

Cherrywood Green Routes Network

Design Report

Dun Laoghaire Rathdown County Council

Project number: 60599677

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Quality information

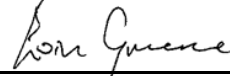
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1 Introduction

1.1 Cherrywood Strategic Development Zone (SDZ) Planning Scheme

Cherrywood is circa 360 hectares in size and is the single largest undeveloped land-bank in Dún Laoghaire-Rathdown County Council's Administrative area. It provides an opportunity to establish a vibrant new community in a unique, strategic location. Cherrywood Strategic Development Zone (SDZ) was designated by Government Order in 2010 to facilitate development which is of economic or social importance to the State. The planning scheme was further updated in 2014.

The lands are approximately 16km south east from Dublin City Centre, 8km south of Dun Laoghaire, 3km from coastline and 4km from the Dublin Mountains. The bulk of the lands lie between the M50 and the N11 (which has a Quality Bus Corridor to the City Centre). The areas are served by 5 Luas stops along the Green Line.

Seven primary land uses have been identified: Town Centre, Village Centre, High Intensity Employment, Commercial uses, Residential, Education, Green Infrastructure. This project focuses on the proposed green infrastructure, which is set out in the Cherrywood SDZ as *“a network and hierarchy of green infrastructure will be incorporated throughout the area to form a legible, accessible and pleasant outdoor environment.”*

Figure 1.1.1 shows the proposed Green Infrastructure in the Cherrywood SDZ.

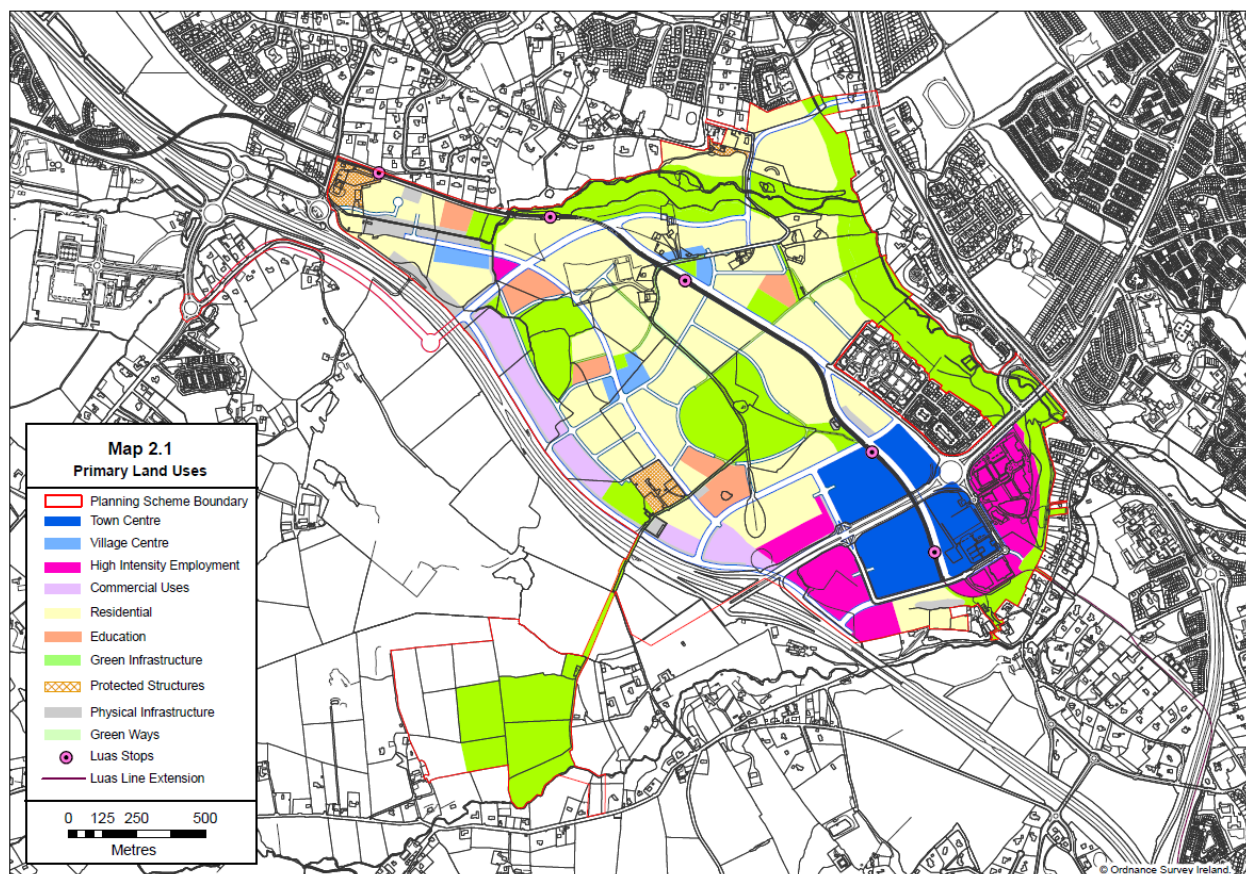


Figure 1.1.1: Map of Primary Land Uses

1.2 Greenway Routing

This report presents the findings of the options assessment work undertaken for the Cherrywood Green Routes Network and a recommendation on the emerging preferred option is made. The specific routes, as assessed in this report, are set out in the Cherrywood Planning Scheme in Section 4.2.9. will include:

- Greenway along the linear park from Cabinteely to Cherrywood and continuing towards Shankill;
- Pedestrian / cyclist links to Cherrywood Road and Brides Glen Road; and
- A proposed walking route through the Carrickmines Valley from Carrickmines through to the linear park.

These routes correspond with the Natural Green Space on the Cherrywood Way, as set out in Section 5.2 of the Cherrywood SDZ Planning Scheme, as shown in Figure 1.2.1 below.

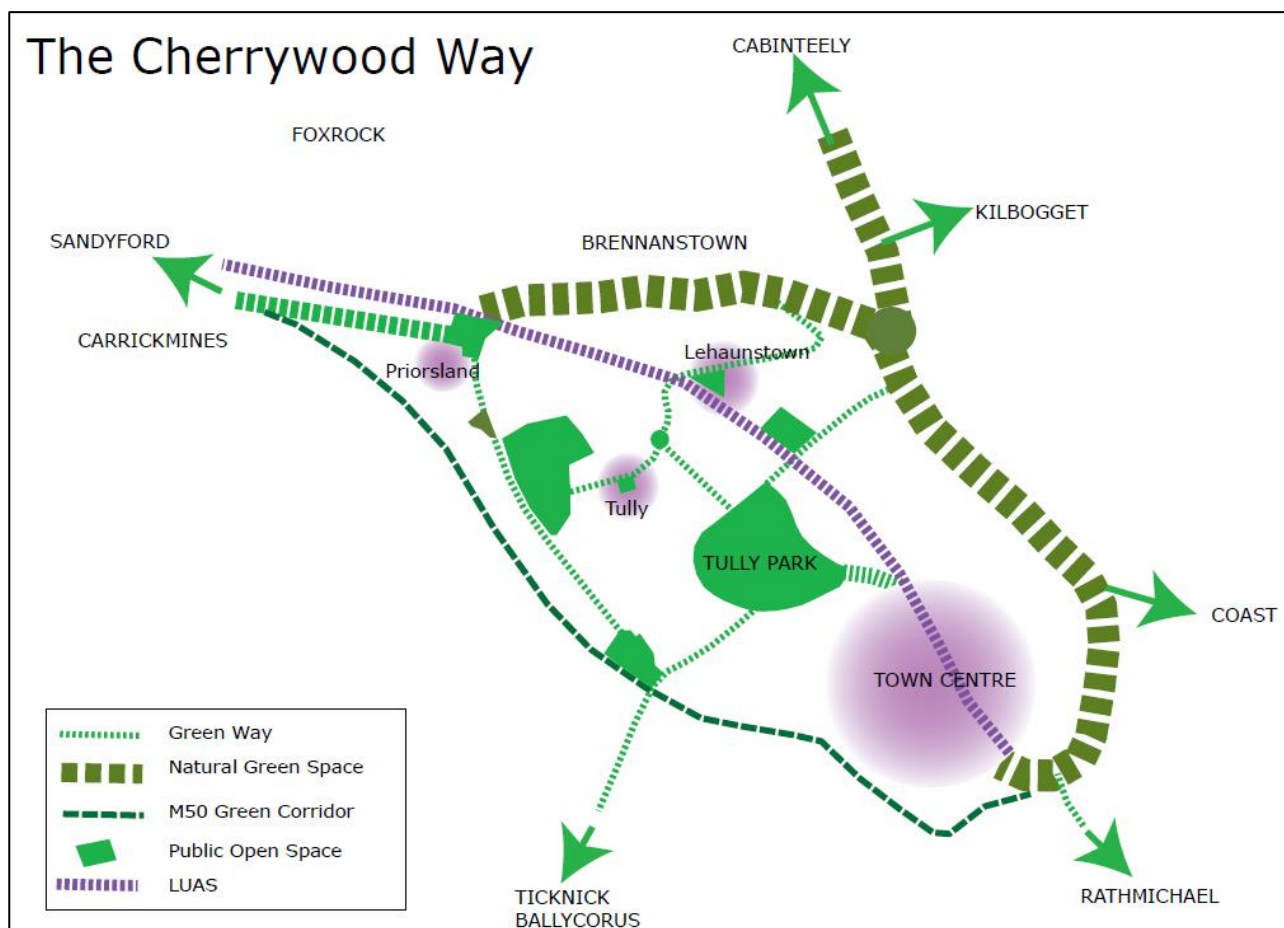


Figure 1.2.1: The Cherrywood Way (Section 5.2 of the Cherrywood SDZ Planning Scheme)

The assessment undertaken of potential design options identified along the scheme route, against established Multi-Criteria Analysis (MCA) criteria is discussed in this report. Where a number of design options were considered along the scheme route, these are also discussed and documented.

1.3 Scheme Objectives

The objective of this Project is to develop and design to detailed level a cycle and pedestrian network, ('the Network'), incorporating Greenways, motorised traffic free cycle and pedestrian links, and cycle and pedestrian infrastructure as part of the road network, for the area within and linking to the Cherrywood SDZ.

1.4 Report Structure

The report is set out in the following sections;

- Section 2: Assessment Methodology
- Section 3: Scheme Route Options
- Section 4: Emerging Preferred Scheme and Next Steps

2 Assessment Methodology

2.1 Introduction

This section of the report presents the methodology used for the assessment of potentially viable design options identified along the scheme route. The nine sections along the scheme route were assessed as individual route options as shown in the figure below.

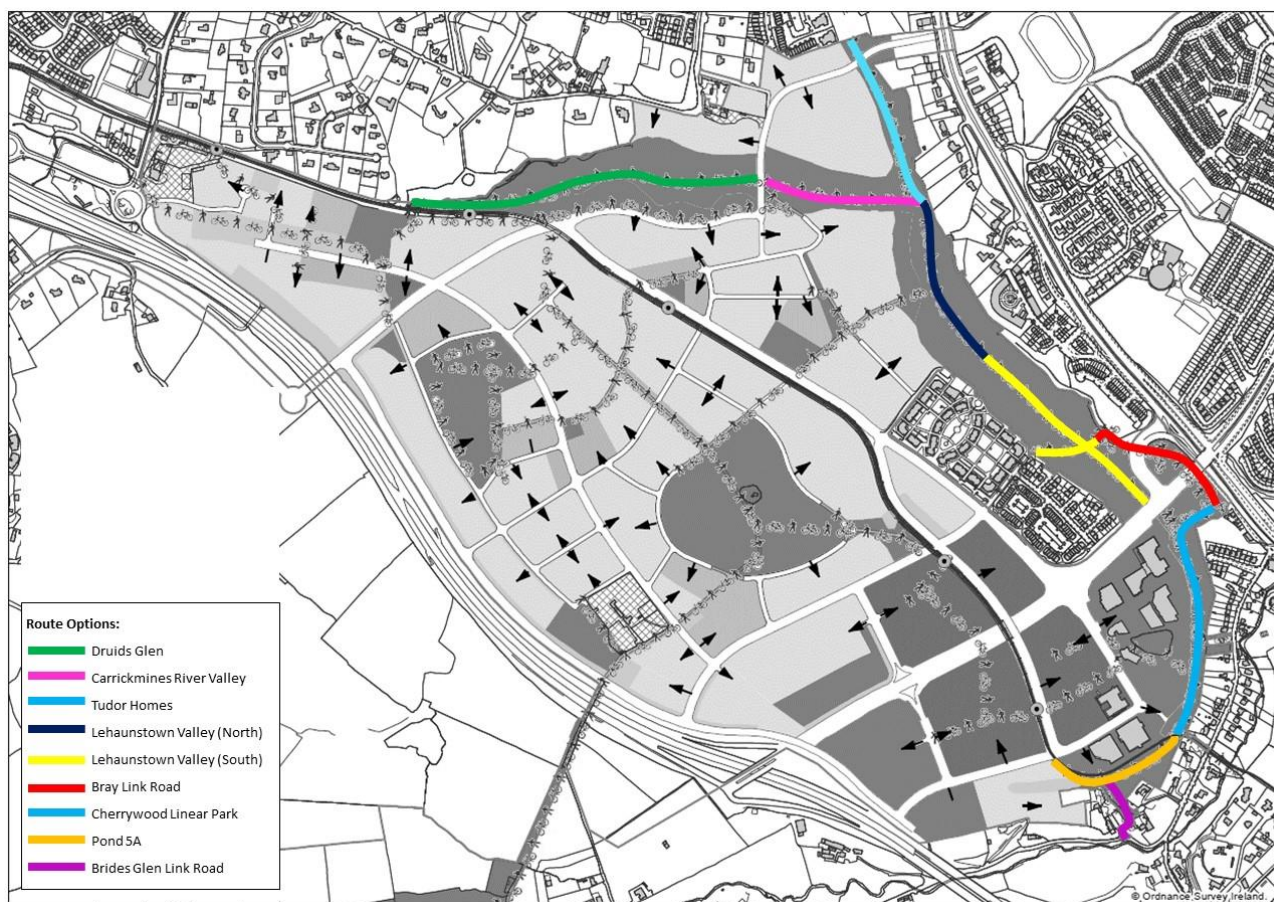


Figure 2.1.1: Proposed Scheme Sections

2.2 Methodology

The first step of the options assessment is to identify a list of route options within each Study Area Section. This list was developed based on:

- Cherrywood Planning Scheme;
- Planning Applications;
- Attenuation Ponds;
- Environmental Constraints;
- CFRAMs mapping;
- Access and Movement Strategy;
- Gradients; and
- Engineering reasoning and judgement.

2.2.1 Common Appraisal Framework (CAF) (DTTAS, 2016)

A number of possible route options within each route corridor will be assessed against the six Project Appraisal Criteria on the CAF. These criteria are included in the table below:

Table 2.2.1: Project Appraisal Criteria – Common Appraisal Framework

Economy	The impacts of a transport investment on economic growth and competitiveness are assessed under the economic impact and economic efficiency criteria
Safety	Safety is concerned with the impact of the investment on the number of transport related accidents
*Physical Activity	This relates to the health benefits derived from using different transport modes.
Environment	Environment embraces a range of impacts, such as emissions to air, noise, and ecological and architectural impacts.
Accessibility and **Social Inclusion	Accessibility and social inclusion embrace the notion that some priority should be given to benefits that accrue to those suffering from social deprivation, geographic isolation and mobility and sensory deprivation
Integration	Integration considers the extent to which the project being evaluated promotes integration of transport networks and is compatible with a range of Government policies, including national spatial and planning policy

* Physical Activity has been scoped out of the multi-criteria analysis. This is because all route options are considered to promote physical activity equally and as such it is not considered to be a key differentiator between route options.

** We consider that all the options will bring similar benefits to social inclusion therefore the criteria have been scoped out of the multi-criteria analysis.

The assessment considerations will take into account the existing built and natural environment (i.e. Land use, Ecology, Archaeology and Heritage), the National Cycle Manual's '5 Needs of the Cyclist' and the Core criteria for routes used by cyclists as per *Sustrans Design Manual – Chapter 2 Network Planning for Cyclists (2014, DRAFT)*.

2.3 Guidance

2.3.1 National Cycle Manual

The National Cycle Manual defines the '5 Needs of the Cyclist' and outlines why they are required to provide high quality cycle network. These 5 needs are described in Table 2.3.1:

Table 2.3.1: 5 Need of a Cyclist – National Cycle Manual

Road Safety	Quality of Cycling Surface: Cyclists are safer when focusing solely on road traffic and not distracted by sub-standard cycling surfaces
	*Junction Design: Most collisions involving cyclists occur at junctions
	Evening and Night Time Cycling: Poor lighting and personal security concerns will deter certain cyclists
	Drainage: Blocked drains, poorly located gullies and manholes
	Debris: Broken glass, grit build up, wet leaves
*Coherence	*Continuity of Route: It is illogical to discontinue cycling provision near busy destinations to accommodate or maintain other traffic flow
	*Junctions: Cycling routes approaching, going through and exiting junctions should be obvious
	*Time Plating: Discontinuity can occur by virtue of loading, parking or when general traffic is allowed in a bus lane
Directness	Filtered Permeability: Positive advantage to cycling by providing short-cuts etc
	*Traffic Signals: Sequencing of signals to minimise waiting time at junctions and crossings for cyclists
	Detours: Short detours to maintain momentum and avoid local conflicts. Long detours are unlikely to be used
Attractiveness	*Shelter: Planting wind breaks – this can also provide visual interest
	Maintenance: Keep cycling surface in good condition and clear of debris
	Lighting: Ensure that cycle routes are adequately lit so as not to deter evening and night time use
Comfort	Width: Provide adequate width to avoid conflict

	Gradients: Ensure gradients are not excessive
	*Stopping and Delays: Minimise the number of obstructions or detours that impact on the cycling momentum
	Surface Quality: Ensure cycling surface is smooth and continuous
	Shelter: Minimise exposure to inclement weather

* These criteria have been scoped out of the multi-criteria analysis.

2.3.2 Sustrans Design Manual – Chapter 2 Network Planning for Cyclists (2014, DRAFT)

The Sustrans Design Manual defines that the suitability of each link, to cater for the needs of the identified target users should be considered against the five criteria: coherence, directness, safety, comfort and attractiveness as described in Table 2.3.2 below:

Table 2.3.2: Core criteria for routes used by cyclists – Sustrans Design Manual

Coherence	link all potential origins and destinations
	be continuous and recognisable
	offer consistent standard of protection throughout
	be properly signed
	include well located cycle parking
Directness	be based on desire lines
	result in minimal detours or delays
	*provide a positive advantage in terms of directness and priority over motor traffic
Safety	be safe and perceived as safe
	provide personal security
	limit conflict between cyclists and pedestrians and other vehicles
Comfort	be smooth, non-slip, well maintained, drained and free of debris
	have sufficient width for the level of use
	have easy gradients
	be designed to avoid complicated manoeuvres
	enable cyclists to maintain momentum
	*minimise impacts of noise, spray and headlight dazzle from other traffic
Attractiveness	be attractive and be interesting
	integrate with and complement their surroundings
	contribute to good urban design
	enhance personal security
	be well maintained
*Adaptability	where substantial increases in cycling are expected, consideration should be given to the adaptability of infrastructure to accommodate large increases in use

* These criteria have been scoped out of the multi-criteria analysis.

2.4 Assessment Methodology (Summary table)

Table 2.4.1 shows the different factors and needs of cyclists examined for each route option under each CAF criteria.

Table 2.4.1: CAF Multi-Criteria Analysis

Common Appraisal Framework (CAF)	Route Options considerations		
	Factors	Five needs of cyclists (National Cycle Manual)	Core criteria for routes used by cyclists (Sustrans)
Economy	Indicative Construction and Land costs	Attractiveness - Maintenance; and - Lighting.	Attractiveness - be well maintained.
Safety		Road Safety - Quality of Cycling Surface; - Evening and Night time cycling; - Drainage; and - Debris.	Coherence - offer consistent standard of protection throughout; and - Be properly signed. Safety - be safe and perceived as safe; - provide personal security; and - limit conflict between cyclists and pedestrians and other vehicles. Attractiveness - enhance personal security.
Environment	-Landscape and Visual Quality; -Biodiversity; -Land use, soils and geology; - Water resources; and -Archaeological and Architectural Heritage.		Attractiveness - integrate with and complement their surroundings; and - contribute to good urban design.
Accessibility	Accessibility	Comfort -Width; - Gradients; and - Surface Quality.	Comfort - be smooth, non-slip, well maintained, drained and free of debris; - have sufficient width for the level of use; - have easy gradients; - be designed to avoid complicated manoeuvres; and - enable cyclists to maintain momentum.
Integration	Land use Cycle Network integration	Directness - Filtered Permeability; and - Detours.	Coherence -Link to all potential origins and destinations; -Be continuous and recognisable; and - Include well located cycle parking. Directness - be based on desire lines; and - result in minimal detours or delays. Attractiveness - be attractive and be interesting

For each individual assessment criterion considered, options have been relatively compared against each other, based on a three-point scale as shown in Table 2.4.2, ranging from having higher preference to having lower preference, compared to other options. For illustrative purposes, this three-point scale has been colour-coded with advantageous options graded to 'green' and disadvantaged options graded to 'red'.

Table 2.4.2 Scheme Options Colour Coded Ranking Scale

Colour	Description
Green	High preference over other options
Yellow	Medium preference compared to other options
Red	Low preference compared to other options

The findings of the Options Assessment will be summarised in the form of a matrix.

3 Scheme Options Assessment

3.1 Introduction

This section of the report presents the various scheme options along the route. In order to do this in detail, the overall greenway has been divided into nine discrete areas as follows:

- Druids Glen
- Carrickmines River Valley
- Tudor Homes
- Lehaunstown Valley (North)
- Lehaunstown Valley (South)
- Bray Link Road
- Cherrywood Linear Park
- Pond 5A
- Brides Glen Road Link

3.2 Scheme Route Description

This green route network will extend from Brides Glen Road in the south to Lehaunstown Road and Brennanstown in the north. The total route network is approximately 6.0km.

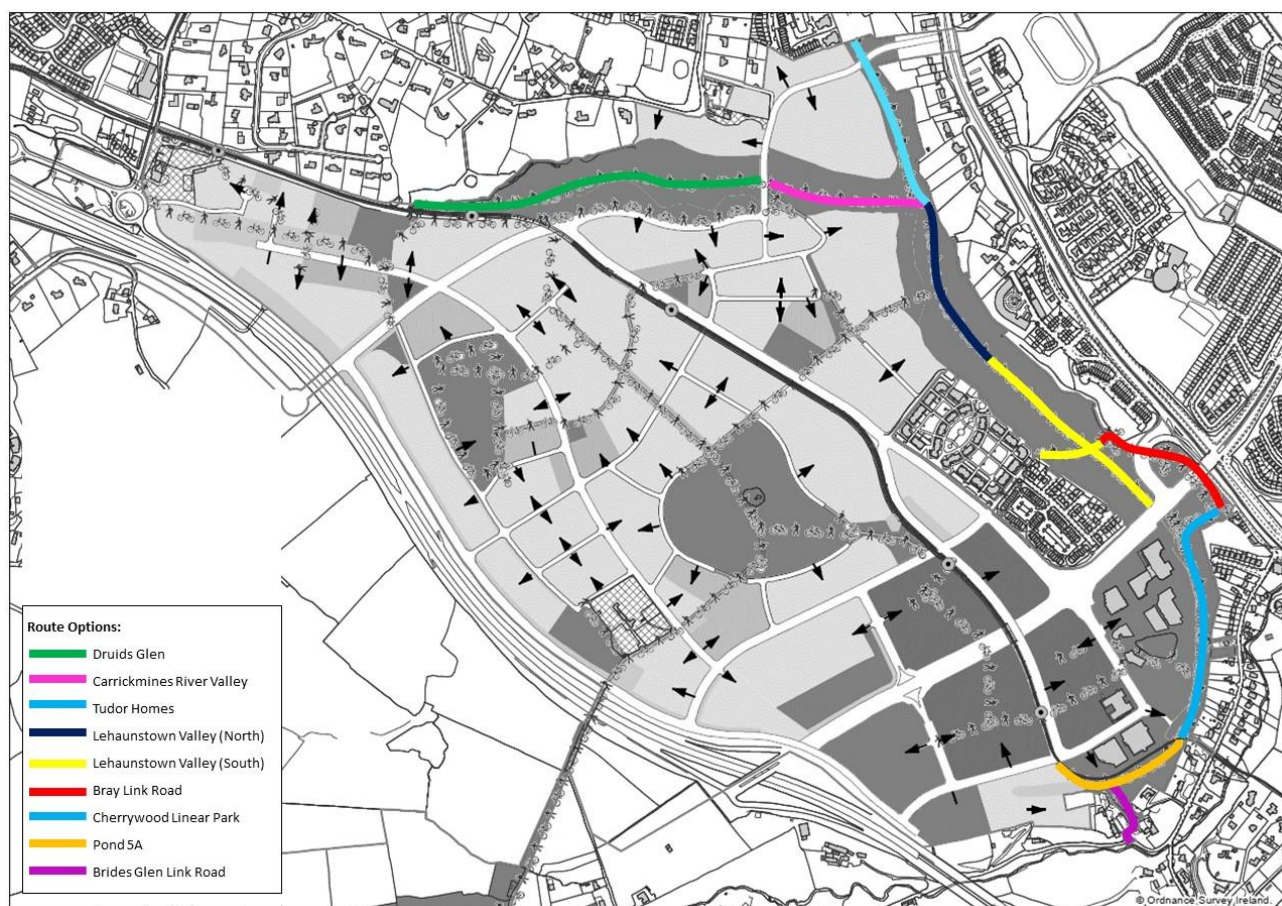


Figure 3.2.1: Route sections along scheme route

The scheme options considered for each route option are listed in Table 3.2.1 and described in detail in the following sections.

Table 3.2.1: Scheme Options Summary Table

Route Option	Scheme Options
Carrickmines River Valley	Four Options
Tudor Homes	One Option
Lehaunstown Valley (North)	Two Options
Lehaunstown Valley (South)	Four Options
Bray Link Road	Two Options
Linear Park at Cherrywood Business Park	Five Options
Brides Glen Valley	One Option
Brides Glen Road Link	Two Options

3.3 Carrickmines River Valley

3.3.1 Existing Conditions

The Carrickmines River Valley will provide the connection between the Lehaunstown Valley and Lehaunstown Road, north of the river. Carrickmines River Valley is an area of natural green space. There are a number of hedgerows through this space, with a hedgerow north of confluence of Cabinteely Stream and Carrickmines River. Figure 3.3.1 below, shows the proposed route options north of the Carrickmines River Valley.

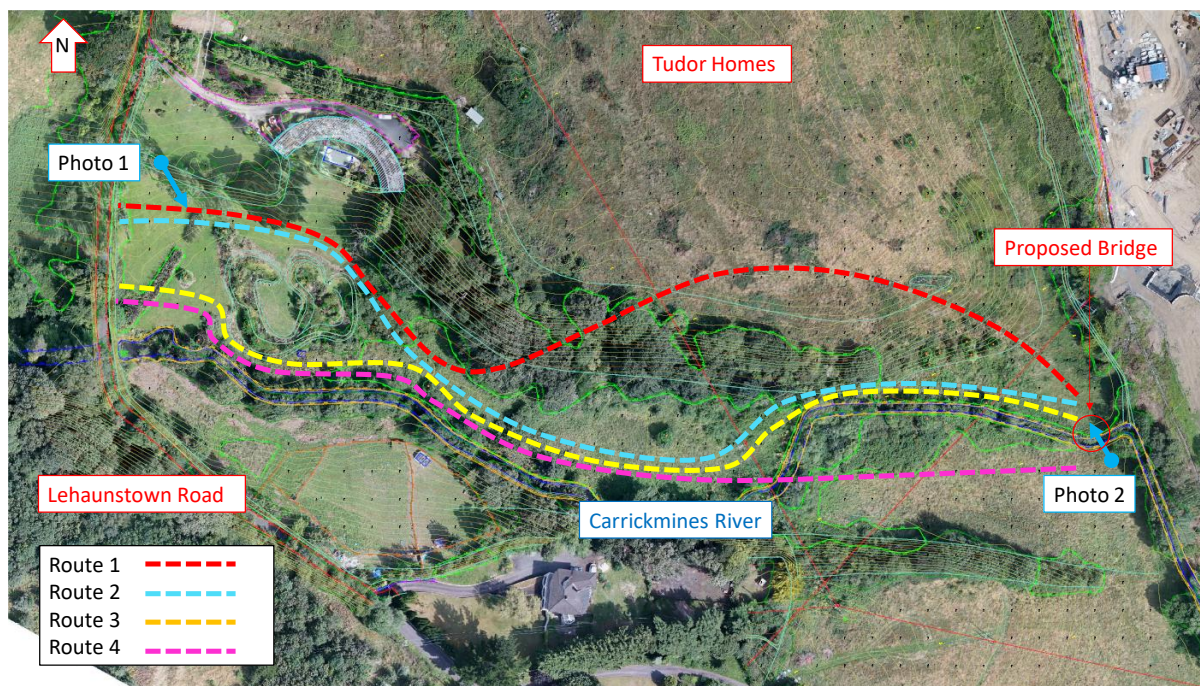


Figure 3.3.1: Route sections along scheme route



Figure 3.3.2: Existing Residential Garden



Figure 3.3.3: Carrickmines River

3.3.2 Existing Constraints

There are a number of options that have been considered along this route as set out below. There were a number of constraints that had to be considered when assessing a proposed greenway through the Carrickmines River Valley including the following;

- Existing topography and proposed greenway gradients;
- Assessment of the total Cut/Fill;
- Tie-In Points – Lehaunstown Road;
- Ecology constraints;
- Impact on existing trees;
- Impact on existing flood extents;
- Tudor Homes Planning Permission, DLRCC planning ref. DZ19A/0863, which is an adjacent permitted development to the north of the proposed route.

3.3.3 Proposed Options

There are 4 options for the Carrickmines River Valley route which are set out in the following sections.

3.3.3.1 Option 1

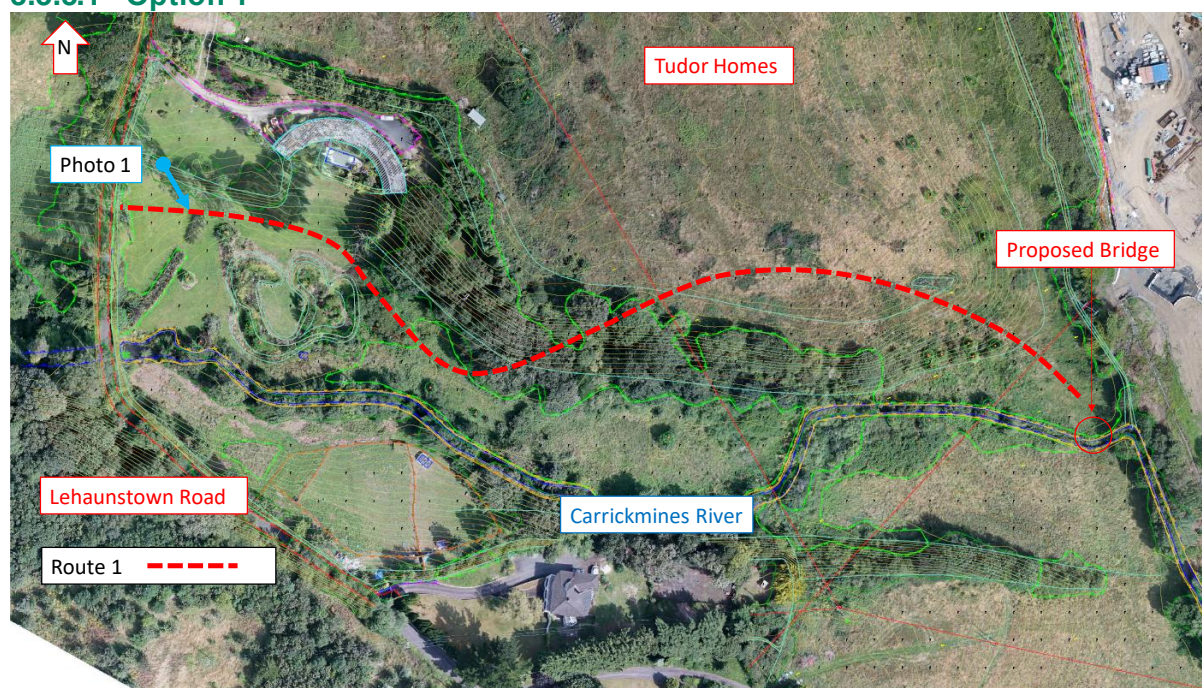


Figure 3.3.4: Carrickmines River Valley Option 1

3.3.3.2 Option 2



Figure 3.3.5: Carrickmines River Valley Option 2

3.3.3.3 Option 3

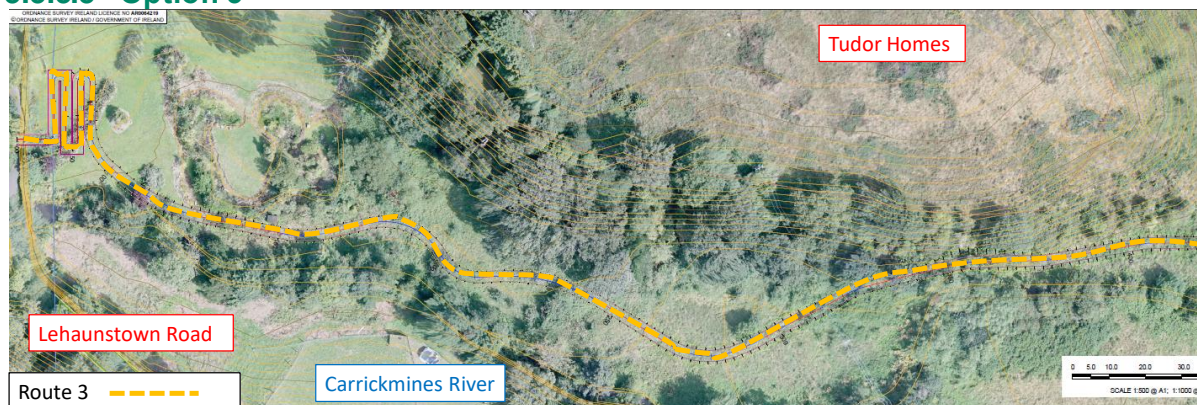


Figure 3.3.6: Carrickmines River Valley Option 3

3.3.3.4 Option 4

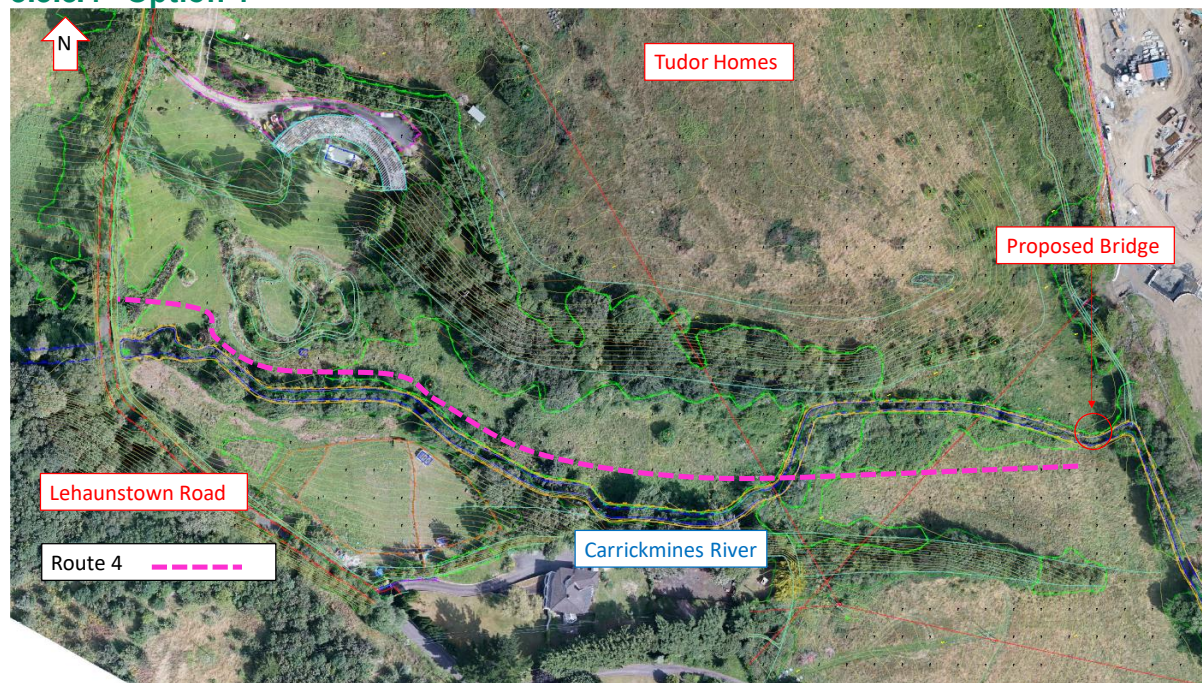


Figure 3.3.7: Carrickmines River Valley Option 4

The advantages and disadvantages of the four options are set out in Table 3.3.1 below.

Table 3.3.1 Advantages and Disadvantages of the 4 Route Options

Option / Issue	Cut / Fill	Impact on Trees	Land Zoning	Greenway Gradient	Tie-In
Option 1	Large Cut & Fill	High	Outside Green Infrastructure Zoning	Greater than 5%	Yes
Option 2	Small Cut & Fill	Low	Within Green Infrastructure Zoning	Less than 5%	Yes
Option 3	Small Cut & Fill	Low	Within Green Infrastructure Zoning	Less than 5%	Yes
Option 4	Small Cut & Fill	Low	Within Green Infrastructure Zoning	Less than 5%	Yes

▲ denotes option sub criterion with a low preference that has a constraint/s that will have a significant impact on the deliverability of the option.

3.3.4 MCA Analysis and Recommendation

Table 3.10.1 presents the MCA summary for Carrickmines River Valley scheme options.

Table 3.3.2: Lehaunstown Valley (North) MCA Summary

Appraisal Criteria	Option 2	Option 3	Option 4
Economy	High Cost	Moderate Cost	High Cost
Safety	High Level of Safety	High Level of Safety	High Level of Safety
Environmental and Ecology	Low Intrusiveness	Low Intrusiveness	Low Intrusiveness
Accessibility and Social Inclusion	Fully Accessible	Fully Accessible	Fully Accessible
Integration	Moderate Level of Integration	Moderate level of Integration	Moderate level of Integration

Options 2 and 4 will have a high impact on costs. Option 2 as it severs a potential site, while the Option 4 includes for an additional bridge and third-party land.

Therefore, with less impact on the scheme costs, it is proposed to take Option 3 through the next stage of design.

3.4 Tudor Homes

3.4.1 Existing Conditions

The route passes through Lehaunstown Valley, beside a planning approved residential property by Tudor Homes. Lehaunstown Valley is an area of natural green space. The valley acts as an ecological corridor, with a tree lined Cabinteely River flowing through the valley, and a number of hedgerows perpendicular to the river. Figure 3.4.1 below, shows the proposed routes parallel to the Cabinteely River.

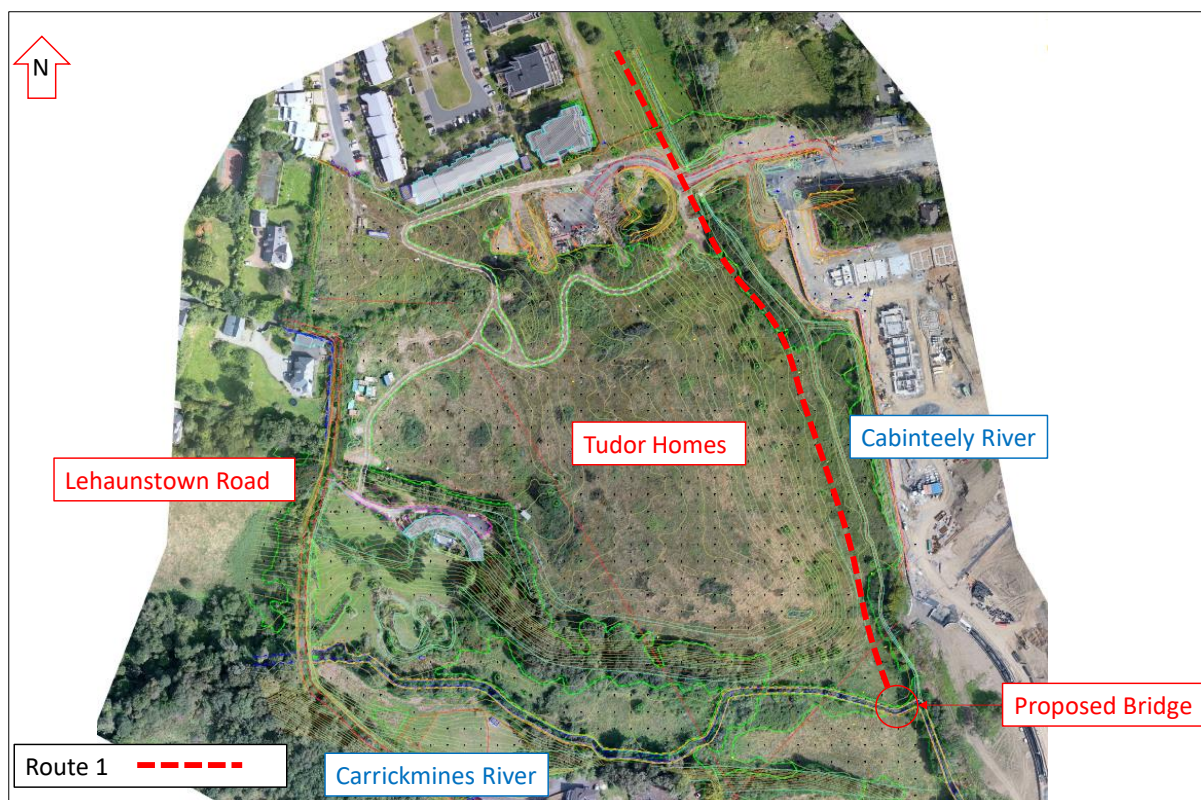


Figure 3.4.1: Route sections along scheme route

Given the horizontal constraints on site, there was only one feasible solution to bring the greenway through this section, between the proposed Tudor Homes attenuation ponds and Cabinteely River. The route is proposed offset from the river, to reduce any impact on existing riverside trees.

3.4.2 Existing Constraints

There were a number of constraints that had to be considered when assessing a proposed greenway through the Lehaunstown Valley including the following;

- Impact on existing trees;
- Tudor Homes Planning Permission, DLRCC planning ref. DZ19A/0863, which is an adjacent permitted development to the north of the proposed route.
- New road bridge crossing of the Cabinteely Stream.

Tudor Homes Planning Permission

Tudor Homes were granted planning approval in March 2018, on a 6.57ha site, bound by Lehaunstown Lane to the west, Carrickmines River to the South, Cabinteely River to the east, and the existing Brennan's Square residential estate to the north. As part of its planning approval, a greenway is proposed adjacent to Cabinteely River.



Figure 3.4.2: Tudor Homes Planning Application

3.4.3 Recommendation

AECOM have reviewed the proposals as set out in the Tudor Home application. The proposals outlined in the application meet the objectives of the Cherrywood Green Routes Network, with an indicative 4.0m wide greenway proposed. The greenway alignment set out in this report, broadly follows the Tudor Home proposals.

The Tudor Home proposals have two connections links to the main greenway, one located at the southeast corner of the site, and the second at the northeast corner of the site. The southeast corner link is a straight connection onto the greenway, while the northeast corner link, loops around a proposed attenuation pond, ascending up to the new Tudor Homes Access Road. This access road is facilitated by a new road bridge over the Carrickmines River, which connects to the N11. This will allow pedestrians and cyclists access the facilities on the N11 and Kilbogget Park.

An additional link is proposed as part of the greenway alignment as set out in this report, which is to connect into the pedestrian footpath located to the east of the proposed attenuation pond.

3.5 Lehaunstown Valley (North)

3.5.1 Existing Conditions

The Lehaunstown Valley link will provide the connection between the Pond 2B and the Carrickmines River Valley. Lehaunstown Valley is an area of natural green space. The valley acts as an ecological corridor, with a tree lined Cabinteely River flowing through the valley, and a number of hedgerows perpendicular to the river. Figure 3.5.1 below, shows the proposed routes parallel to the Cabinteely River.



Figure 3.5.1: Route sections along scheme route

Given the horizontal constraints on site, there was only one feasible solution to bring the greenway through this section, along the bottom of the river valley. The principal differences between route 1 and 2 are related to the offset from the Cabinteely River, with Route Option 1 proposed close to the riverbank, while Route Option 2 is offset from the river by 10m.

3.5.2 MCA Analysis and Recommendation

Table 3.10.1 presents the MCA summary for Lehaunstown Valley (North) scheme options.

Table 3.5.1: Lehaunstown Valley (North) MCA Summary

Appraisal Criteria	Option 1	Option 2
Economy	Moderate Cost	Moderate Cost
Safety	High Level of Safety	High Level of Safety
Environmental and Ecology	High Intrusiveness	Low Intrusiveness
Accessibility and Social Inclusion	Fully Accessible	Fully Accessible
Integration	Moderate Level of Integration	Moderate level of Integration

Due to the impact on the riverbank, the Route Option 1 was given a high level of intrusiveness regarding Environmental and Ecology. Therefore, with less impact on the existing environmental and ecology, it is proposed to take Option 2 through the next stage of design. A new bridge will be required to bring the greenway over the Carrickmines River.

3.6 Lehaunstown Valley South

3.6.1 Existing Conditions

For the purposes of this report, this section of the greenway, is referred to Lehaunstown Valley South. It is the section of the greenway which is adjacent to the Druid Valley residential estate. There is an existing pedestrian path, which links Pond 2B which was opened in 2020, the existing Cabinteely River Bridge, the Wyattville Link Road and the Druid Valley Residential Estate. Figure 3.6.1 below, shows the existing pedestrian network.

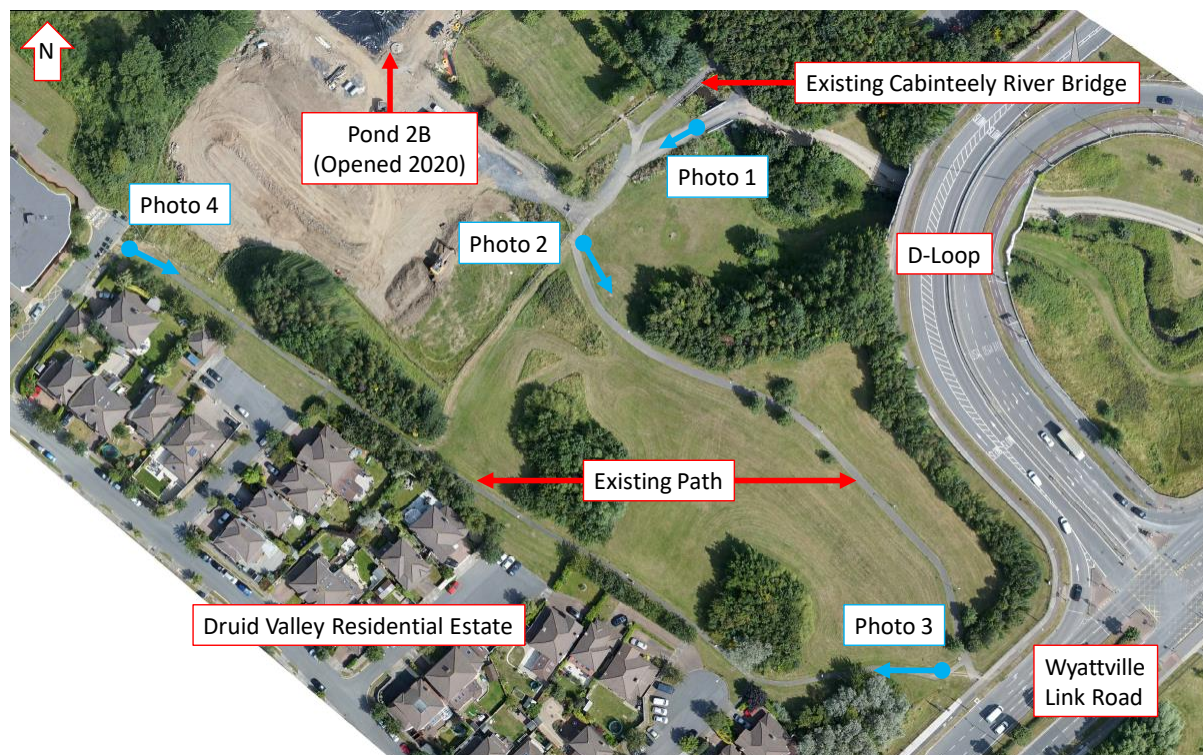


Figure 3.6.1: Lehaunstown Valley South



Figure 3.6.2: Existing Path at Cabinteely Park (Photo 1)



Figure 3.6.3: Existing Steep Gradient (Photo 2)



Figure 3.6.4: Existing Path at Wyattville Link Road Access (Photo 3)



Figure 3.6.5: Existing Path at Druid Valley Residential Estate (Photo 4)

3.6.2 Existing Constraints

There are a number of options that have been considered along this route as set out below. There were a number of constraints that had to be considered when assessing a proposed greenway through the Lehaunstown Valley (South) including the following:

- Existing topography and proposed greenway gradients;
- Assessment of the total Cut/Fill;
- Tie-In Points – Existing Cabinteely River Bridge, Recently constructed Pond 2B, Wyattville Link Road, Druids Valley Residential Estate;
- Ecology constraints;
- Impact on existing trees; and
- Impact on existing flood extents.

Tie-In Points

There is a significant level difference between its start point, at the bridge at the Cabinteely River (18m) and the tie in point at the Druids Valley Residential Estates. The level difference of 23m, makes this a challenging location to provide a greenway with appropriate gradients.



Figure 3.6.6: Lehaunstown Valley (South) Tie in Points

3.6.3 Proposed Options

There are four options for the Lehaunstown Valley (South) route which are set out in the following sections.;

3.6.3.1 Option 1

This route begins at Druids Valley residential development, and provides tight corkscrew turns towards the Cabinteely Bridge. The route provides an accessible route at 5% but 555m long. It results in large fill areas compared to existing levels, with a maximum change in levels of 8.5m. The route is in the correct Green Infrastructure zoning. There is a low impact on existing trees.



Figure 3.6.7: Lehaunstown Valley (South) Option 1

3.6.3.2 Option 2

This route begins at Druids Valley residential development and follows a new route through the existing green space, ties in with the Wyattville Link Road and on towards the Cabinteely Bridge. This route provides an accessible route at 5% but 528m long. It results in large cut and fill areas compared to existing levels, with a maximum change in levels of 8.0m. The route is in the correct Green Infrastructure zoning. There is a low impact on existing trees.

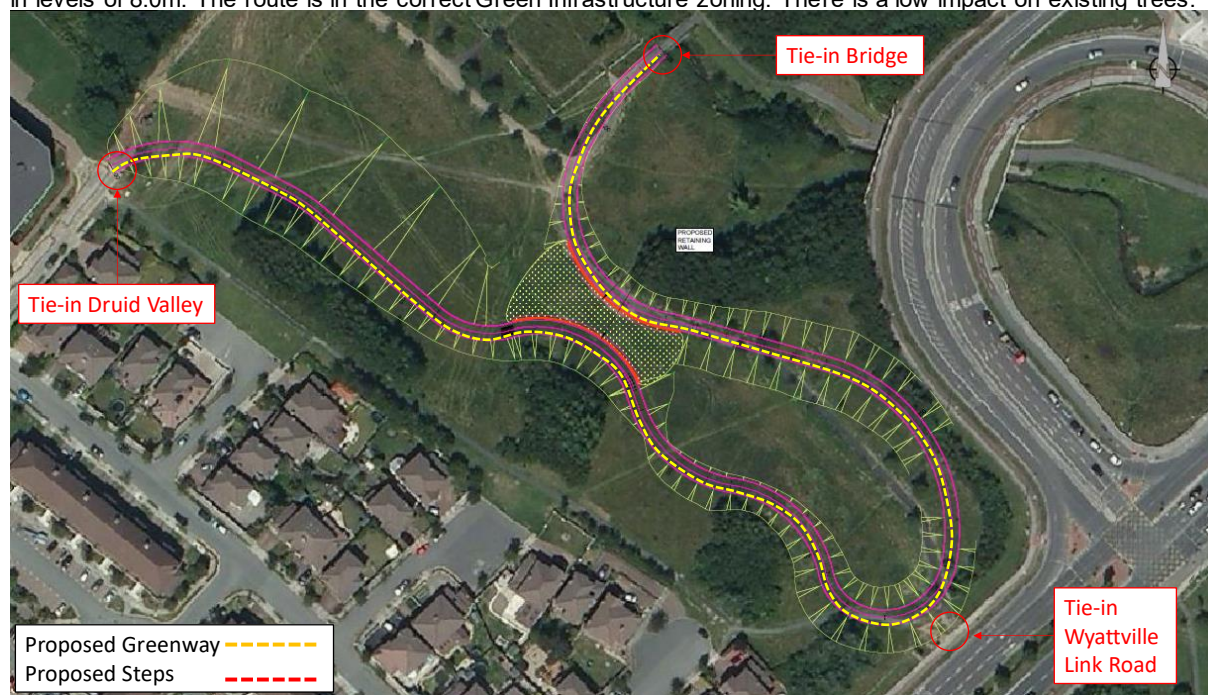


Figure 3.6.8: Lehaunstown Valley (South) Option 2

3.6.3.3 Option 3

This route begins at Druids Valley residential development, and along the existing pedestrian path before breaking out into the green spaces, ties in with the Wyattville Link Road and on towards Pond 2B. This route provides an accessible route at 5% at 562m long. It results in reduced cut and fill areas compared to existing levels, with a maximum change in levels of 3.0m. The route is in the correct Green Infrastructure zoning. There is a low impact on existing trees.

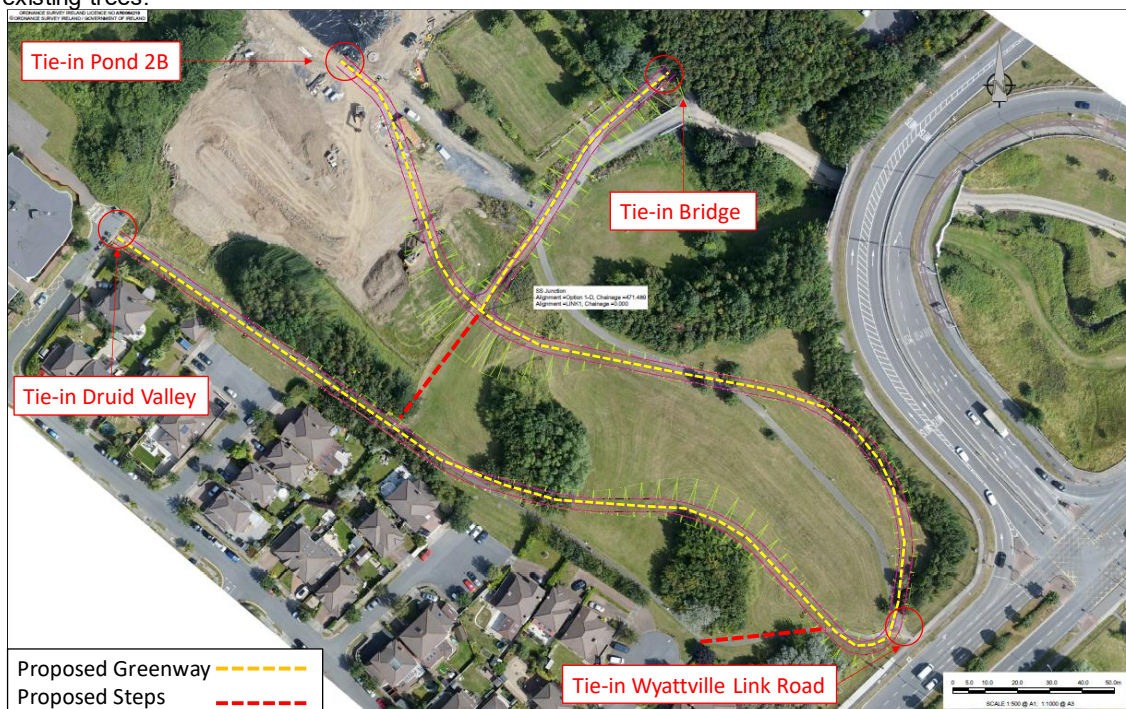


Figure 3.6.9: Lehaunstown Valley (South) Option 3

3.6.3.4 Option 4

This route begins at Druids Valley residential development, and along the existing pedestrian path to the Wyattville Link Road and on towards Pond 2B. All of this route is provided at 5% or less. It results in low amount of cut and fill. The route is in the correct Green Infrastructure zoning. There is a low impact on existing trees, although some will be cleared to provide a new access onto the Wyattville Link Road.

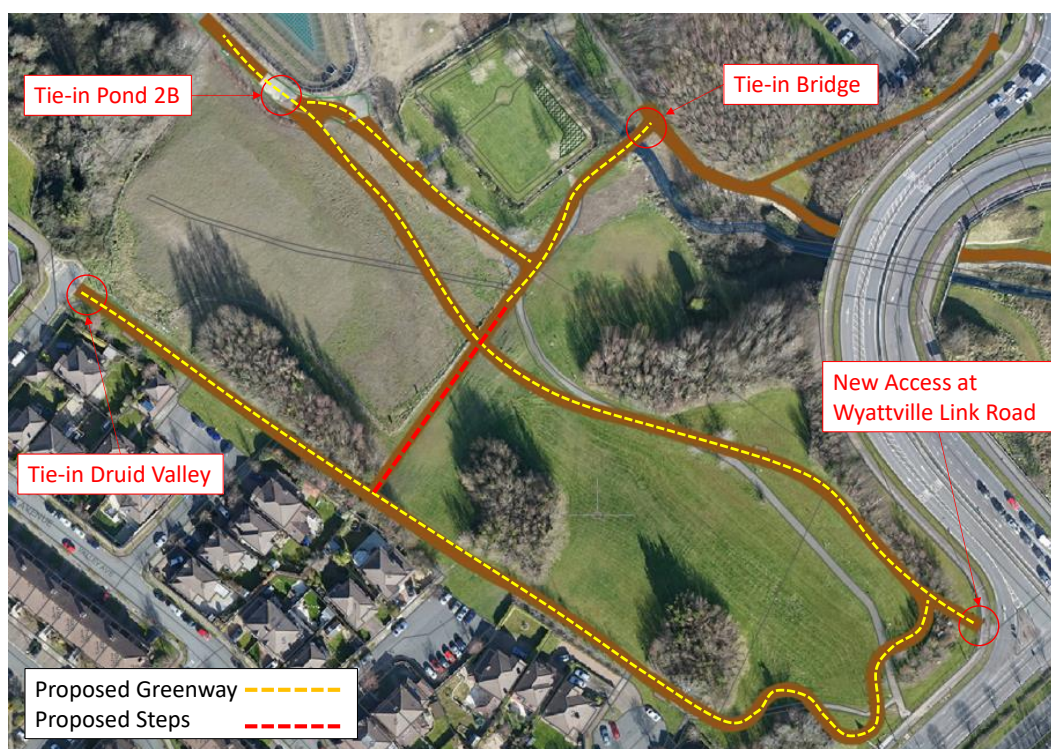


Figure 3.6.10: Lehaunstown Valley (South) Option 4

The advantages and disadvantages of the four options are set out in Table 3.6.1 below.

Table 3.6.1: Advantages and Disadvantages of the 4 Route Options

Option / Issue	Cut / Fill	Impact on Trees	Land Zoning	Greenway Gradient	Tie-In
Option 1	Large Cut & Fill	Low	Within Green Infrastructure Zoning	Less than 5%	Yes
Option 2	Large Cut & Fill	Low	Within Green Infrastructure Zoning	Less than 5%	Yes
Option 3	Large Cut & Fill	Low	Within Green Infrastructure Zoning	Less than 5%	Yes
Option 4	Small Cut & Fill	Low	Within Green Infrastructure Zoning	Less than 5%	Yes

3.6.4 Multi Criteria Analysis

Table 3.6.2 presents the MCA summary for Lehaunstown Valley South scheme options.

Table 3.6.2: Lehaunstown Valley (South) MCA Summary

Appraisal Criteria	Option 1	Option 2	Option 3	Option 4
Economy	High Cost	High Cost	High Cost	Low Cost
Safety	High Level of Safety	High Level of Safety	High Level of Safety	High Level of Safety
Environmental and Ecology	High Intrusiveness	High Intrusiveness	High Intrusiveness	Low Intrusiveness
Accessibility and Social Inclusion	Fully Accessible	Fully Accessible	Fully Accessible	Fully Accessible
Integration	High level of Integration	High level of Integration	High level of Integration	High level of Integration

Due to the changes on the existing ground levels, the first three options were given high levels of intrusiveness regarding Environmental and Ecology. Furthermore, the associated costs in developing these options would be excessive. Therefore, scheme option 4 has been chosen as the preferred design. All this route is accessible with less than 5% gradient.

3.7 Bray Link Road

3.7.1 Existing Conditions

This section of the green routes network passes adjacent to the N11 and under the Wyattville Link Road D-Loop. Figure 3.7.1 below, shows the two proposed routes options through this section.

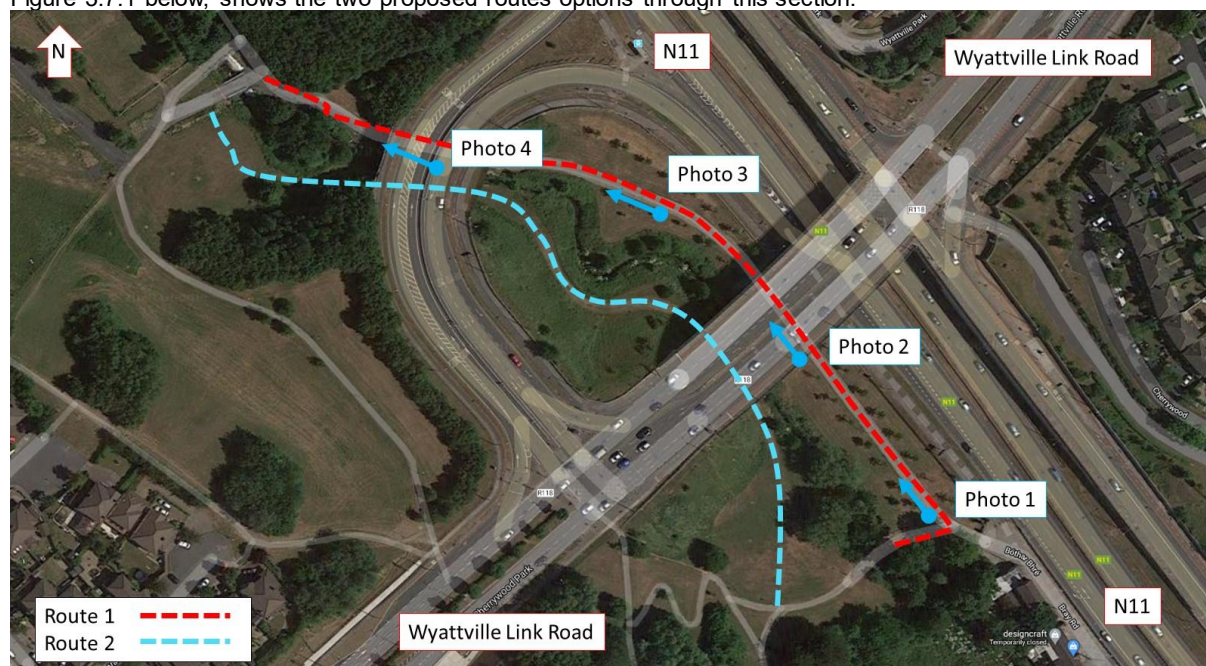


Figure 3.7.1: Route sections along scheme route

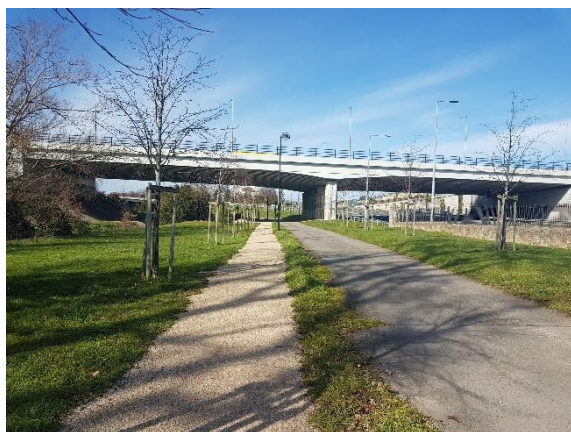


Figure 3.7.2: East of Cabinteely River (Photo 1)



Figure 3.7.3: R118 Bridge (Photo 2)



Figure 3.7.4: Path to the North of the R118 Bridge (Photo 3)



Figure 3.7.5: D-Loop Bridge (Photo 4)

3.7.2 Proposed Options

There are 2 options for the Bray Link Road section including;

- 1) Option 1
- 2) Option 2

The following two scheme options have been considered for this route option:

3.7.2.1 Scheme Option 1 – Eastern Side of the Cabinteely River

Scheme Option 1 follows the existing path along the eastern side of the Cabinteely River, as shown in Figure 3.7.2, Figure 3.7.3, Figure 3.7.4 and Figure 3.7.5. The existing path is approximately 3.0m wide, with existing lighting columns.

3.7.2.2 Scheme Option 2 – Western Side of the Cabinteely River

Scheme Option 2 would be through a greenfield on the western side of the Cabinteely river. There is no existing path provided on the western side of the river.

3.7.3 MCA Analysis and Recommendation

Table 3.7.1 presents the MCA summary for the Bray Link Road section of the scheme.

Table 3.7.1: Bray Link Road MCA Summary

Appraisal Criteria	Option 1	Option 2
Economy	Low Cost	High Cost
Safety	High Level of Safety	Medium Level of Safety
Environmental and Ecology	Low Intrusiveness	High Intrusiveness
Accessibility and Social Inclusion	Fully Accessible	Not fully Accessible
Integration	High Level of Integration	Moderate level of Integration

Due to a path already built on the eastern section of the Cabinteely River, it would be low cost to maintain the existing path or even to resurface it. As it is on the roadside of the river, it will be overlooked by traffic on the N11 and therefore the passive surveillance increases the level of safety. As it is an existing path, there will be no impact on the existing environment / ecology. It is also connected to the N11 which increases the accessibility, social inclusion and integration. Therefore, Option 1 is the preferred route on this section of the proposed scheme.

3.8 Cherrywood Linear Park

3.8.1 Existing Conditions

The Linear Park adjacent to Cherrywood Business Park is a largely manmade landscape. It is open grass land with scattered groups of trees. There are two existing pedestrian paths, one located on higher land closer to the Business Park. The second footpath is located on the lower ground on the eastern boundary of the Cherrywood SDZ. Figure 3.8.2 to Figure 3.8.5 below, shows the existing lower / eastern path and the higher western path.



Figure 3.8.1: Linear Park – Cherrywood Business Park



Figure 3.8.2: Existing Lower/Eastern Path (Photo 1)



Figure 3.8.3: Link to Cherrywood Road (Photo 2)



Figure 3.8.4: Existing Steep Gradient (Photo 3)



Figure 3.8.5: High Western Path (Photo 4)

3.8.2 Existing Constraints

There are a number of options that have been considered along this route as set out below. There were a number of constraints that had to be considered when assessing a proposed greenway through the Cherrywood Business Park including the following;

- Existing topography and proposed greenway gradients;
- Assessment of the total Cut/Fill;
- Tie-In Points – Existing Cabinteely River Bridge, Pedestrian Access at Cherrywood Road & F-Block / Luas;
- Ecology constraints;
- Impact on existing trees;
- Cherrywood Business Park Planning Permission, DLRCC planning ref. DZ19A/0255;
- Blocks F1, F2 & F3 Planning Permission, DLRCC planning ref. DZ18A/1104; and,
- Cherrywood Planning Scheme Zoning.

Cherrywood Planning Scheme Zoning

The proposed Greenway must be provided with the Green Infrastructure Zoning, and outside the High intensity Zoning, as per the Cherrywood Planning Scheme, with an extract provided in Figure 3.8.6 below.

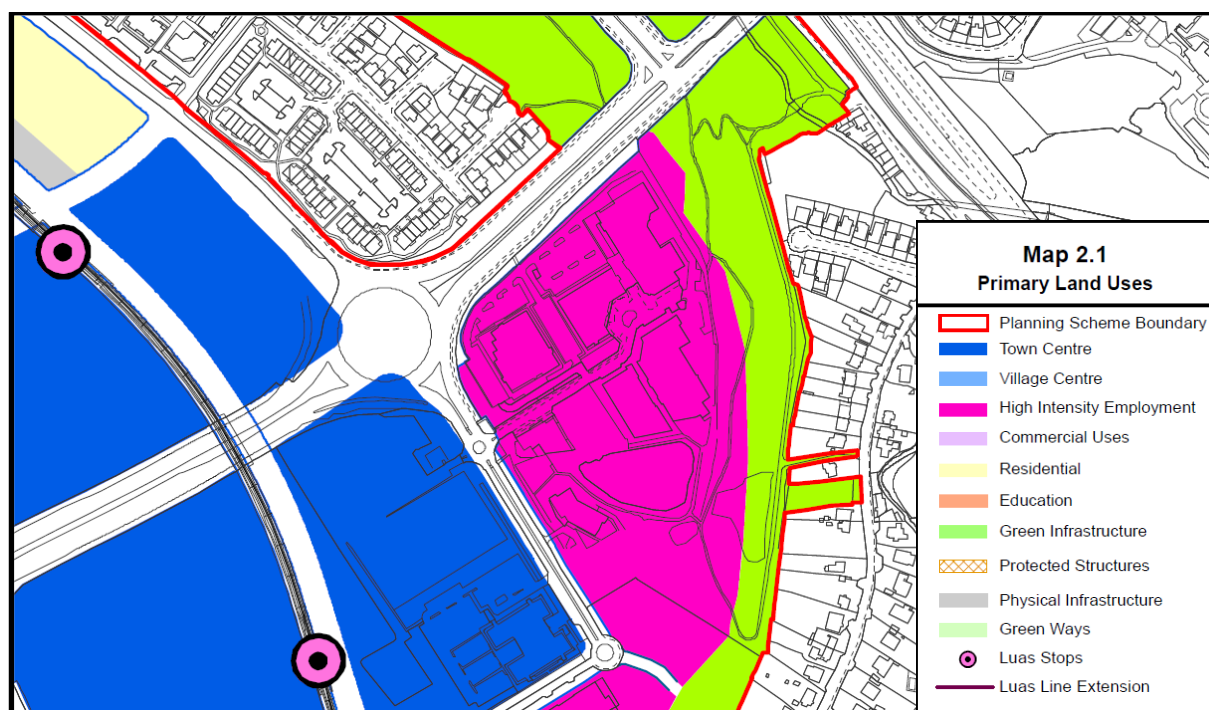


Figure 3.8.6: Cherrywood Business Park Land Uses (Map 2.1 of the Cherrywood Planning Scheme)

Tie-In Points

There is a significant level difference between its start point, at the bridge at the Cabinteely River (17.5m) and the connection at the Luas tracks (41.35m), of 24m.

Assessment of the total Cut/Fill

An assessment has been undertaken of all the proposed cut and fill of each option.

Assessment of the Impact on Trees

An assessment has been undertaken on the level of impact on trees for each of the route options.

3.8.3 Proposed Options

There are five options for the Cherrywood Business Park route which are set out in the following sections.

3.8.3.1 Option 1 – Lower Path Option A

This route provides an accessible route at 5%. It results in large fill areas compared to existing levels, with a maximum change in levels of 4.9m. The route is in the correct Green Infrastructure zoning. There is a high impact on existing trees, with new replacement trees proposed.



Figure 3.8.7: Cherrywood Business Park Option 1

3.8.3.2 Option 2 – Lower Path Option B

This route provides an accessible route at 5%, with a number of corkscrew turns to achieve this. The corkscrew section results in a large cut compared to existing levels. The route is in the correct green Infrastructure zoning. There is a high impact on existing trees, with new replacement trees proposed.

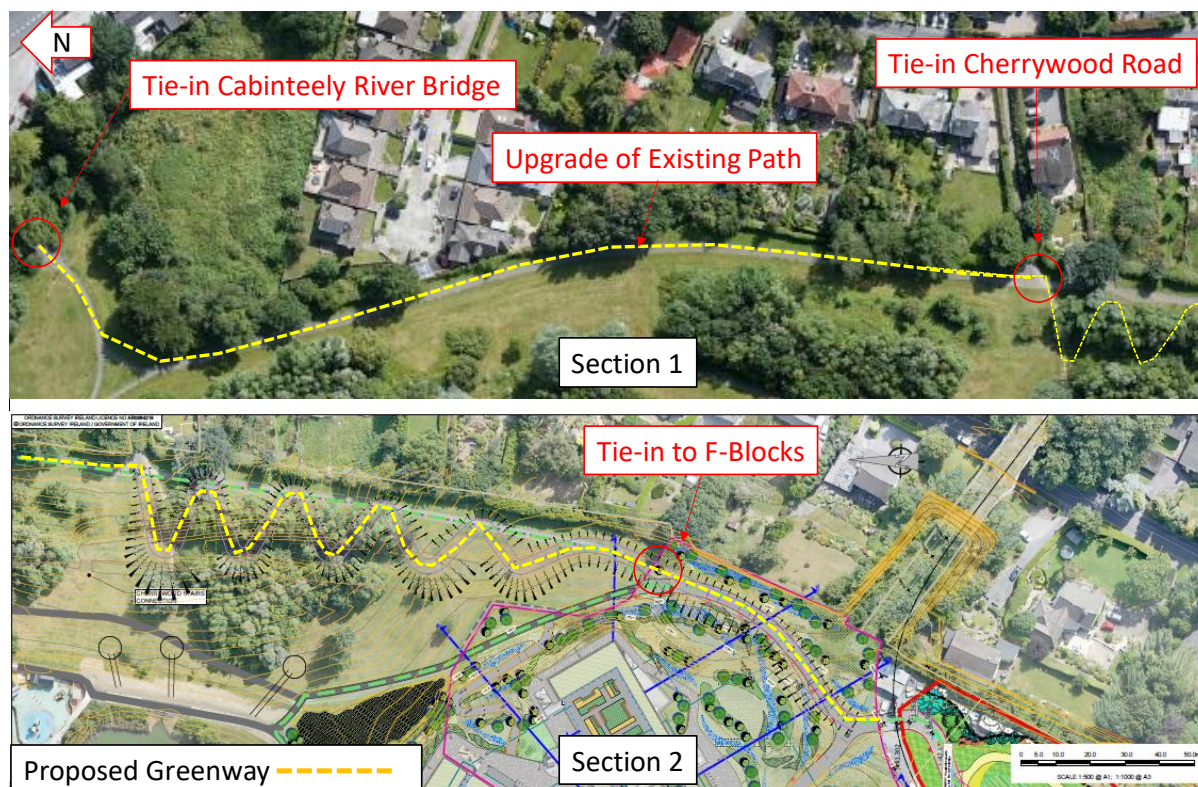


Figure 3.8.8: Cherrywood Business Park Option 2

3.8.3.3 Option 3 – Higher Path Option A

This route provides an accessible route at 5%. It results in small cut area. Approximately, 220m of this route is within the High Intensity Employment Zoning but the route has a low impact on existing trees.

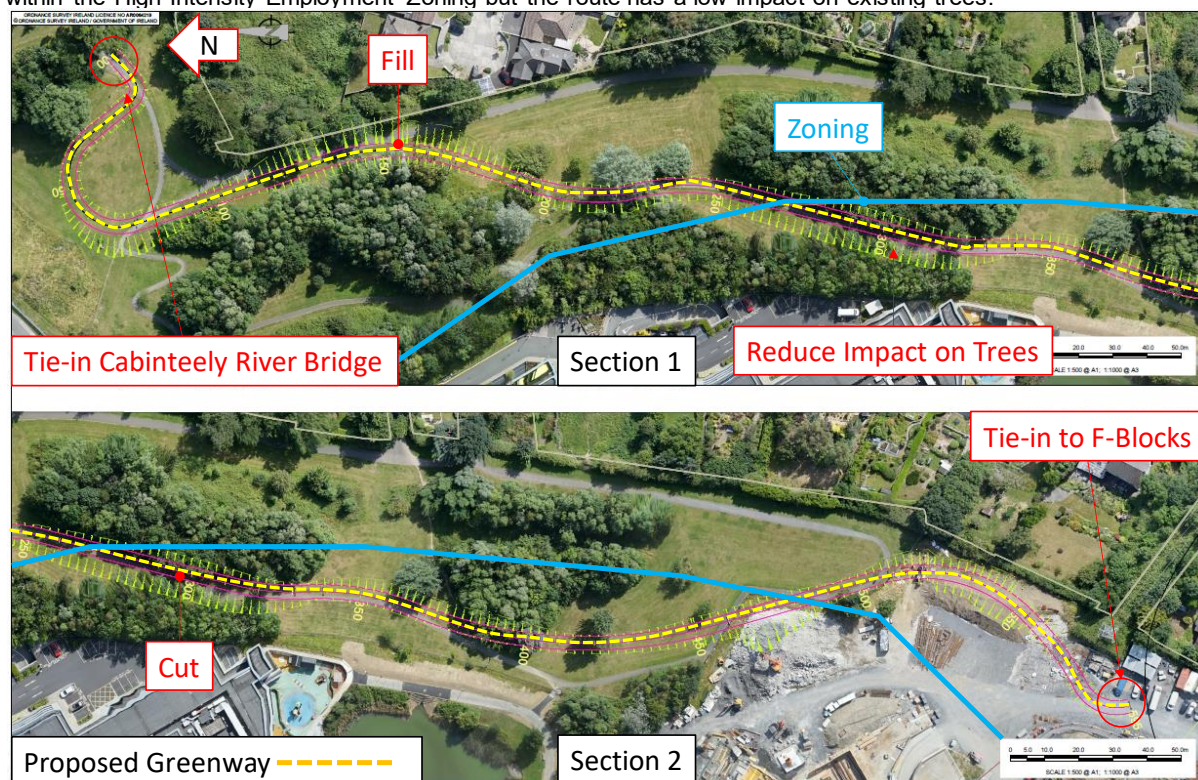


Figure 3.8.9: Cherrywood Business Park Option 3

3.8.3.4 Option 4 – Higher Path Option B

This route provides an accessible route at 5%. It results in reduced cut/fill as gradients matches the existing ground level. Approximately, 95m of this route is within the High Intensity Employment Zoning. This route has the largest impact on existing trees.

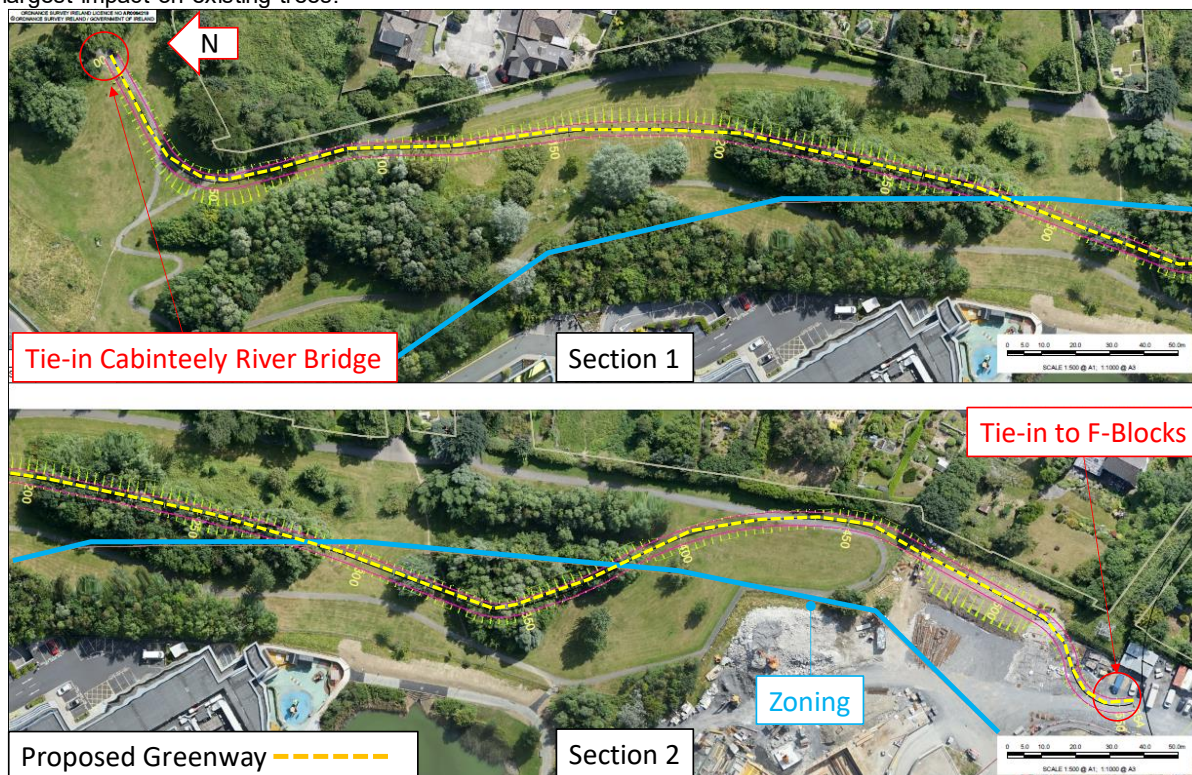


Figure 3.8.10: Cherrywood Business Park Option 4

3.8.3.5 Option 5 – Middle Path

This route provides an accessible route at 5%. It results in a larger fill than Option 4. The full route is in the correct Green Infrastructure zoning. There is less impact on trees compared to Option 4.

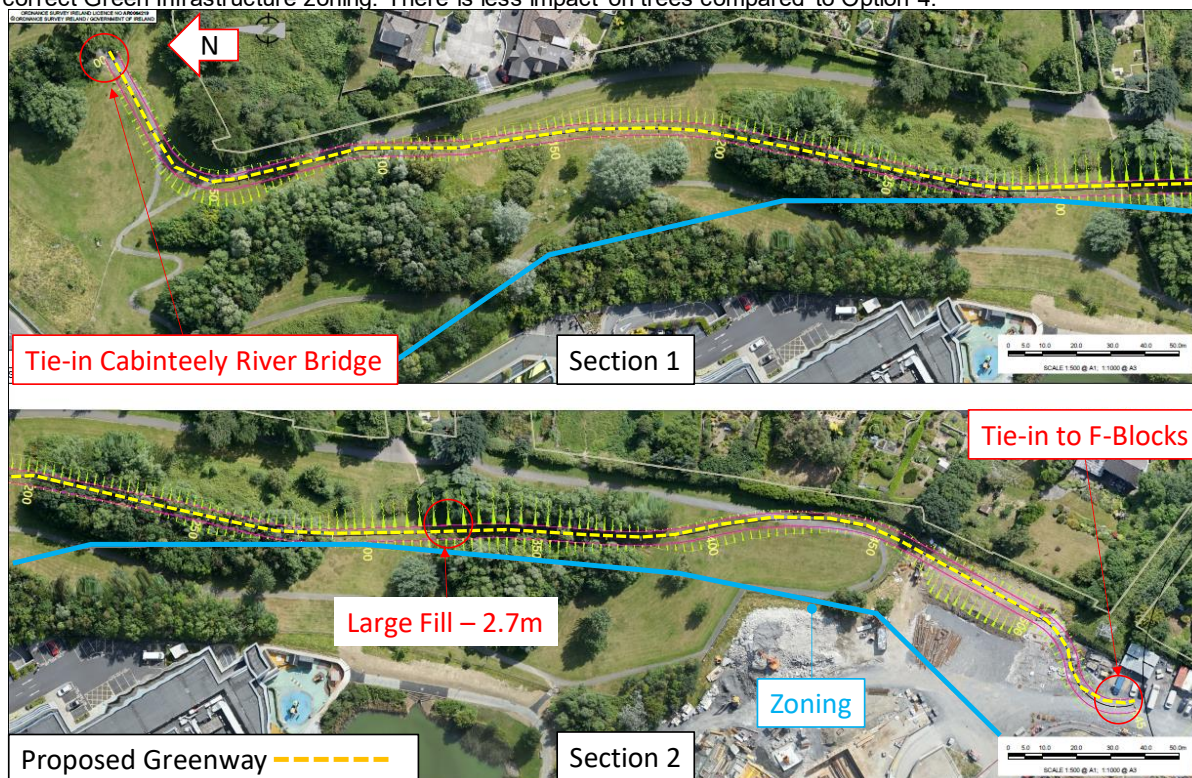


Figure 3.8.11: Cherrywood Business Park Option 5

The advantages and disadvantages of the five options are set out in Table 3.8.1 below.

Table 3.8.1: Advantages and Disadvantages of the 5 Route Options

Option / Issue	Cut / Fill	Impact on Trees	Land Zoning	Greenway Gradient	Tie-In
Option 1 – Low Route A	Large Fill	High	Within Green Infrastructure Zoning	Less than 5%	No (too long)
Option 2 – Low Route B	Large Cut	High	Within Green Infrastructure Zoning	Less than 5%	Yes
Option 3 – High Route A	Small Cut	Low	220m within High Intensity Employment Zoning ▲	Less than 5%	No
Option 4 – High Route B	Small Fill	High	90 within High Intensity Employment Zoning ▲	Less than 5%	No
Option 5 – Middle Route	Large Fill	High	Within Green Infrastructure Zoning	Less than 5%	No

▲ denotes option sub criterion with a low preference that has a constraint/s that will have a significant impact on the deliverability of the option.

3.8.4 Multi Criteria Analysis

Table 3.8.2 presents the MCA summary for Cherrywood Business Park scheme options.

Table 3.8.2: Cherrywood Business Park MCA Summary

Appraisal Criteria	Option 1	Option 2	Option 5
Economy	High Cost	High Cost	High Cost
Safety	High Level of Safety	High Level of Safety	High Level of Safety
Environmental and Ecology	Low Intrusiveness	Low Intrusiveness	Low Intrusiveness
Accessibility and Social Inclusion	Fully Accessible	Fully Accessible	Fully Accessible
Integration	Low Level of Integration	High level of Integration	Low Level of Integration

Due to the level of integration with the Cherrywood Road pedestrian access, scheme option 2 is the preferred design.

3.8.5 Wyattville Link Road

There are 2 options for the Wyattville Link Road section including;

- 1) New 4m wide Greenway
- 2) Upgrade the existing path (as shown in Figure 3.8.12)



Figure 3.8.12: Existing Path

Option 1 - New 4m wide Greenway

An assessment was undertaken on developing the 4.0m wide greenway and taking it to the Wyattville Link Road, which is shown in Figure 3.8.13, below. In order to provide an accessible route, less than 5% in gradient, the total length of the greenway exceeds 270m, and includes the removal of a number of existing trees.

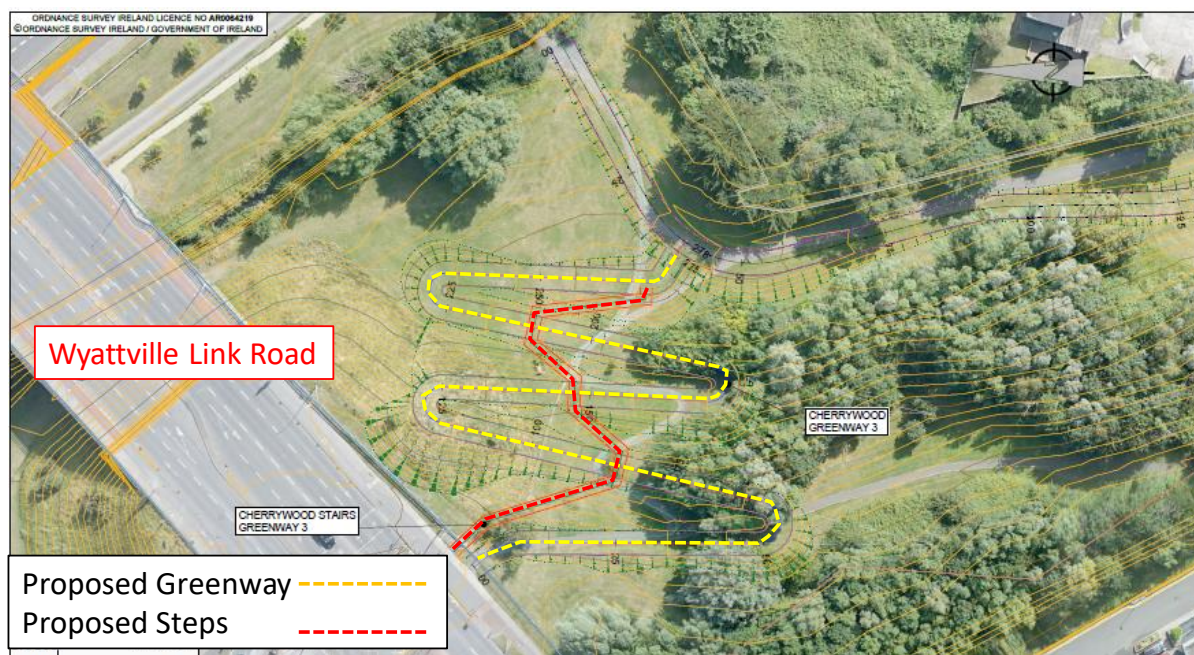


Figure 3.8.13: Wyattville Link Road section – Option 1

Option 2 – Upgrade of existing Path

The alternative option was to upgrade the existing 2.0m wide path and provide steps in order to provide a quicker route for pedestrians between the Wyattville Link road and the main greenway.



Figure 3.8.14: Wyattville Link Road section – Option 2

Wyattville Link Road Conclusion

Table 3.8.3 presents the MCA summary for Wyattville Link Road scheme options.

Table 3.8.3: Wyattville Link Road MCA Summary

Appraisal Criteria	Option 1	Option 2
Economy	High Cost	Low Cost
Safety	High Level of Safety	High Level of Safety
Environmental and Ecology	High Intrusiveness	Low Intrusiveness
Accessibility and Social Inclusion	Fully Accessible (Gradient < 5%)	Not fully Accessible (Gradient > 5%)
Integration	High Level of Integration	High level of Integration

Due to the changes on the existing ground levels, the Option 1 was given high levels of intrusiveness regarding Environmental and Ecology. Furthermore, the associated costs in developing this option are high. However, a fully accessible route cannot be provided for Option 2. Therefore, as Option 1 provides an accessible route, scheme option 1 is the preferred design.

3.8.6 Conclusion

Figure 3.8.15 below, highlights the proposed route of the greenway through the Cherrywood Business Park section of the proposed scheme.

It also highlights the main connections routes between the greenway and the surrounding developments and routes, including the following;

- The F – Blocks;
- The Cherrywood Business Park; and,
- Wyattville Link Road

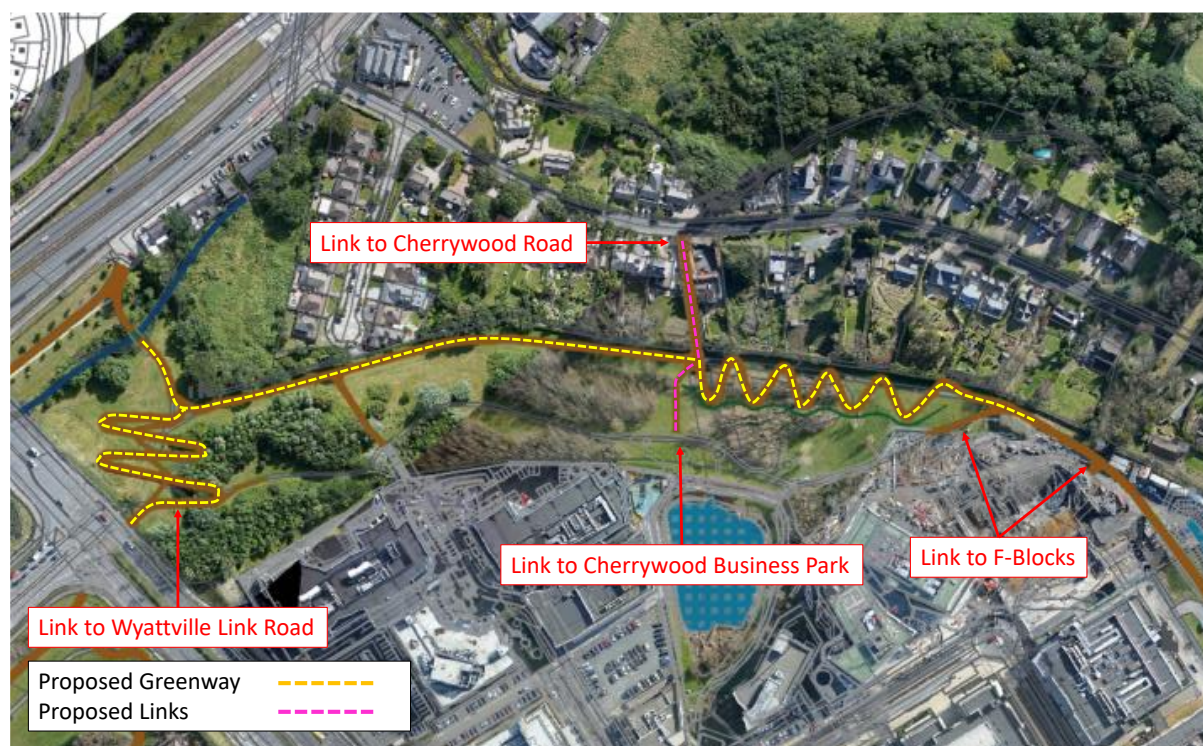


Figure 3.8.15: Cherrywood Business Park Option 5

3.9 Pond 5A

A portion of the 4m wide greenway is already permitted under Pond 5A (DLRCC planning ref. DZ18A_0854). The Cherrywood Green Routes Network will tie into the extant permitted Pond 5A, at the south forming a link to Brides Glen Road, and to the east forming a link to the Cherrywood Business Park.

3.9.1 Existing Conditions

The existing site is currently used as an access route into the Abbot Ireland building and during a site visit it was also used as a construction compound during the construction of the F-Block buildings.

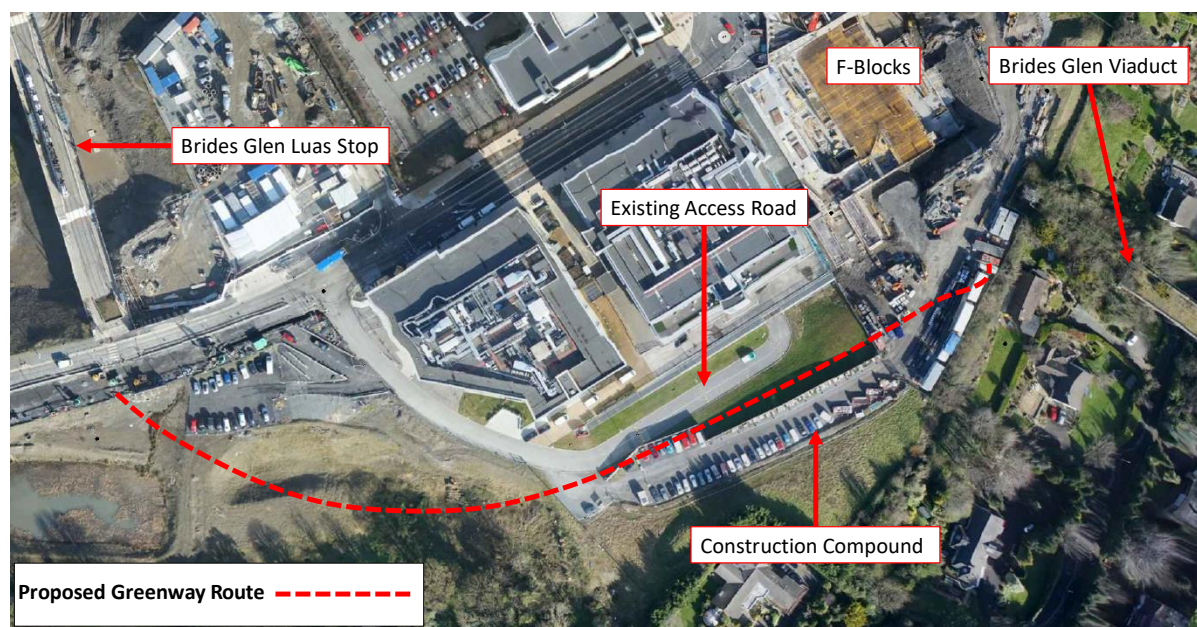


Figure 3.9.1: Route sections along scheme route

3.9.2 Permitted Development (DLRCC planning ref. DZ18A_0854)

As part of the permitted development Pond 5A (DLRCC planning ref. DZ18A_0854) the greenway will run adjacent to a number of attenuation ponds.

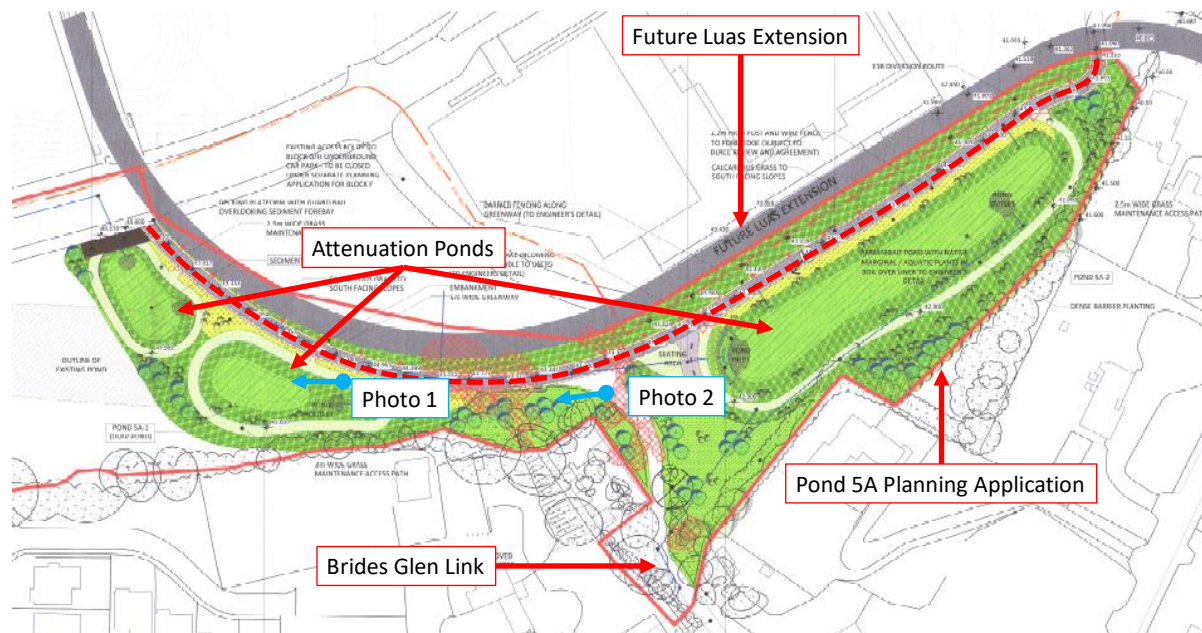


Figure 3.9.2: Route sections along scheme route



Figure 3.9.3: Existing Ground Levels (Photo 1)



Figure 3.9.4: Existing Ground Levels (Photo 2)

The permitted greenway has been assessed in terms of accessibility. It was determined that the permitted greenway path meets all the criteria as set out in the Cherrywood Planning Scheme, and therefore is suitable as part of the Cherrywood Green Routes Network.

3.10 Brides Glen Road Link

3.10.1 Existing Conditions

The Brides Glen Road link is at the southern extents of the proposed greenway. The route passes through a woodland, an ecological sensitive area, and existing residential access roads, between the proposed Pond 5A route and Bride's Glen Road. It was determined steps would be required along this section of the greenway, given the existing level difference between the residential access roads (31.8m) and the proposed tie-in level at the proposed Pond 5A (43.3m).

Figure 3.10.1 below, shows the proposed route and the steep change in levels on the route.

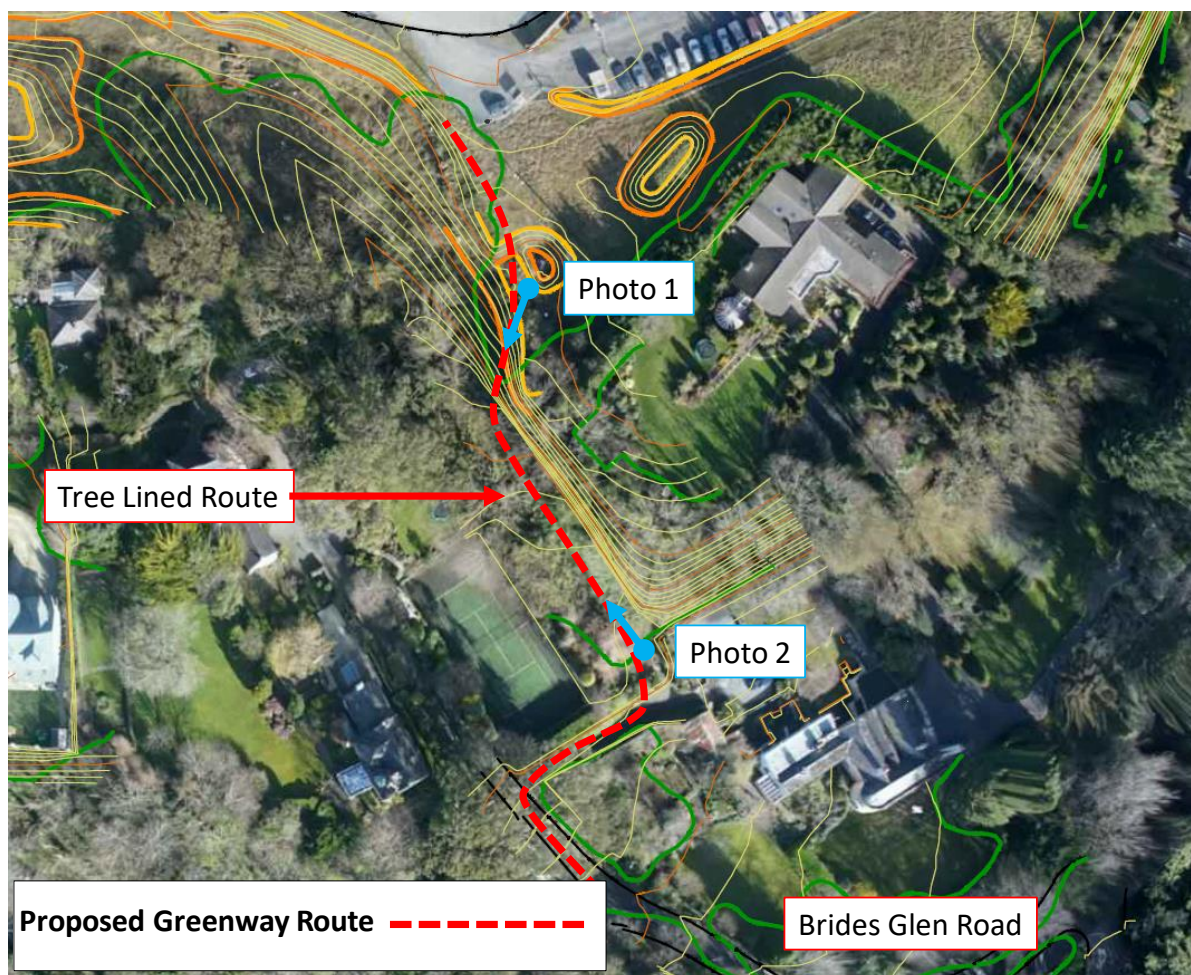


Figure 3.10.1: Brides Glen Route



Figure 3.10.2: North View of Bride Glen Tree Line



Figure 3.10.3: South view of Bride Glen Tree Line

3.10.2 Proposed Options

There are 2 options for the Brides Glen Road section including;

- 1) Option 1 – Standard Step Design
- 2) Option 2 – Sloped Step Design

Given the horizontal constraints along this section of the green routes network, there was only one feasible greenway route. Also, given the tight alignment along this route it is proposed to reduce the width of the greenway, if required. The proposed greenway will be between 2.5m to 4m wide depending on topography.

The principal differences between Options 1 and 2 are related to the vertical alignment. The following two scheme options have been considered for this route option:

3.10.2.1 Scheme Option 1

Scheme Option 1 uses a standard step (an example shown in Figure 3.10.4 below) along this alignment, with a 150mm rise and a 350mm going (depth), which are within the parameters as set out in Building for Everyone (National Building Authority). The vertical alignment has been designed with an even distribution of flights and steps. However, this leads to a large change in the proposed and existing levels in the middle of the route.

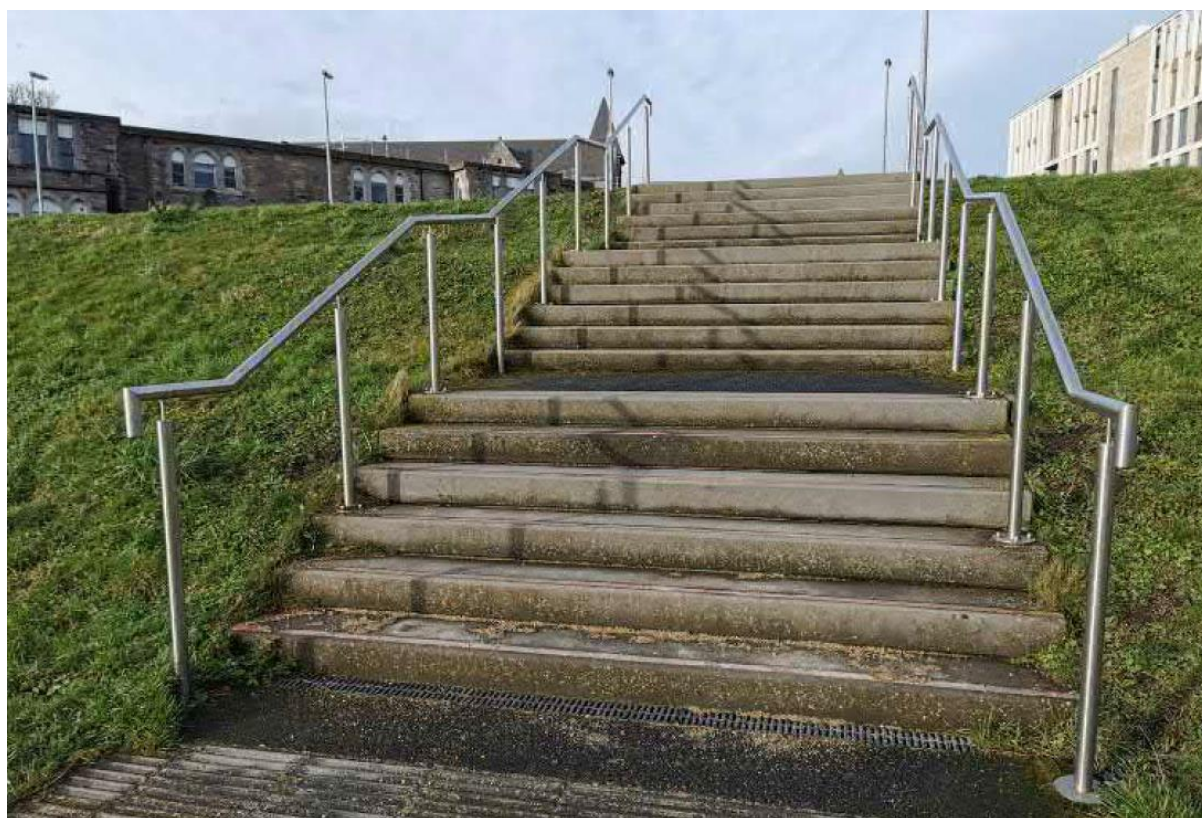


Figure 3.10.4: Example of Standard Steps Used in Outdoor Space

3.10.2.2 Scheme Option 2

Scheme Option 2 uses a sloped step, typically used in an outdoor setting, such as a woodland or park, where there are steep existing gradients. Sloped steps have been recently used in Ticknick Park, Dun Laoghaire, as shown in Figure 3.10.5 below. The proposed steps would be designed in order to match the existing gradient closely. This would have the advantage of minimising the amount of cut or fill along this alignment, thus reducing any impact on existing trees or potentially on the existing soil stability.



Figure 3.10.5: Example of Sloped Steps Used in Ticknick Park, Dublin

3.10.3 MCA Analysis and Recommendation

Table 3.10.1 presents the MCA summary for Brides Glen scheme options.

Table 3.10.1: Brides Glen MCA Summary

Appraisal Criteria	Option 1	Option 2
Economy	High Cost	Moderate Cost
Safety	High Level of Safety	High Level of Safety
Environmental and Ecology	High Intrusiveness	Low Intrusiveness
Accessibility and Social Inclusion	Not fully Accessible	Not fully Accessible
Integration	Moderate Level of Integration	Moderate level of Integration

Due to the larger levels differences proposed in Option 1, it would result in additional earthwork costs compared to Option 2. Also, the earthworks for Option 1 would have a greater impact on the existing trees compared to Option 2. Neither option would be fully accessible as steps are required in order to match into levels either end of the route.

It is proposed to take Option 2 through the next stage of design.

4 Emerging Preferred Scheme Options

4.1 Proposed Scheme

The proposed scheme has been developed using Civil 3D to produce preliminary design drawings. These designs have been interrogated to check how the proposed development is consistent with the proper planning and sustainable development of the area in accordance with the Cherrywood SDZ.

The proposed design is set out in the General Arrangement drawings, drawings no. 60599677-SHT_141.1_A to 60599677-SHT_141.9_A, in Appendix A.

4.2 Next Steps and Part 8

Detailed Ecological and Environmental Assessments have been undertaken on the proposed development. Landscape proposals have also been undertaken to ensure that the scheme will include attractive and quality outdoor spaces which enhance the experience of local people and visitors.

Additional reports which will be submitted as part of the Part 8 will include the following;

- AA Screening;
- Ecological Impact Assessment;
- EIAR Screening;
- Arboricultural Assessment;
- Finishes Manual and Landscape Design Report;
- Landscape Design Report;
- Flood Risk Assessment;
- Section 50;
- Hydrogeological and Hydrological Risk Assessment;
- Archaeological and Architectural Assessment; and,
- Invasive Species Management Plan

Appendix A – Design Drawings

