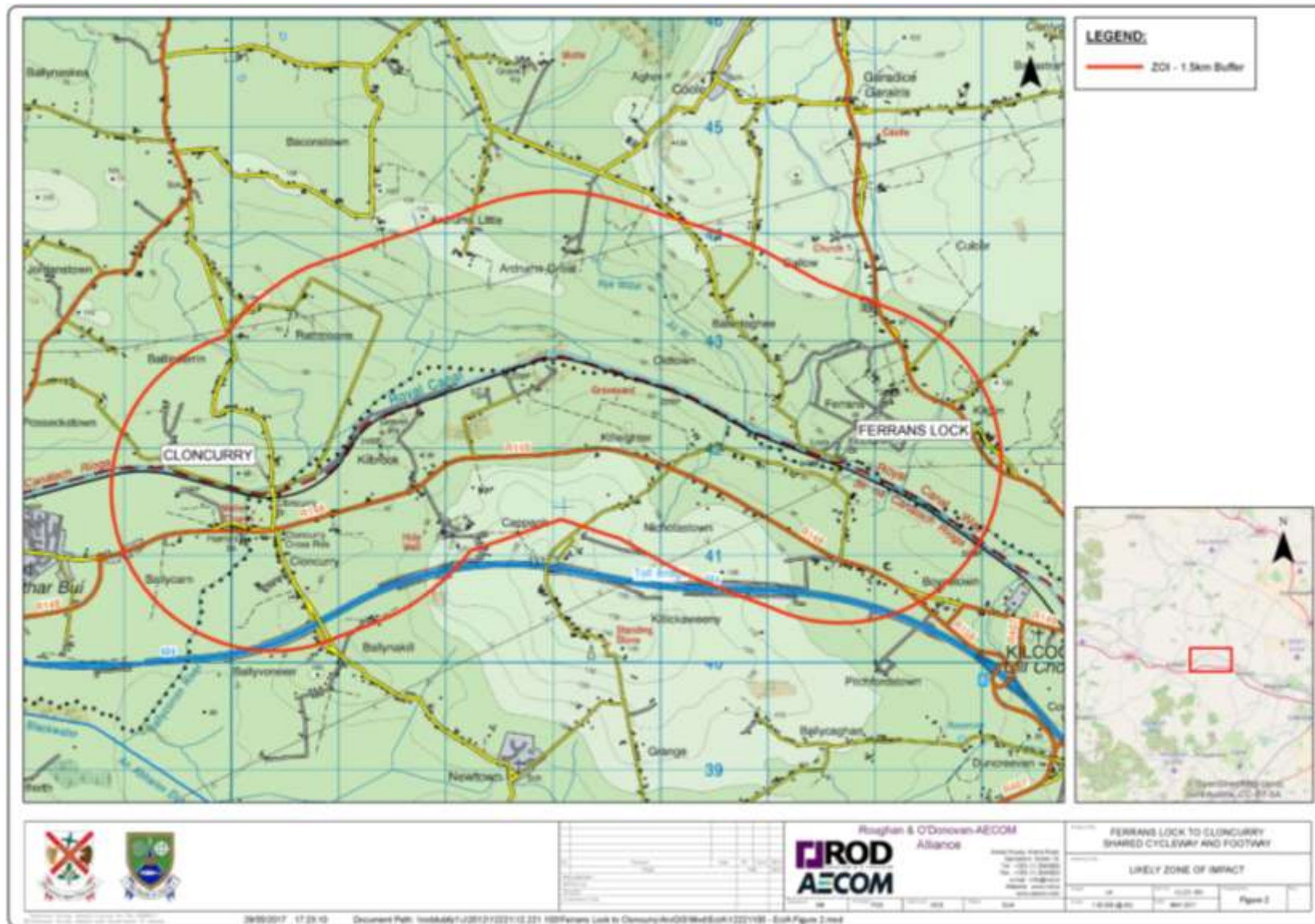


Figure 2. Zone of Influence (ZOI) of the proposed Greenway.

3. ESTABLISHING THE BASELINE

This section describes the process of determining the ecological issues to be addressed in this EclA. Recognised guidelines were followed in relation to every aspect of the scoping, survey and assessment.

3.1 Scope of the Assessment

The assessment methodology is based primarily upon the Transport Infrastructure Ireland (TII), formerly National Roads Authority (NRA), *Guidelines for Assessment of Ecological Impacts of National Road Schemes Rev. 2* (TII, 2009a). The survey methodology is based on the TII *Guidelines on Ecological Surveying Techniques for Protected Flora and Fauna on National Road Schemes* (TII, 2008a).

In addition, other recognised guidance in Environmental and Ecological Impact Assessment regard provided direction in the preparation of the scope, structure and content of the assessment:

- *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal* (CIEEM, 2016);
- *Draft Revised Guidelines on the information to be contained in Environmental Impact Statements* (EPA, 2015);
- *TII Publication Standards* (TII, 2016);
- *Project Management Guidelines* (TII, 2010a);
- *Guidelines for Assessment of Ecological Impacts of National Road Schemes* (TII, 2009a); and,
- *Environmental Assessment and Construction Guidelines* (TII, 2006b).

3.2 Establishing the Zone of Influence

The key variables determining whether important ecological features will be subject to impacts through development are:

- The physical distance of the proposed development to the KERs identified by the desk study and multidisciplinary walkover surveys;
- The sensitivities of the any other ecological receptors within the receiving natural environment; and,
- The potential for in-combination effects.

The ZOI was derived, reviewed and amended as the route corridor evolved through consultation with public authorities and on the basis of identified potential ecological and biophysical changes caused by the construction and operation of the Greenway. For the purpose of this assessment, this is taken as 1.5 km from the works. This zone was also applied for the “likely zone of impact” used to inform the Screening for AA for the Greenway and is shown in Figure 2.

3.3 Consultation and Desk Study

A desktop study was carried out as part of the Ecological Assessment for the Maynooth to the Westmeath Boarder Shared Cycleway and Footway (MKOS, 2013) to collate information on the ecology of the area potentially impacted by the Greenway, including information on species listed on:

- Annex II of the Habitats Directive;
- The Wildlife Acts, 1976 to 2012;
- The Flora Protection Order, 2015;
- Annex I of the Birds Directive; and,

- The Third Schedule to the European Communities (Birds and Natural Habitats) Regulations, 2011-2015.

Data was sourced from the NPWS and the National Biodiversity Data Centre (NBDC). The NPWS online interactive map viewer provided information relating to designated sites of conservation importance within the ZOI. The study area overlaps with one of the NPWS 10 km × 10 km grid squares (hectads): N84. Spatial queries of this 10 km square were undertaken using data provided by NBDC.

The desk study undertaken for the EclA included a thorough review of available ecological data including from the following sources:

- Online interactive web-mappers from the NPWS, the NBDC, Teagasc, the EPA, the Water Framework Directive (WFD), the Geological Survey of Ireland (GSI), Inland Fisheries Ireland (IFI) and the Irish Wetland Bird Survey (I-WeBS);
- Bird atlases: Sharrock (1976), Lack (1986), Gibbons *et al.* (1993) and Balmer *et al.* (2013); and, *Birds of Conservation Concern (BoCCI) in Ireland 2014–2019* (Colhoun & Cummins, 2013).

As with all desk studies, the data considered were only as good as the data supplied by the recorders and recording schemes. The recording schemes provide disclaimers in relation to the quality and quantity of the data they provide and these were considered when examining outputs of the desk study.

3.4 Specific Ecological Methodologies

3.4.1 Multi-disciplinary Walkover Surveys

A multi-disciplinary ecological walkover survey of the study area, which incorporated the footprint of the Greenway and a 50 m buffer, was undertaken on the 28th March 2017 by Patrick O'Shea ACIEEM. Patrick is a suitably qualified and accredited ecologist with relevant academic qualifications and experience in ecological survey and assessment.

Habitat surveys were undertaken in 2013 by McCarthy Keville O'Sullivan as part of the Part VIII for the Maynooth to the Westmeath Border Shared Cycleway and Footway. For this reason a full habitat section is not included in this report.

The entire canal bank between Ferran's Lock and Cloncurry is largely secure with access points to existing public roads at either end of the scheme. Access along the northern canal bank on foot was restricted at the eastern end of the proposed route, parallel to the L5027, due dense scrub and young trees with occasional ivy-clad mature trees. The canal bank along this section was accessible from the L5027 which runs parallel to the canal bank. The footprint of the Greenway is generally a 5 m wide corridor on the northern bank of the canal, which limits potential impacts on surrounding habitats. The corridor will be reduced as necessary to limit the tree felling and disturbance to sensitive habitats. Habitats considered to be of ecological significance and, in particular, having the potential to correspond to those listed in Annex I of the Habitats Directive were identified during the habitats survey undertaken in 2014.

The walkover survey was designed to detect evidence, or likely presence of protected and invasive species. The survey included identification of suitable habitat for Badger and breeding or resting places, *e.g.* setts, natural and built features with potential to support a Bat roost and linear features likely to be of significance to foraging and commuting Bats and built and natural habitat features with potential to support other protected species likely to occur in the study area, *e.g.* Otter. Surveys were carried out in accordance best practice guidance (TII, 2008a). The following sections outline the methodologies followed when undertaking various specialist survey elements.

3.4.2 Watercourses

The Royal Canal is of ecological significance as it provides important habitat for a range of sensitive protected species, for example, species listed on Annex II of the Habitats Directive,

e.g. Otter and White-clawed Crayfish, and species listed on Annex I of the Birds Directive, e.g. Kingfisher. In addition, watercourses often support a wide range of aquatic and riparian species of high conservation value. Watercourses can act as conduits for invasive species and both a pathway and receptor for pollutants to sensitive habitats/species located along and downstream of the Greenway.

The Royal Canal and associated drainage ditches were subject to a detailed Otter survey and Kingfisher suitability assessment.

3.5 Protected Mammal Surveys

Summary details of the methodologies utilised in the various detailed protected mammal surveys undertaken are presented below.

3.5.1 Otter (*Lutra lutra*)

The function of the Otter survey was to identify any sensitive features within the study area potentially of use to breeding, resting, foraging or commuting Otter and to establish presence or absence of Otter activity.

Otter are listed on Annex II and Annex IV of the Habitats Directive and protected under the Wildlife Acts, 1976-2012. Otter is evaluated as being Near Threatened in the most recent Red List for mammals (Kingston, 2012). This species is distributed throughout Ireland and can have a home range of up to 10 or 20 km (NPWS, 2013). As per the latest NPWS Article 17 Reporting, the range, population, habitat and future prospects for this species in Ireland have been assessed as favourable.

The Otter survey was conducted adhering to best practice guidance (TII, 2008a; 2008b) and involved a search of the banks of the Royal Canal for physical evidence of Otter, e.g. spraints, prints, slides, trails, couches and holts. TII (2008a; 2008b) does not specify an extent or scope for an Otter survey other than an expectation that the derogation limit of 150 m is sufficiently covered. A survey of 150 m upstream and downstream of the Greenway with particular attention given to important features was considered an appropriate survey corridor for Otter. The survey methodology was also cognisant of the recommendations in the *Otter Threat Response Plan 2009-2011* (NPWS, 2009), which recognises the importance of the riparian buffer (10 m on both banks) for Otter and these areas were included in the survey corridor.

3.5.2 Badger (*Meles meles*)

The Badger survey was conducted in order to determine the presence or absence of Badger within the study area. Badgers occur throughout the island of Ireland and are afforded protection under the Wildlife Acts, 1976-2012. The proposed development may directly or indirectly impact on Badgers. Construction may result in death or injury to Badgers within setts, as well as the destruction of the setts themselves, loss of foraging habitat or dissection of their foraging areas. Construction works close to breeding setts can cause serious disturbance to Badgers and mortality of cubs.

The Badger survey was conducted adhering to best practice guidance (TII, 2006a; 2008a) and involved a systematic search of all fence lines, woodland and scrub habitats for physical evidence of Badger, e.g. setts, latrines, badger paths. The optimal period for Badger surveys is during seasonal peaks in territorial activity and when vegetation cover is at a minimum (February to April and less pronounced peak in October). Badger setts were classified as main, annex, subsidiary and outlier, as per the convention set out in TII (2006a) and levels of current usage were noted.

3.5.3 Bats

All nine resident breeding Bat species in Ireland are protected, wherever they occur. Their roost sites (whether in use or not) are strictly protected under both European and Irish legislation. Under the Wildlife Acts, 1976-2012, all Bat species occurring in Ireland are listed in Schedule V to the Acts as a protected species. This legislation makes it illegal to kill or

injure Bats in the wild and makes it an offence to wilfully interfere with, or to destroy, their breeding and resting places.

The Habitats Directive offers legal protection to all ten Bat species currently known to occur in Ireland and lists them under Annex IV of the Directive as species of Community interest in need of strict protection. Under the European Communities (Birds and Natural Habitats) Regulations, 2011-2015, it is an offence to deliberately capture or kill Bats in the wild, to deliberately disturb them particularly during the breeding, rearing, hibernation and migration seasons, or to cause the deterioration or destruction of their breeding and resting sites. Derogation licences can be issued to permit roost loss or disturbance and other potential offences to be committed providing the conservation status is unaffected and other tests within the legislation are met. Furthermore, as a signatory to the European Bats Agreement (Agreement on the Conservation of Bats in Europe) 1993, Ireland is required to protect Bat habitats, requiring the identification and protection from damage or disturbance, of important feeding areas. All Irish Bat species are listed in Appendix II of the Bern Convention (1979), as species requiring strict protection.

Preliminary Bat Roost Suitability Assessment

The function of the Bat suitability assessment was to identify built or natural features within close proximity to the construction envelope (area in which construction or ground works will take place, *i.e.* direct/indirect physical or noise disturbance) of the Greenway and that could provide moderate to high potential to support a Bat roost.

The Bat suitability assessment was conducted adhering to best practice guidance (TII, 2006b; Collins (ed), 2016) and involved a visual assessment and categorisation of highly suitable features on buildings and trees capable of supporting roosting Bats. Suitable entry and exit points around eaves, soffits, flashing, under tiles were examined on buildings for physical evidence of use by Bats, *e.g.* Bat droppings and indicative staining and scratching at holes or cracks. External visual assessment was undertaken using binoculars and torches. Trees were assessed using the recognised criteria outlined in Collins (ed) (2016). The locations of trees with any natural holes, cracks/splints in major limbs, loose bark, hollows/cavities or dense epicormic growth that could provide moderate to high potential were recorded with high definition Geographical Positioning System (GPS). Linear landscape features *e.g.* mature treelines and hedgerows with potential to provide important foraging and commuting habitat for Bats were also recorded and geospatially referenced.

3.5.4 Additional Protected Species

During the multi-disciplinary ecological walkover surveys the potential for the study area to support additional protected mammals listed in the Wildlife Acts, 1976-2012, such as Irish Hare, Pine Marten, Red Squirrel, Pygmy Shrew, Irish Stoat, Hedgehog *etc.* was assessed and any physical evidence of presence recorded. Further detail on these species is provided in the Results section, where relevant.

3.6 Fisheries

Detailed fish stock surveys were not conducted, given that significant impacts to fisheries are not anticipated. This followed best practice guidance (TII, 2009a) which states that “*It will only be appropriate to undertake detailed surveys where significant impacts are anticipated on potentially valuable assemblages of fish, or important populations of a particular species.*”

A review of the EPA water quality information for the Royal Canal was also undertaken. Between Mullingar and Dublin, the water quality of the Royal Canal is described as satisfactory, with occasional elevated levels of pollution. The EPA is the competent authority responsible for monitoring, protecting and improving the environment as a valuable asset within the Republic of Ireland.

3.7 Ecological Evaluation and Impact Assessment Methodology **Evaluation of Ecological Resources**

The criteria used for assessment of the value of the ecological resources follows those set out in Section 3.3 of TII (2009a). These guidelines set out the context for the determination of value on a geographic basis with a hierarchy assigned in relation to the importance of any particular receptor. The guidelines provide a basis for determination of whether any particular site is of importance on the following scale:

- International;
- National;
- County;
- Local Importance (Higher Value); and,
- Local Importance (Lower Value).

This guidance clearly sets out the criteria by which each geographic level of importance can be assigned. For example, Locally Important (Lower Value) receptors contain habitats and species that are widespread and of low ecological significance and only of any importance in the local area. Conversely, Internationally Important sites are either designated for conservation as part of the Natura 2000 Network (SAC or SPA) or provide the best examples of habitats or internationally important populations of protected fauna.

All habitats and species within the ZOI and study area were assigned a level of significance on the above basis and KERs were established and classified on this basis.

Assessment of Impact Type and Magnitude

Reference is made to the following parameters wherever appropriate when characterising impacts (Section 5):

- Magnitude – the quantum of impact, e.g. number of individuals affected;
- Extent – the area over which the impact occurs (quantitative);
- Duration – the time during which the impact continues, until recovery or re-instatement;
- Reversibility – whether an impact is ecologically reversible;
- Timing of impacts in relation to important seasonal and/or life-cycle constraints; and,
- Frequency – how often an impact will be repeated.

The assessment of impact takes account of construction and operational phases; direct, indirect and synergistic impacts; and, those that are temporary, reversible and irreversible. The criteria for assessment of impact magnitude, type and significance are given in Table 3.7.1 and 3.7.2. The following terms are defined when quantifying duration (EPA, 2015):

- Temporary – up to 1 year;
- Short-term – 1 to 7 years;
- Medium-term – 7 to 15 years;
- Long-term – 15 to 60 years; and,
- Permanent – over 60 years.

Table 3.7.1 Criteria for assessing impact significance based on (EPA, 2015)

Impact Magnitude	Definition
No change	No discernible change in the ecology of the affected feature
Imperceptible Impact	An impact capable of measurement but without noticeable consequences
Slight Impact	An impact that causes noticeable changes in the character of the environment without affecting its sensitivities
Moderate Impact	An impact that alters the character of the environment that is consistent with existing and emerging trends
Significant Impact	An impact that, by its character, its magnitude, duration or intensity

	alters a sensitive aspect of the environment
Profound Impact	An impact that obliterates sensitive characteristics

Table 3.7.2 Criteria for assessing impact quality based on (EPA, 2015)

Impact Type	Criteria
Positive	A change that improves the quality of the environment, e.g. increasing species diversity, improving reproductive capacity of an ecosystem or removing nuisances
Neutral	A change that does not affect the quality of the environment
Negative	A change that reduces the quality of the environment, e.g. lessening species diversity or reducing the reproductive capacity of an ecosystem

Once the potential impacts are characterised, the significance of any such impacts on the identified KERs will be determined. An impact is considered to be ecologically significant if it results in a change in the conservation status of a KER.

Process of Assessing Significance

The significance of any identified impacts is determined whereby impacts are assigned significance empirically on the basis of an analysis of the factors which characterise them, irrespective of the value of the receptor. Significance is determined by effects on conservation status or integrity, regardless of geographical level at which these would be relevant.

If impacts are not found to be significant at the highest geographical level at which the resource has been valued, they may be significant at a lower level and this is determined sequentially. Similarly, impacts that do not affect the integrity of a site may, nevertheless, affect the conservation status of a valuable constituent habitat or species, at a lower geographic scale. An equivalent approach has been applied to mitigation measures prescribed, which may have a significant beneficial impact, but at a higher or lower geographic scale than the receptor to which they have been applied.

3.7.1 Mitigation

The Greenway largely utilises existing built surfaces and inherently avoids many potential impacts on sensitive habitats and species. The potential impacts of the Greenway are considered and assessed to ensure that all impacts on Key Ecological Receptors are adequately addressed and no significant residual impacts remain following mitigation. Where significant impacts on Key Ecological Receptors are predicted, mitigation has been prescribed to address such impacts. In addition, mitigation has been employed to ensure legislative and policy compliance and in some cases to result in an enhancement of the biodiversity value of an area that is not among the identified Key Ecological Receptors. Proposed mitigation measures are specifically set out and are realistic in terms of cost and practicality.

3.7.2 Survey Limitations

Standard survey methods were followed. However, any biases or limitations associated with these methods could potentially affect the results collected. Furthermore, while every effort was made to provide a full assessment and comprehensive description of the site, it is unlikely that one survey can achieve full characterisation due to temporal variation.

In March 2017, access was limited at the western end of the route between the eastern end of the paved road and the woodland (24+100- 24+700). This area consists of a field that was visible from the south bank and the area is of limited ecological value.

The Fossitt habitat survey was conducted in March 2014, which would be considered a sub-optimal time of year for habitat surveys. The optimum time of year for broad habitat surveys is considered to be between May and September. It is recognised that whenever a survey is

carried out within the defined season, it is a compromise, suitable for the vast majority of species, but possibly too early or too late for some species.

4. IMPORTANT ECOLOGICAL FEATURES

This section of the EclA presents the results of the Desk Study and provides a detailed description of the ecology of the existing environment within the Ferrans Lock to Cloncurry Shared Cycleway and Footway study area.

4.1 Designated Sites

An Appropriate Assessment Screening report was undertaken to inform the Part VIII application for the Westmeath Border to Maynooth Shared Cycleway and Footway. The potential for the Greenway to impact on Natura 2000 sites within the Zone of Influence was considered as part of this assessment.

The Appropriate Assessment Screening Report concluded:

“As a result of the assessment carried out it is the considered view of the author that the proposed development, with the implementation of the measures detailed at Section 7.0, will have no adverse effect on the integrity of any of the Natura 2000 sites listed and as such this report returns a conclusion that there is no potential for significant effects on the Natura 2000 sites. As such the project can be screened out under the Habitats Directive as not requiring a Stage 2 Appropriate Assessment.”

As the route adjustment from the south bank to the north bank of the canal is inconsequential in terms of the “likely zone of impact”, the AA Screening Report for the overall scheme is valid for the purposes of the Part VIII application for this phase. The ecological survey carried out in March 2017 along the northern side of the canal between Cloncurry and Ferrans Lock supplemented the ecological assessment undertaken in 2014 as part of the Part VIII Report for the whole scheme.

There are no Natura 2000 sites within 1.5 km of the proposed Greenway, however the Greenway itself runs parallel and in close proximity to the Royal Canal pNHA.

The site synopsis of the Royal Canal pNHA states: *“The ecological value of the canal lies more in the diversity of species it supports along its linear habitats than in the presence of rare species. It crosses through agricultural land and therefore provides a refuge for species threatened by modern farming methods”.*

4.2 Habitats

A habitats desk study and field survey was undertaken as part of the Ecological Assessment undertaken in 2013 to inform the Part VIII application for the Westmeath Border to Maynooth Shared Cycleway and Footway.

The route of the proposed Greenway travels adjacent to the Royal Canal pNHA and through a mixed broadleaved woodland. Both of these habitats may be impacted by the Greenway and have been included as Key Ecological Receptors.

4.3 Protected Flora and Fauna

A protected species desk study and field survey was undertaken as part of the Ecological Assessment undertaken in 2013 to inform the Part VIII application for the Westmeath Border to Maynooth Shared Cycleway and Footway. The following sections give an overview of the desk study sources consulted and results obtained during the detailed assessment.

Online Sources of Data

NPWS provided details on rare and protected species records from the hectads which overlap with the study area. The National Biodiversity Data Centre (NBDC) was also accessed prior to conducting the multi-disciplinary walkover surveys and was rechecked for updates on the 19th of May 2017. Tables 4.3.1 and 4.3.2, inclusive, list the rare and protected species recorded within the hectad N84.

Table 4.3.1 Annexed records for Rare and Protected Species present hectad N84.

Common Name	Scientific Name	Status
Otter	<i>Lutra lutra</i>	Annex II,IV HD; WA 1976/2012
Daubenton's Bat	<i>Myotis daubentonii</i>	Annex IV HD; WA 1976/2012
Natterer's Bat	<i>Myotis nattereri</i>	Annex IV HD; WA 1976/2012
Leisler's Bat	<i>Nyctalus leisleri</i>	Annex IV HD; WA 1976/2012
Common Pipistrelle	<i>Pipistrellus pipistrellus</i>	Annex IV HD; WA 1976/2012
Soprano Pipistrelle	<i>Pipistrellus pipistrellus</i>	Annex IV HD; WA 1976/2012
Desmoulin's Whorl Snail	<i>Vertigo (Vertigo) moulinsiana</i>	Annex II HD; WA 1976/2012
Marsh Fritillary	<i>Euphydryas aurinia</i>	Annex II HD; WA 1976/2012
Pine Marten	<i>Martes martes</i>	Annex V HD; WA 1976/2012
Peregrine Falcon	<i>Falco peregrinus</i>	Annex I BD; WA 1976/2012
Golden Plover	<i>Pluvialis apricaria</i>	Annex I, II, III BD; WA 1976/2012
Kingfisher	<i>Alcedo atthis</i>	Annex I BD; WA 1976/2012
Hen Harrier	<i>Circus cyaneus</i>	Annex I BD; WA 1976/2012
Whooper Swan	<i>Cygnus cygnus</i>	Annex I BD; WA 1976/2012
Merlin	<i>Falco columbarius</i>	Annex I BD; WA 1976/2012
Corncrake	<i>Crex crex</i>	Annex I BD; WA 1976/2012
Curlew	<i>Numenius arquata</i>	Annex II BD; WA 1976/2012
Northern Lapwing	<i>Vanellus vanellus</i>	Annex II BD; WA 1976/2012
Grey Partridge	<i>Perdix perdix</i>	Annex I, II BD; WA 1976/2012

*Key: Annex II, IV, V HD (Relevant Annexes of Habitats Directive); Annex I BD (Birds Directive); WA (Wildlife Act).

Table 4.3.2 Other Species Protected under the Wildlife Acts, 1976 to 2012 present in hectad N84.

Common Name	Scientific Name
Red Deer	<i>Cervus elaphus</i>
Irish Stoat	<i>Mustela ermine</i> subsp. <i>hibernica</i>
Pygmy Shrew	<i>Sorex minutus</i>
Eurasian Badger	<i>Meles meles</i>
Hedgehog	<i>Erinaceus europaeus</i>
Irish Hare	<i>Lepus timidus</i> subsp. <i>hibernicus</i>
Common Frog	<i>Rana temporaria</i>

4.4 Invasive Alien Species (IAS)

An invasive species desk study and field survey was undertaken as part of the Ecological Assessment undertaken in 2013 to inform the Part VIII application for the Westmeath Border to Maynooth Shared Cycleway and Footway. The results of the desk study with regard to IAS are shown in Table 4.3.3 below.

Table 4.3.3 Invasive Species present in the hectad N84.

Common Name	Scientific Name
American Mink	<i>Mustela vison</i>
Fallow Deer	<i>Dama dama</i>
Brown Rat	<i>Rattus norvegicus</i>
Grey Squirrel	<i>Sciurus carolinensis</i>
Rhododendron	<i>Rhododendron ponticum</i>

5. FIELD SURVEY RESULTS

This section of the EclA presents the results of the field surveys and provides a detailed description of the flora and fauna obtained during the multi-disciplinary walkover surveys.

5.1 General Description and Context

The footprint of the proposed Greenway is on the northern bank of the Royal Canal between Ferrans Lock and Cloncurry. At the eastern end the route is bound by the canal and the L5027. The route then follows the canal as the L5027 turns north and follows a narrow strip of wet grassland with some areas of scrub. As the canal turns the route passes through a mixed woodland dominated by birch trees with mature Scot's pines, holly and occasional oak trees.

5.2 Protected Mammal Survey

5.2.1 Otter

During dedicated surveys for this species, Otter activity or visual accounts were recorded along the route. No evidence of Otter activity, such as spraints and prints, were recorded. No potential holts or couches were identified within the study area. It is, however, considered that the species is likely to utilise the Royal Canal. This species is likely to be impacted upon and has been included among the KERs of the Greenway.

5.2.2 Badger

Badger activity was observed throughout the study area. Evidence recorded included active setts, latrines, prints, trails and snuffle holes. Three Badger setts were recorded within the study area during the multi-disciplinary walkover, a main sett, a subsidiary sett and an outlier sett. The three setts are confirmed active and occur within the 50 m derogation limit of the construction works for the Greenway. Construction of the Greenway may result in death, injury or disturbance to Badgers within setts, the destruction of setts and loss of foraging habitat (TII, 2006a). All setts will be subject to disturbance due to the construction/operation of the Greenway and Badger has been included among the KERs of the Greenway. The Badger setts and their descriptions can be found in Table 5.1 below.

Table 5.1 Badger Survey Results

Sett ID	Easting (ITM)	Northing (ITM)	Sett Type	Notes
Sett 1	683532	742770	Main Sett	Three well used holes on the north side of a ditch that runs parallel to the canal on the north side.
Sett 2	685042	742133	Subsidiary Sett	Three active hole and eight disused holes within dense hawthorn scrub next to the canal.
Sett 3	682930	742935	Outlier Sett	A single entrance sett in the birch woodland on an embankment 35m from the canal embankment. The entrance is well worn and there are signs of badger such as paths and a latrine close by.

5.2.3 Bats

A Bat roost suitability assessment was undertaken during the multi-disciplinary survey walkover. The trees in the study area were predominantly small and in good condition and were classified as having negligible potential for roosting bats.

The linear route of the canal and its associated hedgerows, treelines, grassland and scrub vegetation provide excellent foraging and commuting and foraging for Bats. Bats could be negatively impacted by the removal of vegetation and linear features and have therefore been included among the KERs of the Greenway.

5.2.4 Irish Stoat/Pygmy Shrew

No evidence of Irish Stoat or Pygmy Shrew was recorded during the walkover survey although both species are likely to be present in the local environment. Irish Stoat and Pygmy

Shrew are protected species under the Wildlife Acts, 1976-2012 and have a widespread distribution in Ireland.

5.3 Reptiles and Amphibians

It is considered that suitable Common Frog habitat including wet fields, ditches and drains is widespread in the study area. Frog spawn was recorded in one drainage ditch and it is likely that Common Frog is present throughout the study area. No waterbodies are required to be physically damaged, drained or in-filled during site preparation or construction for the Greenway. It is considered that the Greenway will not result in an overall loss of suitable habitat for Common Frog. No further study of these species was deemed necessary.

No suitable permanent ponds exist within the study area with potential to support Smooth Newt and no individuals were encountered during field surveys. On the basis of lack of suitable habitat for the species encountered, no requirement for further survey was identified.

The desk study revealed two records for Viviparous Lizard within the relevant hectads. Both records, from 1970 and 1972, are > 5 km from the study area. No Viviparous Lizards were recorded during the surveys and it is likely that most of the habitat is of low quality. It is considered that the Greenway will have no impact on this species. No further survey is required.

6. IMPACT ASSESSMENT

General impacts on flora and fauna that are typical of a Greenway scheme are described in this section where they occur in areas that have not been identified as KERs. The majority of the Greenway footprint has been identified as being of Local Importance (Higher Value) from an ecological perspective.

6.1 Designated Sites

The Greenway runs parallel to the Royal Canal proposed Natural Heritage Area. There is potential for displacement of flora and fauna, deterioration of habitat quality as a result of disturbance and accidental pollution events and therefore this has been included as a Key Ecological Receptor.

The potential for indirect impacts on the Natura 2000 site has been fully assessed in the Appropriate Assessment (AA) Screening report. This AA Screening report objectively concluded that the Greenway would not be likely to have significant effects on the Conservation Objectives or ecological integrity of any European site.

6.2 Habitat Loss

The construction of the Greenway will result in the complete loss of habitats within the land-take area of the scheme. In this case, the development is approximately 5.7 km of land adjacent to the Royal Canal. The habitat within the land-take is generally similar to the surrounding habitat. The most common habitat within the land take is Wet Grassland (GS4).

The permanent loss of Wet Grassland is not considered to be of ecological significance as these habitats are relatively species poor, support limited biodiversity and are widespread.

6.3 Habitat Fragmentation

The Greenway will result in no habitat fragmentation. The construction will allow the free passage of fauna across the route.

6.4 Run-off of Pollutants

Best practice control measures have been incorporated into the design of the scheme to avoid the run off of pollutants to the wider environment outside the construction footprint. No significant impacts are predicted in this regard on the habitats surrounding the route.

6.5 Hydrological Impact on Habitats

The proposed Greenway will maintain a neutral drainage situation, *i.e.* it will not result in any hydrological changes to the area surrounding the proposed development due to drainage or waterlogging.

6.6 Displacement/Disturbance of Mammals

The Greenway will result in disturbance and/or displacement of certain species that reside close to the route. Where mammals of particular ecological significance or potential habitat exist, these were included as KERs and are described in Table 6.1 and the sections below. Other mammal species such as Hedgehog and Irish Hare are not considered likely to be impacted significantly given the small scale of the Greenway and the widespread suitable habitat in the surrounding area. Therefore, they are considered to be receptors of Local Importance (Lower Value) and are not considered to be KERs.

6.7 Impacts on Key Ecological Receptors

Impacts on the Key Ecological Receptors as defined in the preceding sections are described below in Table 6.1.

Table 6.1 Impact characterisation for key ecological receptors based on TII (2009a)

Key Ecological Receptor	Construction phase impacts	Operational phase Impacts	Ecological Significance if Unmitigated
Royal Canal pNHA	<p>The Royal Canal pNHA runs parallel to the Greenway and is considered to be of National Importance based on its designation as a proposed Natural Heritage Area. Construction of the Greenway may result accidental pollution of the Royal Canal pNHA. The excavation of soil creates the potential for sediment and/or nutrient run-off. The use of machinery carries the potential for accidental hydrocarbon contamination of works areas by fuel spillages or oil leaks.</p>	<p>No direct or indirect impacts are likely to be associated with the operation of the Greenway.</p>	<p>The potential direct impact on the Royal Canal pNHA is pollution to the watercourse. In terms of indirect impacts, pollution of the canal would result in habitat deterioration which may impact the distribution of sensitive species such as otter and bats.</p> <p>The potential for pollution of the canal during the construction phase is considered to constitute a potential Temporary Moderate-Significant Negative Impact as it has the potential to alter a sensitive receptor over a short period of time and over a far wider area than the site itself. It is considered that impacts could be reversible through appropriate design and mitigation.</p> <p>It is considered that the Greenway does not have the potential to result in significant impacts on this KER at the National level.</p>

Key Ecological Receptor	Construction phase impacts	Operational phase Impacts	Ecological Significance if Unmitigated
Woodland	<p>An area of mixed woodland on the north side of the Canal provides important habitat for mammals, birds and invertebrates and is considered to be of Local Importance (higher value) based on the woodland's semi-natural habitat types with high biodiversity in a local context and a high degree of naturalness.</p> <p>Construction phase impacts include habitat loss and fragmentation. Indirect impacts during the construction phase may result from disturbance as a result of species such as Badger and nesting birds.</p>	No direct or indirect impacts are likely to be associated with the operation of the Greenway.	<p>The potential direct impact on the woodland is habitat loss and fragmentation.</p> <p>In terms of indirect impacts, the habitat loss and fragmentation would result in habitat deterioration, which may impact the distribution of sensitive species such as Badger and bats.</p> <p>The potential for habitat loss and fragmentation during the construction phase is considered to constitute a Permanent Negligible Negative Impact as it will alter the woodland permanently. It is considered that impacts are reversible through appropriate design and mitigation.</p> <p>It is considered that the Greenway does not have the potential to result in significant impacts on this KER at the Local level.</p>

Key Ecological Receptor	Construction phase impacts	Operational phase Impacts	Ecological Significance if Unmitigated
Badger	<p>Three Badger setts were recorded within 30 m of the proposed route of the Greenway: one main sett, one subsidiary sett and one outlier sett.</p> <p>Construction of the Greenway may result in the disturbance of setts including death or injury to Badgers within setts. There will be some loss of foraging and commuting habitat directly within the 3 m carriageway.</p>	<p>Operation of the Greenway may result in sett abandonment as a result of disturbance. No direct impacts are likely to be associated with the operation of the Greenway.</p>	<p>The disturbance of active setts within 30 m of the works, primarily the main sett, subsidiary sett and outlier sett are considered to be a Short-term Slight Negative Impact. The main sett is likely to be used for breeding.</p> <p>In terms of indirect impacts, the Greenway will allow access for Badgers both along and across the carriageway. In this regard the development will not cause the fragmentation of territories. It is considered that impacts could be reversible through appropriate design and mitigation.</p> <p>Given the nature and scale of the Greenway, disturbance impacts are not considered likely to be significant.</p> <p>It is considered that the Greenway does not have the potential to result in significant impacts on this KER at the National or County level.</p>

Key Ecological Receptor	Construction phase impacts	Operational phase Impacts	Ecological Significance if Unmitigated
<p>Otter</p>	<p>No confirmed or potential holts were recorded during the surveys. However, it is likely that there are breeding holts within the wider area. Otter can have a home range of 18 km (NPWS, 2009) and has a widespread distribution and favourable range throughout the country (NPWS, 2013). It is considered unlikely that there will be any significant direct impact on Otter as a result of the Greenway as none of the habitat was considered to be of particular significance to Otter.</p>	<p>No direct or indirect impacts are likely to be associated with the operation of the Greenway.</p>	<p>No significant direct impacts are anticipated on this species given the nature of the habitats at the crossing points and given that no confirmed breeding or resting sites were recorded. In terms of indirect impacts, the Greenway will allow access for Otter both along and across the carriageway. In this regard the development will not cause the fragmentation of territories or habitat. The potential for pollution of watercourses during the construction phase is considered to constitute a potential Temporary Moderate-Significant Negative Impact as it has the potential to alter a sensitive receptor over a short period of time and over a far wider area than the site itself. It is considered that impacts could be reversible through appropriate design and mitigation. Construction of the development may lead to disturbance related impacts. This is considered to be a potential Short-term Moderate Negative Impact at the local scale. Given the nature of the habitats recorded and lack of active shelters, disturbance impacts are not considered likely to be significant. It is considered that the Greenway does not have the potential to result in significant impacts on this KER at the National or County level.</p>

Key Ecological Receptor	Construction phase impacts	Operational phase Impacts	Ecological Significance if Unmitigated
	<p>Indirect impacts may include fragmentation of habitat, barrier effect, disturbance, deterioration of habitat quality (water quality and loss of in-stream fishery habitat) and potential death by collision</p>		<p>Construction of the development may lead to disturbance-related impacts. This is considered to be a potential Short-term Moderate Negative Impact at the local scale.</p> <p>Given the nature of the habitats recorded and lack of active shelters, disturbance impacts are not considered likely to be significant.</p> <p>It is considered that the Greenway does not have the potential to result in significant impacts on this KER at the National or County level.</p>
Bats	<p>Bat species are considered to be a KER of Local Importance (Higher Value) as the study area is widely used by a range of species.</p> <p>No trees with Moderate or High bat roost potential were recorded. The habitat of the Royal Canal and adjacent hedgerows, treelines, woodland and scrub provided habitat to a range of species that use the area. Construction may lead to a deterioration in habitat quality as a result of vegetation removal in some areas.</p>	<p>No direct or indirect impacts are likely to be associated with the operation of the Greenway.</p>	<p>Construction of the development may lead to impacts as a result of a reduction in habitat quality. This is considered to be a potential Short-term Moderate Negative Impact at the local scale.</p> <p>Given the abundance of quality habitat in the surrounding area, this disturbance impact is not considered likely to be significant.</p> <p>It is considered that the Greenway does not have the potential to result in significant impacts on this KER at the National or County level.</p>

7. MITIGATION

This section describes the measures that will be put in place to mitigate against negative impacts associated with the Greenway and the identified KERs, as described in the preceding sections. General mitigation measures included within the design of the Greenway are described first, with more specific measures to prevent or minimise impacts on the individual receptors provided subsequently.

7.1 General Mitigation

Mitigation by Avoidance

The design has followed the basic principles outlined below to eliminate the potential for ecological impacts on KERs where possible and to minimise such impacts where total elimination is not possible.

- The AA Screening report concluded that the Greenway would not be likely to have significant effects on the Conservation Objectives of any European Site.
- Indirect impacts on any designated sites have also been avoided with a full assessment of the potential for significant effects on the integrity of these sites provided in the AA Screening report. There will be no direct impacts on Annex I habitats resulting from this development. The construction of the Greenway will maintain a neutral drainage situation. Thus, there will be no indirect impacts on sensitive habitats.

Through the implementation of generic mitigation, direct or indirect impacts on receptors of International and National importance will be avoided. In addition, the proposed alignment minimises the potential for impacts on receptors of Local Importance (Higher Value).

Mitigation by Design

The Greenway will be designed in accordance with the TII Publication Standards, the TII Environmental Assessment and Construction Guidelines, and other best practice guidelines and Irish and European legislation. The following is an overview of general design measures that will be employed throughout the entire length of the scheme to minimise and avoid negative impacts on the ecology of the footprint of the Greenway and the wider environment. More specific measures are described in relation to each Key Ecological Receptor is presented in Section 7.2.

- The land-take associated with the proposed Greenway will be temporarily fenced off at the outset of the construction phase of the project and will avoid the potential for unnecessary loss of habitat outside of the construction footprint. The fencing will not restrict the passage of mammals;
- An erosion and sediment control plan will be prepared in respect of the construction phase. The potential for run-off of pollutants during the construction phase of the Greenway will be fully managed with impacts on significant receptors avoided.

7.2 Specific Mitigation Measures

Watercourses

This mitigation is provided to ensure that the Greenway does not impact significantly on the water quality of any watercourse. The following mitigation will ensure that there is no significant impact on habitat for these species. All works in close proximity to watercourses will follow the generic best practice guidance outlined in the following documents:

- *Guidelines for the crossing of Watercourses During Construction of National Road Schemes* (TII, 2008a);
- *Guidelines on Protection of Fisheries during Construction Works in and adjacent to Waters* (IFI, 2016).

No Net Loss (SRFB, 2009)

The no-net-loss principle is fundamental to the habitat conservation goal. The principle takes into consideration the habitat and water quality requirements of fish, in the context of site-specific evaluations, in order to avoid losses of habitats or habitat components that can limit the production of fisheries resources. There must be no net loss of fish habitat or in the ability or potential for the fisheries and aquatic habitat to maintain fish stocks or the food of fish.

Watercourse Crossings

There will be no watercourse crossings included as part of the Greenway construction.

Pollution of Watercourses

This proposed development has the potential to cause pollution of the surrounding environment. Pollution could take a number of forms and occur during a number of the operations involved in the construction process. Listed below are the activities during which pollution may arise and the type of pollution that may occur along with prescribed mitigation measures.

Earthworks

Construction of the Greenway will involve excavation of soil. This creates the potential for sediment and/or nutrient run-off, especially if soil is stored in an unconsolidated state for a period of time. Suspended solids or nutrients resulting from the decomposition of organic material could potentially enter downstream natural habitats via existing drainage features. It is considered unlikely that this would happen to a significant degree.

- Excavations will be carried out using a suitably sized excavator.
- No washing of plant, vehicles or equipment will be completed within 50 m of a watercourse. Site foreman will ensure that all deliveries are required to complete wash out at their own company base, not on site.
- In all circumstances, excavation depths and volumes will be minimised and excavated material will be re-used where possible.

Hydrocarbon Usage

The use of hydrocarbons during the construction process leads to the potential for pollution to enter the wider environment, including drainage ditches and natural watercourses. Leaks in poorly maintained plant and machinery could lead to hydrocarbon dispersal over works areas. Leaks in fuel storage tanks and spillages during refueling operations could lead to larger releases of hydrocarbons into the environment.

The use of machinery carries the potential for accidental hydrocarbon contamination of works areas by fuel spillages or oil leaks for example. The works will be carried out in accordance with the following measures to avoid such impacts:

- It is likely that all machinery will be refueled from mobile tankers on the local/access roads. No refueling is to take place within 50 m of any watercourse.
- When not in use, all valves and fuel trigger guns from fuel storage containers will be locked.
- Strict procedures for plant inspection, maintenance and repairs shall be detailed in the contractor's method statements and machinery shall be checked for leaks before arrival on-site.
- All site plant will be inspected at the beginning of each day prior to use. Defective plant shall not be used until the defect is satisfactorily fixed.
- All major repair and maintenance operations will take place off-site.
- Care will be taken at all times to avoid contamination of the environment with contaminants other than hydrocarbons, such as uncured concrete or other chemicals.
- Specific measures to off-set potential impacts relating to surface water run-off, during the operation of the road, have been incorporated into the design of the scheme. These include the use of hydrocarbon interceptors and attenuation systems.

Badger

Badgers were recorded at several locations along the proposed route and are included as a KER. Impacts include the disturbance of a main sett, a subsidiary sett and an outlier sett. Indirect impacts that may occur in all areas include the loss of foraging habitat and disturbance. The vehicle-free nature of the Greenway means that there is no risk of collision. Mitigation measures that are in place to minimise the potential for impacts follow TII (2006a) and are described in the following sub-sections below.

Pre-construction Badger survey

Prior to any works being carried out, a pre-construction Badger survey will be undertaken to ensure that Badger has not taken up residence within or close to the land-take and that the supporting information submitted in the Part VIII application and respective disturbance licensing is still accurate. This survey will reassess the status of the setts recorded during the multidisciplinary walkover survey in order to establish any change during the intervening period between planning and construction.

Disturbance of Badgers

Works within 30 m of a Badger sett (50 m during the breeding season) will be supervised by an Ecological Clerk of Works (ECoW) and will be undertaken under licence from NPWS (Appendix A).

Any excavations over 1 m deep will be securely covered at night or a ramp provided to enable animals to escape should they fall in. Works will be programmed to occur during the hours of daylight only. Works involving noisy plant and machinery located near Badger protection zones will cease at least two hours before sunset (SNH, 2012).

Existing vegetation around Badger setts will be left intact, as far as practicable. Additional screening will be provided to reduce acoustic disturbance from the construction and operation of the Greenway.

No fencing will be used that would inhibit access for Badger across the Greenway. As a result of the small land-take by the Greenway, it has not been considered necessary to provide additional foraging or setting habitat specifically targeted at Badgers.

With the mitigation in place the badger population will be maintained and there are no residual effects anticipated for Badgers in the vicinity of the Greenway.

Exclusion of Badgers

Should any active setts be recorded within the development footprint during the pre-construction survey, the procedure outlined below will be followed under licence from NPWS.

Exclusion of Badgers from currently active setts will only be carried out from July to November, inclusive, in order to avoid the Badger breeding season and on provision of appropriate licensing from NPWS. Exclusion of Badgers from disused or currently inactive setts may be completed throughout the year. Should active setts be encountered prior to construction, TII (2006a) will be followed for the exclusion of active setts.

The destruction of a main sett requires the provision of an artificial sett within 100 m of the original. One-way gates should be installed on all entrances of active setts to allow badgers to exit but not re-enter. These gates should be tied open for the first three days. Once no badger activity is observed for a period of 21 days, the sett should be destroyed. If the gates are left in place for long periods of time Badgers may attempt to dig around them or to create new entrances. Therefore, setts should be destroyed as soon as the 21 day period has elapsed.

Disused setts are considered to be unused by Badgers. Further survey work will be required to ensure the setts are inactive at the time of construction. In the case of disused setts, initial exclusion involves lightly blocking entrances with vegetation and a light application of soil, *i.e.* soft-blocked. Soft blocking confirms the absence or presence of Badgers. If all entrances

remain undisturbed for 5 days, setts should be destroyed immediately under licence and supervision from the NPWS. If it is not possible to destroy the sett immediately, the entrance should be hard-blocked using buried fencing material and compacted soil and destroyed as soon as possible.

Otter

No Otter signs or shelters were recorded within the study area. However, Otter are presumed to be present along the Royal Canal and on some of the larger drainage ditches. The guidance followed in the summary of mitigation measures for Otter is

- *Guidelines for the Crossing of Watercourses during the Construction of National Road Schemes* (TII, 2005a); and,
- *Guidelines for the treatment of otters prior to the construction of National Road Schemes* (TII, 2006b).

The guidelines recommend the following mitigation measures:

Pre-construction Otter survey

Prior to any works being carried out, a pre-construction Otter survey will be undertaken to ensure that Otter have not taken up residence within or close to the Greenway footprint.

Exclusion

It is not anticipated that any Otter holts or couches will require exclusion as part of this Greenway. However, should any holt or couch be encountered within the footprint during the pre-construction surveys, it will be subject to exclusion procedures as outlined in TII (2006b).

Treatment of Otters at Watercourse crossings

The welfare of Otters will be ensured primarily through the provision of continued safe access throughout their ranges. Adequate provision for Otters at affected watercourse crossings is required to allow the species to retain continued access to their foraging areas.

Bats

The guidance followed in the summary of mitigation measures for Bats is:

- *Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes* (TII 2005b);
- *Guidelines for the treatment of bats during the construction of National Road Schemes* (TII, 2006b); and,
- *NPWS Irish Wildlife Manuals, No. 25: Bat Mitigation Guidelines for Ireland* (Kelleher & Marnell, 2006).

Tree-felling and Hedgerow Removal

Vegetated cover will be lost in order to facilitate earthworks and construction. This will include scrub, grassland and trees. These habitats are important for commuting and foraging Bat species.

While no trees were positively identified as having moderate or high potential to support Bat roosts, pre-construction Bat surveys will be required by suitably qualified Bat ecologists prior to any works being undertaken. Although no felling of trees with Bat potential is anticipated, works will have the potential to cause disturbance to roosting Bats. Should any tree roosts be identified, a derogation licence from the NPWS will be required to fell or undertake works in close proximity these trees.

Lighting

The Greenway design will not include the provision of artificial lighting.

Birds

Breeding birds were not identified as a Key Ecological Receptor for the Greenway with no significant populations recorded as likely to be impacted by the proposed works. The Greenway will result in the loss of habitat for breeding birds in the form of trees, grassland and scrub. The protection of breeding bird habitats during the breeding season (1st March to 31st August, inclusive), are set out in the Wildlife Acts, 1976-2012. Exemptions in this legislation for road construction are acknowledged. However, it is recommended that breeding bird habitat will be removed outside the bird nesting season. The loss of habitat for birds is not considered significant based on habitat availability in the surrounding area. If vegetation is to be removed during the breeding bird season the area will be checked by a suitably qualified and experienced ecologist. If nesting birds are identified works will be postponed until the chicks have fledged.

7.3 Residual Impacts

Table 7.1 Assessment of the Construction Phase Residual Impacts scale and significance, based on EPA (2015) and TII (2009a).

Key Ecological Receptor	Description	Pre-Mitigation Impacts	Ecological Significance if Mitigated
Royal Canal pNHA	The Royal Canal is a man-made waterway linking the River Liffey at Dublin to the River Shannon near Tarmonbarry. A number of different habitats are found within the canal boundaries - hedgerow, tall herbs, calcareous grassland, reed fringe, open water, scrub and woodland. The ecological value of the canal lies more in the diversity of species it supports along its linear habitats than in the presence of rare species.		
Woodland	The broad-leaved woodland that lies between Ch. 25+200 and 24+700 provides sheltering opportunities for a range of fauna and invertebrates. The woodland is dominated by birch with examples of Scot's Pine, Oak and Holly also present.		
Badger	Badger signs were located at a number of locations along the route along with active setts.	It is considered that the Greenway does not have the potential to result in significant impacts on this KER either at the National or County level. The Greenway does have the potential to result in significant impacts at the Local level.	No significant residual impact on this KER.
Otter	Signs of this species were recorded along the majority of the larger watercourses that were identified along the route in the form of prints, spraints and couch areas. No holts were recorded during the dedicated Otter surveys undertaken. It is assumed (despite lack of evidence) that Otter are present to some extent on all watercourses within the study area.	It is considered that the Greenway does not have the potential to result in significant impacts on this KER either at the National or County level. The Greenway does have the potential to result in significant impacts at the Local level.	No significant residual impact on this KER.

Key Ecological Receptor	Description	Pre-Mitigation Impacts	Ecological Significance if Mitigated
Bats	Bat species are considered to be a KER of Local Significance (Higher Value) and the study area is likely to be frequently by a range of bat species.	It is considered that the Greenway does not have the potential to result in significant impacts on this KER either at the National, County level. The Greenway does have the potential to result in significant impacts at the Local level.	No significant residual impact on this KER.

8. CONCLUSIONS

Following consideration of the residual (post-mitigation) impacts, it is noted that the Greenway will not result in any significant impacts on any of the identified KERs. In the case of the five KERs, the potential for impacts was eliminated altogether through the use of appropriate and robust design and mitigation. No potential for impacts on receptors of International Importance were identified following mitigation.

The potential for impacts on the European designated sites that were identified is fully described in the Screening for AA. This concluded, in view of best scientific knowledge and on the basis of objective information, that the Greenway, either individually or in combination with other plans or projects, would not be likely to have significant effects on designated sites. No NHAs or pNHAs were identified as KERs.

Other than the identified KERs, the ecological impacts on floral and faunal receptors of Local Importance (Lower Value) are not considered to be significant in the medium to long term. Provided that the Greenway is constructed and operated in accordance with the design, best practice and mitigation that is described within this application, the impact of the Greenway on ecology will not result in significant impacts in the long term.

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APPENDIX A
Supporting Information for a Licence Application to
Disturb Badger (*Meles meles*) Setts for the Purposes of
Development