



Waterford to New Ross Greenway

Preliminary Design Report

.....

DECEMBER 2016

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This project is developed in partnership with:



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1.0 INTRODUCTION

Roughan & O'Donovan were engaged by Trail Kilkenny whom received funding from Kilkenny LEADER Partnership to prepare a Preliminary Design Report to investigate the potential development of a Greenway as well as providing a 4m corridor to run adjacent to the proposed Greenway to accommodate a Narrow Gauge Railway on the existing disused railway line between Waterford City and New Ross.

The purpose of the proposed development is to provide a continuous and consistent two way cycling and walking route along the disused rail corridor between New Ross and Waterford which would also link into a number of regional cycling and walking routes as well as proposed walking and cycling schemes under various stages of planning and development in Waterford and New Ross.

It is envisaged that any proposed Greenway will be a shared cycleway / footway which will be a safe and attractive premium walking and cycle route that caters for mostly recreational, tourist and family users.

The disused rail corridor generally has a constant width over the course of the circa. 22km between Waterford and New Ross where only localised site clearance and small civil engineering works will be required to provide a clear route for the proposed facility.

1.1 Study Area

The study area will cover the surrounding area of the disused railway along its approximate 22km length and the two towns of Waterford and New Ross. The study also extends East and West from the proposed route for a distance of approximately 0.5km in order to take into account surrounding environmental, residential and commercial features.

1.2 Background

Walking and cycling are becoming increasingly prominent in National, County, City and Town Development Plans. The various policies which are outlined in the various policy documents are outlined below.

1.2.1 National Policy

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.

The National Cycle Policy Framework (NCPF) was adopted to run alongside the main 'Smarter Travel: A Sustainable Transport Future' document. The NCPF mission states an objective to create a strong cycling culture in Ireland while also encouraging recreational cycling. The NCPF also outlines the importance of the National Cycle Network in attracting overseas tourists. Some of the key objectives which are relevant to the Waterford to New Ross Greenway project include:

- Provide designated rural cycle networks especially for visitors and recreational cycling.
- Ensure that all of the surfaces used by cyclists are maintained to a high standard and are well lit.
- Ensure that all cycling networks both urban and rural - are signposted to an agreed standard.

- Provide secure parking for bikes
- Ensure proper integration between cycling and public transport.

1.2.2 Kilkenny Draft County Development Plan 2014 – 2020

The Kilkenny Draft County Development Plan which is due to be adopted this year outlines various cycling and walking policies and objectives for the County Kilkenny area. The plan identifies the Smarter Travel document 'A Sustainable Transport Future' as a key resource and plans to promote its initiatives as much as possible. The following extracts are relevant to the proposed Greenway project:

- *'Providing a network of safe, well-lit and convenient footpaths and cycleways within new residential areas with links to schools, local neighbourhood centres, public transport stops and workplaces will encourage walking and cycling.'*
- *'Support for the provision of dedicated signed rural cycling networks building on Fáilte Ireland's Strategy to Develop Irish Cycling Tourism[3]. This will cater for recreational cyclists as well as visitors.'*
- *'The track-bed of the Waterford-New Ross railway line shall be preserved for future re-opening and and/or cycling or walking use.'*
- *'Ensuring that all surfaces used by cyclists are maintained to a high standard and are well lit.'*
- *'Ensuring that all cycling networks – both urban and rural – are sign-posted to a high standard.'*

1.2.3 Waterford County Development Plan 2011 – 2017

The Waterford County Development Plan 2011 – 2017 outlines the following in terms of Smarter Travel:

'The policy is aimed at reversing unsustainable travel patterns through the promotion of walking, cycling, car pooling etc, Furthermore the policy is focused on improving the environment and people's quality of life through the associated health benefits of sustainable modes of transport.'

The Development Plan also highlights some specific policies in relation to walking and cycling:

Policy INF 14

To implement the smarter travel policy framework as produced by the Department of Transport and to encourage the sustainable creation of cycle and pedestrian friendly communities through the provision of cycle paths and other initiatives to curtail the dependency on private motor vehicles whilst seeking to minimise the depletion of the hedgerow resource that could potentially arise from cycle path provision.

Objective INF 5

It is the objective of the Council to support the policies of the 'National Cycle Policy Framework 2009-2020-Smarter Travel', Department of Transport, April 2009 while ensuring that any environmental effects of the implementation of the policies are fully assessed and adequately mitigated.

Objective INF 6

It is the objective of the Council to promote the sustainable development of safe and convenient pedestrian and cycling facilities in the towns and villages, to minimise the dependence on private motor vehicles, and to encourage an active and healthy

lifestyle. New and upgraded road developments will be encouraged to integrate cycle lanes. These will include urban/village developments and short distance routes.

Objective INF 7

Require planning applications for residential, commercial, retail, community, educational and industrial developments to demonstrate the proposal's accessibility for pedestrians and cyclists. The Council will also seek the provision of appropriate, well-designed pedestrian ways for residential development proposals to link with amenities and facilities. Such proposals shall adhere to the Guidelines on Sustainable Residential Development in Urban Areas and Urban Design Manual (DoEHLG May2009).

Chapter 10 Development Standards

The Waterford County Development Plan also outlines in Chapter 10 Development Standards the following under 'Minimum Standards for Housing Estate Developments in Urban Areas':

'The provision of adequate linkages between the proposed development and the existing settlement by means of cycle ways, amenity walkways, footpaths and public lighting is required.'

1.2.4 Waterford City Development Plan 2013 - 2019

The Waterford City Development Plan 2013 – 2019 was adopted by the members of Waterford City Council on 11th February 2013 and came into effect on 11th March 2013.

Objective OBJ 6.2.1

To provide a citywide cycle network to link all areas of the city to each other via main routes. Existing and proposed extension of the City's cycle network is also outlined on the zoning objectives map. The proposed network is both radial and orbital, with some elements located off street in amenity areas.

Objective OBJ 6.2.2

To expand the network to connect the city centre to any proposed North Quay development with a foot/cycle bridge.

Objective OBJ 6.2.3

To provide additional dedicated bicycle parking racks as financial resources permit.

Objective OBJ 6.2.4

To provide cycle and walking networks between neighbourhood areas, further negating the need for car based journeys.

Chapter 13 Development Management

Under Chapter 13 the development plan outlines the following in terms of sustainable transport:

'Promotion of sustainable transport by providing convenient and direct cycling and walking routes to nearby bus stops and services.'

1.2.5 New Ross Town and Environs Development Plan 2011 – 2017

The Development Plan was adopted by New Ross Town Council on the 7th February 2011 and Wexford County Council on the 14th February 2011.

The Development Plan outlines the following in terms of Smarter Travel:

'The Councils will encourage smarter travel (i.e. reduce overall travel demand) in accordance with 'Smarter Travel: A Sustainable Transport Future' published by the Department of Transport in 2009 and will seek to reduce the number and length of car journeys through the careful integration of transportation and land use planning.'

Neighbourhood Centres - Objective R01

To provide for and encourage high levels of access and good quality pedestrian facilities to connect neighbourhood centres to their surrounding neighbourhoods. Facilities for cycling shall also be provided.

Transportation - Objective TM13

To improve cycling facilities in the town to enable New Ross to be linked to the National Cycle Network.

Housing – Objective HS12

To ensure that the provision of recreational areas and the development of residential areas (where both form part of the same development boundary), are undertaken concurrently.

Key Objectives from the Development Plan identified under Core Strategy include:

Encourage a modal shift from private modes of transport, to public transport, cycling and walking and in particular, encourage the re-opening of the New Ross-Waterford railway and support the expansion of bus services to/from New Ross.

1.2.6 New Ross Active Travel Towns – Walking and Cycling Strategy

New Ross Town Council commissioned a report to provide a Walking and Cycling Strategy for New Ross town. The strategy included reviewing the active travel needs (walking, cycling etc) of New Ross and its environs and how a walking and cycling network can be implemented.

1.2.7 National Trails Office – Guide to Planning and Developing Recreational Trails

The National Trails Office (NTO) has developed a number of guideline documents which provide step by step advice on the development of various types of trails. The document outlines what a trail (which includes Greenways) should accomplish and how it should sit into the existing environment. The document also highlights various aspects such as Land Ownership, Environmental Considerations, Safety, Trail Management, Liability & Insurance, Development Costs, Long Term Maintenance Commitment etc. The document provides very useful information which will be referred to in this report.

1.3 Adjoining Project Developments

There are a number of Greenway schemes around the country which are at various stages of development. A number of other 'on-road' schemes have also been way marked to provide cycle routes on generally quiet roads. Such schemes in the vicinity of the proposed Waterford to New Ross project are:

1.3.1 Dungarvan to Kilmeaden Greenway (The Deise Greenway)

The Dungarvan to Kilmeaden Greenway is currently in the planning stages with the project being put on public display in January 2014. The route consists of 31km of Greenway located along the route of the existing railway line. This scheme will link in with the existing Dungarvan to Ballinroad Greenway.



Figure 1.1 Proposed Dungarvan to Kilmeaden Greenway (Source: Project Part VIII Report)

1.3.2 Kilkenny Cycle Routes

Trail Kilkenny have developed a number of cycle routes in the county, the North Kilkenny Cycle Route, East Kilkenny Cycle Route and the South Kilkenny Cycle Route. The routes are at various stages of development but are generally way marked on-road cycle routes. The South Kilkenny Cycle Route is located adjacent to the proposed Waterford to New Ross Greenway for a short section as it is located on the N25 and some adjoining local roads. The southern route is still in the planning phase and following the completion of the planning phase a signage strategy, map boards and routes guides will be developed.

1.3.3 Red Bridge Walking and Cycling Trail - New Ross

New Ross Town Council have carried out a preliminary study in developing a looped walking and cycling trail to the north west of the town. It is proposed to use a portion of the disused railway line as well as the disused railway bridge crossing of the River Barrow, known as The Red Bridge. Further details of the project can be found in **Appendix D** of this report.

1.4 Tourism

The growth in cycle tourism is an ever increasing market internationally but Ireland is not generally seen as a cycle friendly environment due to lack of cycle infrastructure¹. This however is changing, as there is ever increasing investment in such infrastructure such as the Great Western Greenway in Mayo and the larger project, The Dublin to Galway Cycle Route. Such national projects are targeted specifically at international cycle tourists who prefer long distance cycling. As the proposed Waterford to New Ross Greenway is located -between two relatively small urban

centres and is itself quite short at 22km, cycle tourists but in particular, tourists whom didn't specifically come to the area to partake in a cycle holiday should be targeted. The provision of the proposed Greenway will attract local industry such as bike hire shops and cafes which will provide tourists (international and domestic) with the appropriate equipment to use the proposed Greenway. The influx of private industry providing these services has been the experience of the Great Western Greenway in Co. Mayo which has been very successful.

Table 1.1: Summary of Fáilte Ireland Tourism Strategy Report¹

Current Tourist Perception	Development Strategy
Dangerous road, bends	Provide safe places to cycle and consideration from other road users;
Intimidating HGVs & Heavy Traffic	Attractive routes with good scenery;
No Traffic Free routes	Opportunities to visit local attractions and specific places of interest
No evidence of a coherent cycle network	Food, accommodation and refreshments available at appropriate intervals (10km)
Lack of public transport who take bikes (trains, bus etc)	Accessible maintenance and repair facilities

1. Source: *Fáilte Ireland: A Strategy for the Development of Irish Cycle Tourism.*

1.4.1 Fáilte Ireland – Tourist Cycling Strategy & Market Research 2013

Fáilte Ireland carried out extensive market research into potential cycle tourism in Ireland and what would the potential tourists expect in terms of infrastructure and facilities in Ireland. The market research involved carrying out nearly 15,000 interviews across Ireland and four overseas markets of Britain, France, Germany and the Netherlands. Fáilte Ireland note that over 173,000 people who visited Ireland engaged in cycling while here and spent over €200m.

This Fáilte Ireland market research is targeted at longer trip cyclists but with adjoining schemes in the pipeline the results should be taken onboard for the Waterford to New Ross Greenway.

Some of the findings from this market research in relation to the following topics:

What makes a good cycling destination?

- Visitors will choose a destination based on the overall experience of what they will see and do and cycling is an enjoyable means of experiencing those other activities.
- It is important therefore that any planned route allows visitors to have that rounded holiday experience by frequently incorporating interesting places to visit.
- Beautiful scenery is easily the most important destination attribute with respect to cycling. That said, the scenery needs to be varied, as too much of the same thing will become boring.
- Weather also ranks highly in preference however it's not the be all and end all.
- Cycling routes incorporating attractive cities and towns (47%), followed by access to historical/ cultural attractions (42%), and destinations that are easy to get to (41%) complete the list of attributes required to make a good cycling destination.

What makes a good cycling Tourism Trail?

- Beautiful scenery and landscape was the top priority for the overseas and domestic markets.
- Traffic free and safe cycling routes, perhaps reflecting the large proportion of the market that travels with children.
- Access to towns and villages and attractive cities and towns were also important, with a range of things to see and do also ranking in the top five with the domestic market.
- As 41% of the potential domestic market and 38% of the potential overseas market for cycling in Ireland travel with children, the importance of delivering trails which meet the needs of this market segment cannot be overstated.
- Children have a significant bearing on cycling needs, and this particular market segment is very wary of mixing with traffic, although road crossings are acceptable with warnings and maximum safety.
- The above findings should be used as guidance to what domestic and foreign users of a Greenway will expect and therefore what should be provided, if possible, on the Waterford to New Ross Greenway.

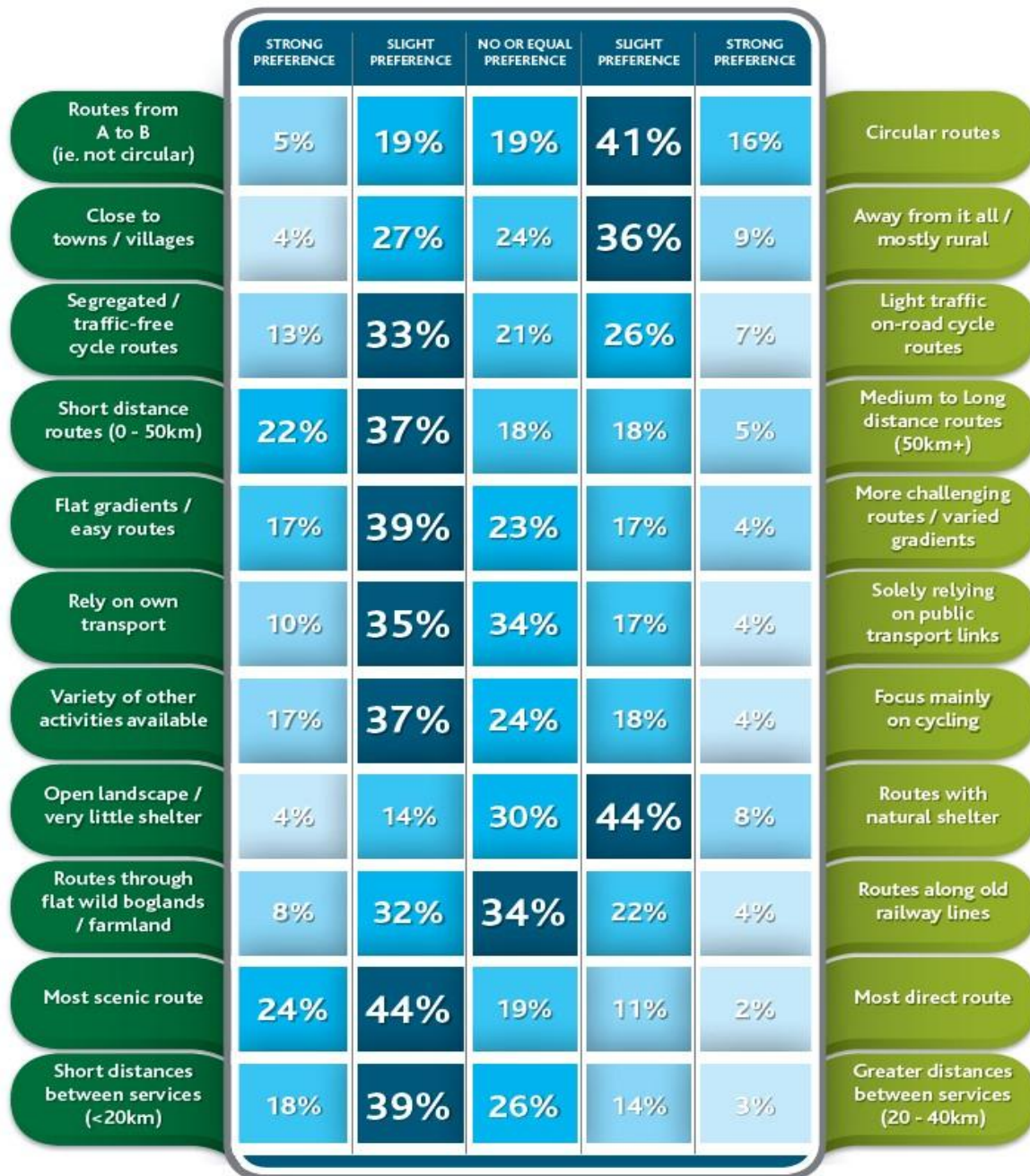


Figure 1.2: Fáilte Ireland Survey - What makes a good cycling Tourism Trail?

2.0 EXISTING ENVIRONMENT

The existing corridor of the disused railway line between Waterford and New Ross passes through the countryside of southern County Kilkenny. The two urban centres of Waterford and New Ross are connected by the busy N25 national road which has hard shoulders but does not provide for a pleasant cycling environment that would attract cycling tourists. Passenger services on the railway between the Waterford and New Ross ceased in the early Nineteen Sixties, but freight traffic continued until the mid Nineties. The track had become overgrown due to the ceasing of rail traffic. Site clearance works were carried out in early 2013 to cut back the large vegetation from the rail corridor and this has left a relatively clear route from Waterford to New Ross.

Along the existing disused railway corridor there are a number of existing under bridges and over bridges which cross the road network, various lanes and watercourses along its 22km length. As well as the numerous bridges there are five level crossings and numerous agricultural crossings along the route.

In order to provide a clear description of the entire route, the corridor has been broken into four sections of approximately 5km in length from Waterford at the southern end to New Ross at the northern end of the scheme. This report should be read in conjunction with the drawings provided in **Appendix A** of this report.



Photo 2.1: Typical view of the disused railway corridor

3.0 POTENTIAL NEW NARROW GAUGE RAILWAY

3.1 History & Project Background

The railway between Waterford and New Ross once provided a single broad gauge track rail link between the two urban centres which finished operating passenger services in the Nineteen Sixties. The closure of the service may have occurred over 50 years ago but the physical presence of the railway has remained as a reminder of the once extensive national railway network in Ireland. The landscape is littered with monuments to the old railway line with, bridges, level crossings, stations and gate houses, as well as the large linear route features of embankments and cuttings. This rich railway history is important to the local area and as part of this Waterford to New Ross Greenway project the provision of a 4m corridor adjacent to the proposed Greenway for a Narrow Gauge Railway similar to the Waterford and Suir Valley Heritage Railway (<http://www.wsvrailway.ie/>) is to be investigated in this section of the report.

3.2 Required Footprint

The provision of a Narrow Gauge Railway and a high quality Greenway along the disused railway corridor between Waterford and New Ross will require a combined footprint of over 8 to 9m. A 5m Greenway (3m surface with 1m verges) could feasibly be reduced to 4m by reducing the verges to 0.5m which leaves a required minimum footprint of 8m. The proposed Greenway will require a minimum of 4m due to the high standards which are expected by local cyclists and tourists alike. The route is to cater for walkers and cyclists of all ages and the provision of a wide Greenway is desirable to allow comfortable and safe sharing of the route by these two user groups travelling at considerably different speeds.

3.3 Existing Corridor Restrictions

From reviewing the corridor over the 22km length, the existing width is generally 4 to 5m wide but does widen up to 7m in places. The main pinch points were found at bridges along the route. The width is narrow at these structures as the Waterford to New Ross was a single track railway. The infrastructure accordingly was provided to accommodate the required width for just a 1.7m wide single track and 1m verges to give an overall minimum width of 3.7m at some bridges. The corridor which remains is sufficiently wide for the proposed Greenway only, with some slight localised narrowing at the bridges.

3.4 Conclusion

The disused railway corridor between Waterford and New Ross has insufficient space for the provision of a 4m wide Narrow Gauge Railway corridor in combination with a 3 m wide Greenway (3m surface and 2 No. 0.5m verges).

Major civil engineering works would be required to provide enough space for both pieces of infrastructure as the current embankments and cuttings would require to be widened as well as the construction of over new replacement bridge 20 structures, all of which would require substantial investment.

It is concluded therefore that that the provision of a 4m wide corridor for a Narrow Gauge Railway is not feasible in combination with the proposed Greenway. The location of the various pinch points which will restrict the provision of both the proposed Greenway and Narrow Gauge Railway will be highlighted over the course of this report.

4.0 EXISTING ROUTE/RAIL CORRIDOR AND WORKS REQUIRED

The disused railway located between Waterford and New Ross provides an excellent corridor which is ideal for constructing a Greenway to be enjoyed by cyclists, walkers, runners and many other users. A disused rail corridor is well suited due to its segregation from live traffic for the majority of its length and the generally gentle gradient of the route.

The overall goal of the Waterford to New Ross Greenway is to link both urban centres together using the rail corridor while also providing a scenic route which can be enjoyed by locals and tourists. The proposed Greenway located on the disused Waterford to New Ross will be cut off from the Waterford City centre by the Waterford to Rosslare Railway which is currently used by freight trains and is also dissected by the River Barrow in New Ross. Proposals to link the Greenway to the two urban centres are discussed in **Section 5.0 - Connectivity**.

The rail corridor has been divided into four sections of approximately 5km each for the purpose of this report. The following description will describe in general terms the various works which will be required to facilitate the proposed Greenway on the existing rail corridor. The bridges have been catalogued by Irish Rail and have been given a reference number which will be adopted in this report. In general they are given a three letter reference followed by a number. The reference system provided is, OBJ XXX = Over-bridge – i.e. road goes over the railway and UJB XXX = Under-bridge – i.e. road goes under the railway.

4.1 Section 1 - Ch. 0+000 to 5+000

The corridor between the bridge OBJ 470 (Ch. 0+000) in Ferrybank and OBJ 463 (Ch. 1+110m) is approximately 5 to 6m wide. The route passes between the residential areas of *Árd Glas*, *Fíodh Mór* to the east of the proposed Greenway with a similar development in *Abbeylands* to the west. The Project Brief suggested that special consideration be given to measures such as screening, public lighting and mitigation to curtail any anti-social behaviour is required along this section of the proposed Greenway. The railway is in deep cutting along this section and the adjoining houses are set quite far back from the line with extensive screening by bushes and trees. There is little evidence on the ground of anti-social activity at present. It is highly unlikely that residents of the nearby housing will be adversely affected by the proposed Greenway in terms of loss of privacy, or amenity or light pollution if public lighting were provided for this section of the route.

Details of such mitigation can be seen in **Section 7.0 - Proposed Greenway**.

An access point to the housing developments should be considered in order to provide a safe and attractive cycling and walking route to and from Waterford City Centre for the residents. A bridge at Chainage 1+105 (OBJ 463) provides an unofficial shortcut for people travelling between the two residential areas either side of the railway corridor. This could be formalised with some minor site clearance and surfacing works to the existing structure. The location of a possible access point to the Greenway is shown on the alignment drawing **AL-101** in **Appendix A**.



Photo 4.1: Looking north from bridge OBJ 470 in Ferrybank (Ch. 0+000). Adjoining houses screened by vegetation.

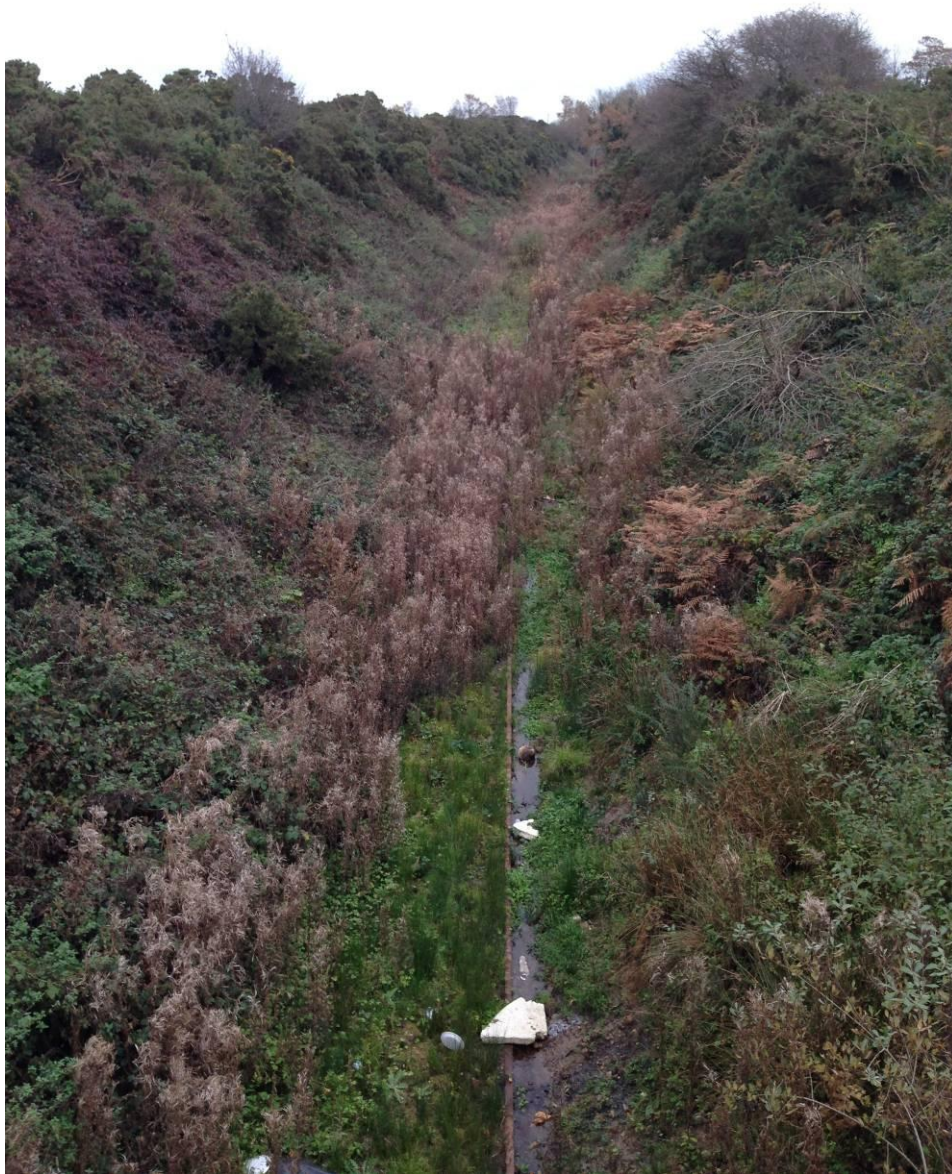


Photo 4.2: Looking north from OBJ 463 towards New Ross (Ch. 1+110)

The proposed Greenway continues north towards New Ross and passes through predominately agricultural lands. The occasional domestic and agricultural building is located either side of the rail corridor as it heads north. The route is in cutting for approximately 1.4km which will require the repair of existing drainage channels or if necessary the construction of new drainage channels. A number of at-grade agricultural crossings and one agricultural structure are in Section 1 which are all to be retained. Crossings will require some works in terms of additional fencing and gates etc. Details of proposed works are provided in standard Detail Drawing **SD-AG-101** in **Appendix A**

The two road structures at Ch. 2+020 (OBJ 465) and 2+520 (OBJ 463) are in good condition and presently carry traffic on the local road over the rail corridor. Minor works such as site clearance and possibly some re-pointing of the stone work is

required. Access ramps should be provided at these bridges so that the local rural community can avail of the new facility.

The proposed route passes under the N29 access road to Bellview Port at Ch. 3+600 (IR Ref 461A – **Photo 4.3**) and is for the most part in cutting before it rises up on embankment on approach to the road bridge (IR Ref: 541) at Ch. 4+300 in the town land of Drumdowney. This bridge has masonry abutments with a steel deck. The deck itself is rusting badly and requires appropriate maintenance works at a minimum. A detailed list of associated works are outlined in Table 4.1 below and on the structure standard detail drawing SD-ST-101 in **Appendix A**.



Photo 4.3: Looking north under the N29 Concrete bridge IR Ref: OBJ 461A (Ch. 3+600)



Photo 4.4: Looking south from bridge IR REF: UBJ 460 towards Waterford (Ch. 4+300)

A level crossing is located at Ch. 5+000 which has an existing gate house located adjacent to the level crossing; as the house is close to the existing rail corridor and therefore, the proposed Greenway (See **Photo 4.5** below) appropriate screening may be required at this location. Consultation with the landowner should be carried out to determine if any treatment is required and if so the extent of the treatment.



Photo 4.5: Gate house at Level Crossing at Ch. 5+000

Table 4.1: Section 1 Structures

Chainage	IR Ref:	New Deck Required?	New Parapets Required?	Comments
0+000	OBJ 470	No	No	-
1+110	OBJ 463	No	TBC (see comments)	Parapets to be repaired if used by pedestrians
1+500	OBJ 467	No	No	Inspection of bridge required
2+020	OBJ 465	No	No	--7.5tonne weight restriction
2+520	OBJ 463	No	No	-
3+610	OBJ 461A	No	No	-
4+300	UBJ 460	Yes	Yes	Steel deck rusting badly.

4.1.1 Section 1 – Provision of a corridor for a Narrow Gauge Railway

From reviewing the approximately 4.3km length of Section 1 it is noted that the required space is not available to accommodate both a Narrow Gauge Railway and a high quality Greenway. The main reason why the provision of both pieces of infrastructure falls down is the current available space provided by the various structures along the route. Structure OBJ 461A which passes underneath the N29 is approximately 5m wide and a new structure would be required to run parallel to the existing to facilitate the Narrow Gauge Railway.

The area of the disused railway track is also in cutting for a significant distance and it would also require significant earthworks in order to widen to corridor to facilitate both the Narrow Gauge Railway and the proposed Greenway.

4.2 Section 2 – Ch. 5+000 to 10+380

A number of agricultural crossings are located between Ch. 5+000 and 6+600 which are currently in use. These crossings will require specialist treatment as outlined in drawing **SD-AG-101** in **Appendix A**.

The disused railway corridor passes adjacent to the Rhu Glenn Hotel at chainage 6+300 which will provide a useful stopping point for cyclists and walkers. There is a small storage building located partially on the footprint of the rail corridor as shown in the photo below, but this will not obstruct the proposed Greenway.



Photo 4.6 Looking south at Ch. 6+300 - shed beside railway line at Rhu Glenn Hotel

There is a road level crossing at local road L7470 which crosses the railway corridor at Ch. 6+610 (See **Photo 4.7** below). A number of residences are located in the vicinity of the level crossing which may require appropriate screening for privacy and other mitigation measures. Details of such mitigation are included in **Section 7.0 Proposed Greenway**. The corridor in this section is predominately 5 to 6m wide which will provide sufficient space for the proposed Greenway.

Level crossings which are to be negotiated by users of the Greenway will require an element of traffic calming on the local road to alert drivers of the presence of cyclists and pedestrians crossing ahead. Details of the required works the level crossing at Ch. 6+600 can be seen from drawing **SD-LC-102** in **Appendix A**.



Photo 4.7 Looking south towards level crossing at Ch. 6+610



Photo 4.8 Looking north at Ch. 6+700

The route moves into cutting where it passes under a local road at Ch. 7+410 (OBJ 455). With the proposed Greenway in cutting it will provide screening from the adjacent houses.



Photo 4.9: Area of rock cutting at Ch. 7+600

The area of rock cutting between 7+500 and 7+800 may require a local reduction in Greenway width as there is only approximately 4m available as can be seen in **Photo 4.9** above. The stability of the cutting slopes will require inspection in order to review if there is any risk of rock-fall that might require mitigation measures such as rock netting.

The route travels for approximately 3km without crossing a local road until it meets a masonry bridge IR REF: UBJ 447 at Ch. 10+380. There are a number of agricultural crossings over this 3km stretch of the corridor which will require to be retained. The frequency of use of these crossings will vary but appropriate accommodation works as outlined in Drawing **SD-AG-101** in **Appendix A** will be required the various crossing points which are currently in use or are required following landowner consultation.

As shown in **Photo 4.10** below, a high embankment via Under-bridge IR Ref UBJ 447 (Ch. 10+380) crosses to the local road and adjoining agricultural lands. As with

all such structures which cross over a local road, new parapets and approaching fencing will be required.



Photo 4.10: Railway Corridor on embankment at Ch.10+380 (IR REF UBJ 447)

Due to the high embankment encountered in this section, consideration may be required for edge fencing to protect against the risk of an errant cyclist straying over the edge. A timber post and rail fence such as the one shown in drawing **RCD/300/1** in **Appendix A** would suffice. The width of the rail corridor as it passes over the under-bridge is quite wide, with 6m available. As outlined in Table 4.2 a new parapet will not be required as the bridge is buried within the embankment and does not extend as high as the railway track level.

Table 4.2: Section 2 Structures

Chainage	IR Ref:	New Deck Required?	New Parapets Required?	Comments
7+420	OBJ 455	No	No	-
10+260	OBJ 445	No	No	-7.5tonne weight restriction
10+380	UBJ 447	No	Yes	6m available at crossing

4.2.1 Section 2 – Provision of a corridor for a Narrow Gauge Railway

As outlined in Section 1, available space is the main restriction which is encountered if both a Narrow Gauge Railway and the proposed Greenway are to be provided. As can be seen in **Photo 4.9** above, the deep rock cutting narrows the available space to approximately 4m. For space to be made available for a Narrow Gauge Railway significant excavation works would be required.

A number of structures located along Section 2 also provide 'pinch points' which would require significant works such as widening the existing structure or the provision of a new structure. An example of such a structure can be seen in **Photo 4.10** which has a width of 6m available for the proposed Greenway.

4.3 Section 3 – Ch. 10+380 to 14+180

The route is on embankment as it crosses the local road Ch. 10+380 before returning to at-grade level as it continues north. There are a number of agricultural crossings which will require works and possibly some additional fencing to secure livestock as identified on drawing **SD-AG-101** in **Appendix A**.



Photo 4.11: View from bridge deck at Ch. 11+230 (IR REF UBJ 444)

The disused railway passes over UBJ 444 at Ch. 11+230 as can be seen from **Photo 4.11** above. The distance between the two existing parapets is 4.4m which will allow for a 3m Greenway with a 0.5m rubbing strip in front of each parapet. As the existing parapets are below the necessary 1.2 to 1.4m height required for a pedestrian/cyclist bridge a new parapet is required either in front of the existing parapet (located in the rubbing strip) or on top of the existing parapet, thus retaining the rubbing strip. Further details of what is required at the various structures can be seen in the drawing SD-ST-101.

This section of the route stays at grade or at slight embankment as it approaches the structure UBJ 443 at Ch. 11+760.

The disused railway passes through a farm yard and between a number of farm buildings from Ch. 11+760 to 12+000 (See **Photo 4.12** below). The disused railway corridor is clear of obstruction but currently the space is used as a storage area for agricultural vehicles and materials. The location of a Greenway through this section may prove difficult due to the proximity of the buildings to the disused rail corridor.



Photo 4.12: Disused railway passes through farm yard at Ch. 11+800

It may be required to divert the Greenway around the farmyard, either to the west along the edge of the adjoining fields, or else to the east using the existing very minor local road for 250m before rejoining the old railway line, as shown on the following aerial photograph, **Photo 4.13**. Consultation with the landowner will be required to identify the most appropriate route through this area.

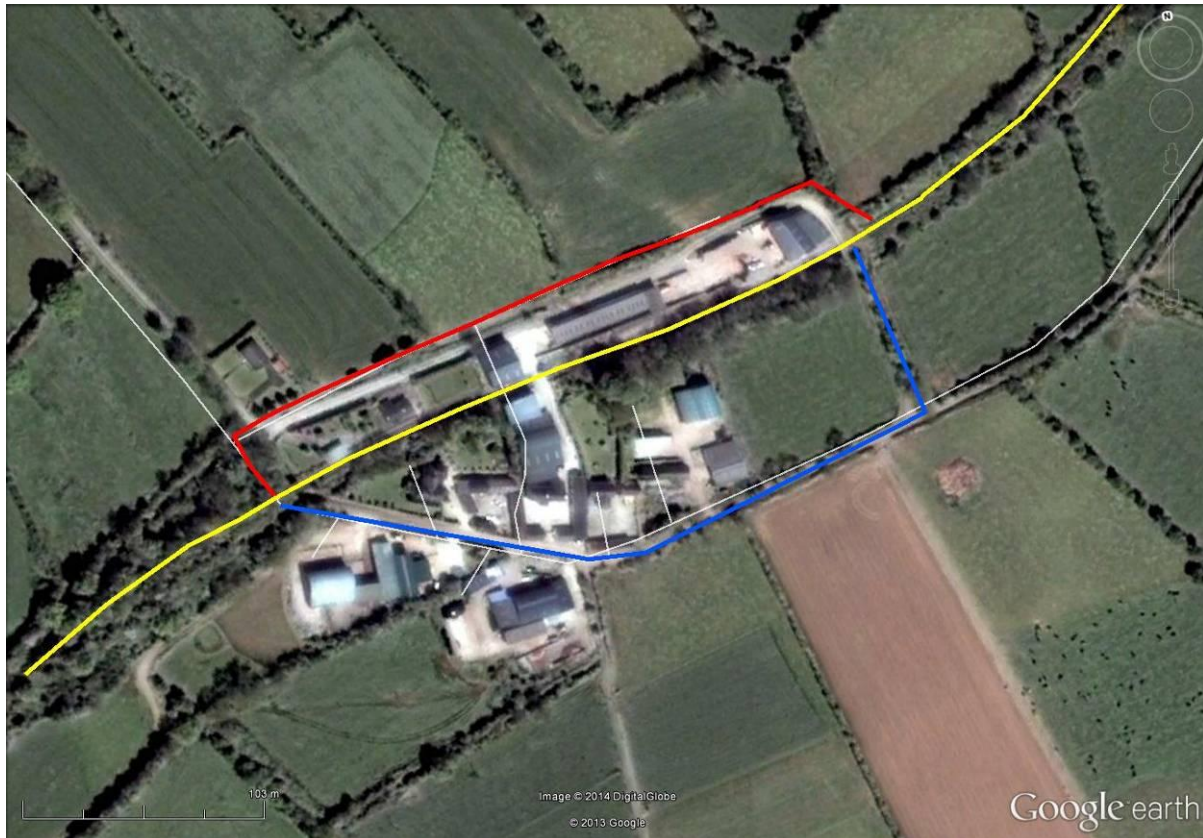


Photo 4.13: Route Options at farm yard at Ch. 11+800

The disused railway continues north passing over a number of structures which will require parapets and additional fencing. The bridges in this section consist of a steel deck which will need to be either replaced or repaired. The retention of the existing steel decks should be possible but is dependent on a more detailed structural assessment and repair of corroded material. If this does not prove possible, or economical, standard replacement concrete deck as detailed in drawing **SD-ST-101** in **Appendix A** is proposed.

This section of the route passes through a level crossing at Ch. 13+050 which is located adjacent to a number of houses which may require screening and other mitigation measures to ensure the resident's privacy is retained.

The disused railway corridor enters into the River Barrow Special Area of Conservation (cSAC) which includes as well as the River Barrow, a number of small tributaries and associated wetlands at Ch. 13+800. The extent of the cSAC can be seen from the drawing series **AL-101** to **AL-108** and from consulting the **Appropriate Assessment Screening Report** which was also carried out as part of this Preliminary Design Report. The proposed Greenway will not leave the existing rail corridor and any very minor improvement works which are to be carried out should be sensitive to the local environment. It is most unlikely that the Greenway project will have any adverse impacts on the protected site, in the operational phase. Careful construction methods and control of materials will protect against short-term impacts during the development stage of the project.

There is a masonry and iron bridge at Ch. 13+800 (IR Ref UBJ 441) crossing Glenmore River, a tributary of the River Barrow (See **Photo 4.14** below) which will require a further detailed structural assessment. Works which are envisaged for this bridge will not include (depending on structural assessment results) any construction

in the Glenmore River or River Barrow cSAC and will be limited to repair of the main deck structure and parapets as well as the addition of a lightweight deck covering above rail level to provide a smooth surface for Greenway users. Appropriate fencing on the approach embankments will also be required as well as some seating areas and tourist boards outlining information of the surrounding environment.



Photo 4.14: Masonry/Iron Under-bridge over Glenmore River located in cSAC (IR Ref UBJ 441) Ch 13+800

Table 4.3: Section 3 Structures

Chainage	IR Ref:	New Deck Required?	New Parapets Required?	Comments
11+230	UBJ 444	No	Yes	4.4m between parapets
11+760	UBJ 443	Yes	Yes	4.75m between parapets
12+300	UBJ 442	TBC	Yes	Distance TBC between parapets
12+910	UBJ 441A	TBC	Yes	Distance TBC between parapets
13+800	UBJ 441	Yes	Yes	See Note 1
14+180	UBJ 440	No	Yes	5.15m between parapets

Note1: Existing deck is to be retained and repaired if required. A new lightweight deck will be provided to allow the Greenway cross the structure. Minimum distance between parapets = 4.5m.

4.3.1 Section 3 – Provision of a corridor for a Narrow Gauge Railway

Section 3 has a significant amount of structures over its 4km, one of which is the large Iron bridge (IR Ref: UBJ 441) crossing Glenmore River which is also located in the River Nore and River Barrow cSAC (Refer to Photo 4.14). Any works here are restricted due to the sensitive nature of the local environment. As there is only 4.5m available between both parapets a parallel bridge would be required to accommodate the Narrow Gauge Railway. The cost as well as the impact to the cSAC would be significant.

4.4 Section 4 – Ch 14+180 to 21+080

The railway corridor exits the cSAC at Ch. 14+180 and travels northwest away from the River Barrow and towards the corridor of the N25 road. This section of the route travels over a local road at Ch. 14+180 which is the northern boundary of the cSAC before it reaches a local farm holding. The corridor skirts around the farm buildings and cuts through an accommodation road which is used by farm machinery. Due to the probability of heavy machinery using this at-grade crossing, it is proposed to retain the at-grade crossing at this location with appropriate warning signs on the Greenway and accommodation road. A detailed layout of the crossing can be seen from drawing **SD-LC-004** in **Appendix A**.

The proposed New Ross bypass scheme includes the provision of a new railway under-bridge (Ch 14+900) to span over the bypass on the western approach to the River Barrow Bridge. This scheme is currently at tender stage and will go to construction in late 2014. The location of the crossing can be seen on Drawing **AL-106** in **Appendix A**.

The railway is in quite a deep cutting between approximately Ch. 15+000 to 17+200 which also passes under a number of local roads (See **Photo 4.15** below) and one accommodation road. Due to the proposed Greenway being in a deep cutting necessary drainage works will be required to ensure the existing drainage paths are clear and suitable for the Greenway runoff. A number of access points to the local road could be provided in order to give local people in the area an opportunity to avail of the Greenway for recreational or commuting needs towards nearby New Ross.

The route of the disused railway continues following the N25 corridor and passes over two steel deck bridges (UBJ 433 and UBJ 431) which appear to be in reasonable condition but will require at a minimum new parapets and approach fencing. It is assumed however that new decks will be provided for these steel decked bridges for cost estimation purposes.



Photo 4.15: Masonry Under-bridge UBJ 437 (Ch. 15+960)

The route continues north and emerges from its predominately rural setting before entering the industrial area on the western side of New Ross. The bridge IR REF 428A, located at Ch. 19+520 just outside New Ross is a modern reinforced concrete bridge which provides access into an industrial area. The disused railway is in cutting at this point, as can be seen in **Photo 4.16** below. The width available at this section is approximately 4 - 5m which could be increased with site clearance works. The disused rail corridor continues north along the industrial area adjacent to the River Barrow, and is located in-between the warehouses and the N25. There are a number of large trees and shrubs near the Greenway which will have to be cleared in order to provide a clear route. It would also be advantageous if the Greenway could be visible from the road to ensure security for users as they enter a built up area. Lighting along this section of Greenway will also be necessary.

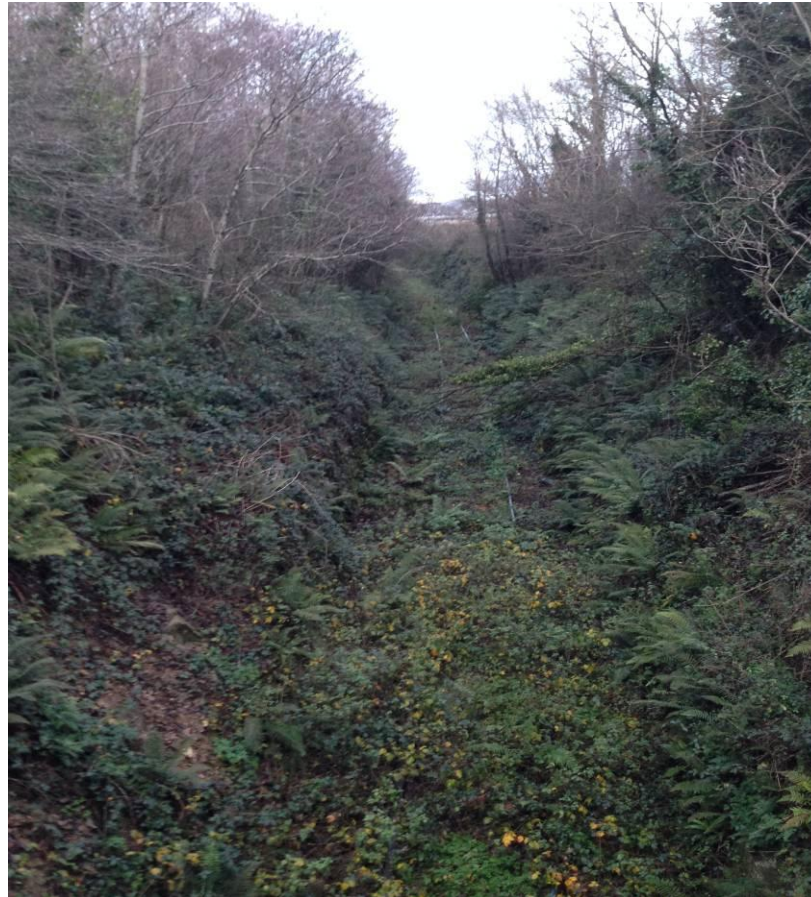


Photo 4.16: Disused railway in cutting at Ch. 19+520

Table 4.4: Section 4 Structures

Chainage	IR Ref:	New Deck Required?	New Parapets Required?	Comments
14+565	UBJ 439	No	Yes	Distance between parapets TBC
15+333	OBJ 438	No	No	
15+960	OBJ 437	No	No	
14+425	UBJ 436	Yes	Yes	4.8m between parapets
17+035	OBJ 434	No	No	-7.5tonne weight restriction
17+920	UBJ 433	Yes	Yes	5.0m between parapets
18+510	UBJ 431	No	Yes	4.6m between parapets.
19+510	OBJ 428A	No	No	

4.4.1 Section 4 – Provision of a corridor for a Narrow Gauge Railway

The final section of the disused railway line between Waterford and New Ross has a number of structures, of which the underbridges (where the road goes under the rail) vary in width from 4.6 to 5.0m measured from parapet to parapet. This width is suitable for the provision of Greenway but there is not enough available room to provide the proposed Greenway and a Narrow Gauge Railway. There are a number of sections of the disused railway which is in cutting as it approaches New Ross and any works to provide the additional space for a Narrow Gauge Railway would require significant civil works and the possible requirement to acquire additional lands.

5.0 CONNECTIVITY

The Greenway will connect the City of Waterford with New Ross Town, albeit the corridor which the Greenway will be using, the disused railway, only reaches to Ferrybank (suburb of Waterford) and the west bank of the River Barrow in New Ross.

Waterford City Council is currently carrying out a study titled *Cycle Network Planning for Waterford City and Environs* which will provide a detailed plan for cyclists in Waterford. The below route options in Waterford will require a further review once this study is published.

A number of route options outlined below is seen as a first step in this planning process and will require further development at a later stage to determine whether lands identified are available. Refer to Drawings **CN-101** and **CN-102** in **Appendix A**.

5.1 Waterford

Ferrybank is a suburb of Waterford City located in County Waterford with parts also located across the border in County Kilkenny. Due to the large residential population in this area living in both counties but working and socialising in Waterford City, the two local authorities should be consulted to determine any proposals in their development plans or any future proposals which may be in the pipeline.

The former Waterford to New Ross line joins up with the Waterford to Rosslare Harbour line just south of the starting point of the proposed Greenway. The Waterford to Rosslare line is currently used by Irish Rail to transport freight and as such providing a route along this railway is not possible. It is proposed to provide an access to the Greenway from the local road network at the final bridge crossing at Ch. 0+000. The road over the railway in Ferrybank is a moderately busy single carriageway road, approximately 6 to 7m wide with a narrow footpath on the northern side of the road only, **See Photo 5.1** below.

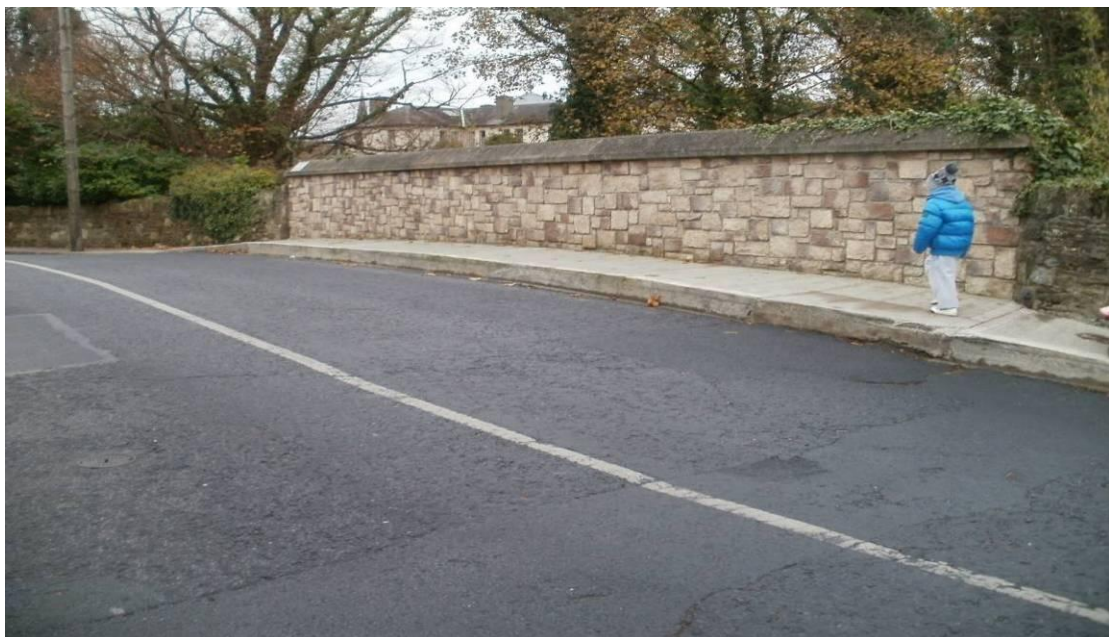


Photo 5.1: Bridge crossing OBJ 470 in Ferrybank

The connection of the Greenway to Waterford City is important in order to attract users to the Greenway from the population of Waterford. There are two options which are outlined below which may provide a feasible route to and from Waterford City to the Greenway.



Photo 5.2: Looking north from OBJ 470 towards possible location of ramp

5.1.1 Route Option A – Existing Road Network

The road from Fountain Street (R711) to the Ard Glas road is narrow in places with a narrow footpath along its northern side. The existing footpath would not be suitable for cyclists and pedestrians to share. An access point from the Greenway to the footpath should be provided for pedestrians and cyclists but due to the narrow cross section at the bridge providing an off road cycling facility would not be possible. A toucan crossing at this point would allow cyclists to use proposed advisory cycle lanes which would provide a link to the proposed off road cycle track further west on Fountain Street and Dock Road. Route A uses the combination of advisory cycle lanes and off road cycle tracks, this proposal can be seen in drawing **CN-101** in **Appendix A**.

The Fountain Street/Dock Road (R711) which travels west towards Rice Bridge could accommodate a high quality cycle facility, either a two-way cycle track located on the southern side of the road or two separate cycle tracks located on each side of the carriageway (The single cycle track on the south side of the road is shown on drawing **CN-101**). This would entail modifications to the road cross-section to reduce the traffic lanes widths, and could also require widening into the central median of the dual carriageway.

The existing river crossing at Rice Bridge is unfortunately too narrow to accommodate a high-quality segregated cycle track in conjunction with the current layout of two traffic lanes in each direction. While the N25 Waterford Bypass has reduced the volume of traffic on the old route over Rice Bridge, this is unlikely to be low enough to warrant a reduction in the number of traffic lanes. It may be necessary for the route into Waterford City Centre to be carried on a slightly widened shared footpath/cycleway on a short-term basis, but a standalone shared pedestrian/cyclist

bridge would be preferable. Such a bridge is identified in the Waterford City Development Plan 2013 – 2019 (Objective OBJ 6.2.2) which is shown on drawing CN-101, and was the subject of a feasibility study by Roughan & O'Donovan a number of years ago, with an estimated cost of €18.5m.

Another and more economical option would be to add a clip-on lightweight boardwalk structure onto the western side of Rice Bridge. The existing footpath is about 2m wide, and would need to be increased to 4m to carry the two-way cycleway shared with pedestrians. The traffic lanes on the bridge could be reduced to 3m, which would allow the footpath to be widened by 1m to 3m. The opening span would present a tricky technical challenge but it should be feasible to widen the bridge by 1m or so within the capacity of the main deck structure, counterweight and the lifting mechanism with modifications. ROD have assessed this bridge fairly recently and have all the necessary information for a technical feasibility study if required.

5.1.2 Route B – Riverside Walk/Cycleway along North Quays

Route B will follow a section of Route A before branching south to take advantage of the north docks area which is earmarked for redevelopment following the relocation of port activity to Belview Port. This route would cross the railway line between Waterford and Rosslare Harbour via the existing bridge crossing before turning west towards Rice Bridge along the north bank of the River Suir. The pedestrians and cyclists could use the Rice Bridge crossing to access Waterford City. This route could also link in with the proposed pedestrian bridge as per the Waterford City Development Plan (refer to cost of pedestrian bridge outlined in **Section 5.1.1** above).

5.2 New Ross

The railway corridor section of the Greenway ends at its intersection point with the N25 where the user would be required to share the road with heavy traffic if no further works were considered. It would be advantageous to provide an off road facility for the cyclists and walkers to access the town centre on the eastern bank of the river. One option is to construct a pedestrian footbridge adjacent to the existing road bridge. The pedestrian bridge could be anchored to the existing bridge to ensure no construction works is required in the River Barrow. Similar pedestrian bridges have been constructed in Ireland in a number of locations; see photos of some examples below.



Photo 5.3: O'Hanrahan Bridge crossing into New Ross

The provision of such a pedestrian/cyclist bridge would provide an excellent link into the recently refurbished quays area in New Ross. The existing wide footways provided on the quay side are suitable for cyclists and pedestrians to use to access to New Ross tourist locations such as the Dunbrody Famine Ship and the Tourist office where there is existing bike stands (additional stands may be required). Access to the many restaurants, bars and cafes in New Ross can easily be reached from the quay side (Refer to drawing **CN-102** in **Appendix A** for details). A review of the New Ross Walking and Cycling Strategy should be consulted at detailed design stage.



Photo 5.4 & 5.5: Footbridge fixed to existing bridge crossing of the River Liffey in Chapelizod, Dublin



Photo 5.6: Footbridge fixed to existing bridge crossing of the River Sullane in Macroom, Co. Cork

6.0 STAKEHOLDERS

Stakeholders identified for consultation when developing the proposed Greenway include:

- Local Community and Interest Groups
- Land Owners
- Local Businesses
- New Ross and Waterford City Chamber of Commerce
- Various Schools
- Irish Rail
- Kilkenny LEADER Partnership
- Kilkenny County Council
- Waterford County Council
- Waterford City Council
- Wexford County Council
- New Ross Town Council
- Waterford Institute of Technology

Consultation with adjoining landowners will be an important stage during the Part VIII Planning process. However, it is recommended that an informal consultation process should be carried out before the Part VIII application by Kilkenny County Council to iron out any issues early on in the project. By carrying this early consultation process out any mitigation measures identified can be included in the Part VIII documents.

7.0 PROPOSED GREENWAY

7.1 General Requirements

A Greenway is defined as ‘a cycleway that caters for pedestrians and cyclists in a recreational environment’ and which provides “independent communication paths” for exclusively non-motorised use which are accessible for any type of user because they have few or no slopes and are often built on old railway lines or canal towpaths.

The proposed Greenway will provide a high quality cycle and walking route between Waterford and New Ross. The Greenway will be targeted at recreational users and tourists, domestic and foreign who visit the region.

As outlined in the Fáilte Ireland survey (See Section 1.4.1) highlights the many traits that potential users expect when using a high quality cycle infrastructure such as a Greenway. These expectations from potential users meet the high standards which this project has set. The following documents are proposed to be used as a design guide to providing a high quality cycle route:

- National Cycle Manual (NTA – 2011)
- Rural Cycle Scheme Design (NRA TD 300/13) I – Draft September 2013
- Classification and Grading for Recreational Trails, National Trails Office



Photo 7.1: Example of a bituminous surfaced Greenway (Grand Canal, Dublin)

7.1.1 National Cycle Manual (2011)

In accordance with the National Cycle Manual which has been developed by the National Transport Authority there are five needs of a cyclist; 1) Road Safety, 2) Coherence, 3) Directness, 4) Attractiveness and 5) Comfort, the proposed Greenway scores well against each of the headings due to the following characteristics:

- (i) Separated from live traffic will increase cyclist safety
- (ii) An arterial route with various connections will provide a coherent route for users

- (iii) The proposed Greenway will link the major urban centres of New Ross and Waterford City directly which will provide an excellent commuter and recreational facility
- (iv) The location of the proposed Greenway along the New Ross to Waterford Rail corridor will provide an attractive route for the user
- (v) The bituminous surface and flat gradient will provide a smooth and very comfortable facility for cyclists.

7.1.2 Rural Cycle Scheme Design (NRA TD 300/13) – Draft September 2013

The NRA has developed a design standard which is currently in draft status but is due for publication in early 2014. The standard will outline the design standards and factors that need to be considered by Design Organisations when providing cycling facilities in rural areas. The design standard has the following design principles which are to be considered for rural cycle schemes.

- Coherence
- Convenience
- Directness
- Safety
- Comfort
- Attractiveness
- Access

7.1.3 Classification and Grading for Recreational Trails, National Trails Office

The National Trails Office (NTO) was established in 2007 by the Irish Sports Council to coordinate and drive the implementation of an Irish Trails Strategy, and to promote the use of recreational trails in Ireland. The NTO has developed a number of publications which outline the required standards it expects of various trails and Greenways. The following list of headings outlines what is required of a high quality Greenway as listed in their Classification and Grading for Recreational Trails document.

- Relatively flat trails intended for use by walkers and cyclists of all ages (and possibly horse riders).
- Wide enough to accommodate two-way usage.
- Even consistent sealed surface with no trail features or obstacles.
- Has low gradient to ensure slow speeds and safe use in any direction.
- May include urban paths, canal tow paths, rural traffic free lanes, forest roads, etc.
- The NTO outlines a desired minimum width of 2.5m which should also be the desired minimum of the Waterford to New Ross Greenway where a 3.0m width cannot be provided.

7.2 Construction Method

The existing railway corridor was originally constructed to accommodate a single railway track. This track is generally located in the centre of the corridor but the track does move on approaches to bends in the railway.

Site clearance will be required to remove existing vegetation and organic material but tree felling and scrub removal will be kept to a minimum during construction phase.

It is envisaged that the railway track will be removed and Iarnród Éireann will wish to salvage the old rails and some of the sleepers if in a good condition.

The remaining sleepers will be left in place or may be used as local features along the route such as fencing, public seating, sign posts etc. The existing ballast will remain in position to act as part of the foundation layer for the cycleway.

7.2.1 Pavement

The proposed cycleway is to be 3m wide, made up of 40mm bituminous surface laid on 150mm of crushed stone sub-base. The sub-base should be laid with a paving machine so as to give a high-quality surface level control. This is standard practice on the European continent and was also used in a pilot cycleway scheme designed by ROD at Derrylea, near Clifden County Galway (See **Photos 7.2 & 7.3**). A cross section of the proposed Greenway can be seen in drawing **TCS-101 to 103** in **Appendix A**.



Photo 7.2 - Cycleway Sub-base laid with a paving machine at Derrylea, Co. Galway



Photo 7.3 - Cycleway Sub-base laid with a paving machine in Germany

7.2.2 Bridges

A number of existing bridges where the disused railway passes over local roads will require upgrading and repair to accommodate the proposed Greenway. The existing bridges are in varying state of repair with a number of the existing bridge decks and parapets in poor condition (see **Photo 7.4 & 7.5** below). The works to upgrade these bridges will include the replacement of the existing bridge deck using a new concrete bridge deck (**Photo 7.6**) or a lightweight structure as outlined in **Photo 7.7** below. Additional works such as parapets, fencing and other ancillary works will also be required in order to bring the existing bridges up to a sufficient standard to accommodate the proposed Greenway.



Photo 7.4 & 7.5: Structure UBJ 443 at Ch. 11+760

An example of a light-weight modern bridge deck on the *Great Western Greenway* in Mayo is shown below in **Photo 7.7**. Another option is to provide a standard reinforced concrete deck as shown in Photo 7.6 below and in drawing **SD-ST-101** in **Appendix A**. Both of these options should be assessed during the detailed design stage.



Photo 7.6: Structure UBJ 443 at Ch. 11+760



Photo 7.7: Light-weight Bridge Deck on the Great Western Greenway in Mayo

Where the proposed Greenway passes through the River Barrow and River Nore cSAC construction works will be restricted to lightweight construction methods as much as possible. This will help ensure that no negative impact on the cSAC occurs during construction works.

It is proposed to use the existing steel structure bridge which bridges the Glenmore River within the cSAC as part of the Greenway. The bridge itself is visually in good condition but in order to provide a suitable crossing for cyclists and walkers a lightweight decking will have to be retrofitted on to the existing bridge deck, an example of such a light weight structure can be seen in **Photo 7.8** below. Other works such as the provision of an improved parapet and some routine maintenance works will also be required at this location. No works to the substructure of the bridge are anticipated.



Photo 7.8: Light-weight reinforced plastic board walk on the Boyne Greenway

7.2.3 Road Crossings

A number of at grade road crossings exist along the proposed route which will require traffic calming works to provide a safe crossing point for all users of the Greenway. Proposed works may include additional road markings, signage and other traffic calming requirements on the local road. The level of traffic calming will depend on the level of vehicular traffic on these local roads which are to be crossed, as well as visibility at the crossing. Signage and access controls will also be required on the cycleway itself to warn cyclists of the upcoming road crossing. A Section 38 Application made to the relevant authority will be required under the Roads Traffic Act 1994 for any traffic calming proposals which fall under this legislation.

7.2.4 Drainage

The existing drainage paths which are located along the railway are to be retained. A proposed cross fall of 2% will direct runoff towards the existing drainage ditch adjacent to the disused railway (see example of a drainage ditch in **Figure 7.1 & Photo 7.9**). A section of the existing drainage ditch will have to be piped where the proposed Greenway is to be placed over any existing ditch and where there is insufficient room to relocate the ditch.

Drainage ditches adjoining the cSAC will be maintained in their present condition. As the runoff from the shared facility will be limited, the existing drainage ditches will be more than capable of providing sufficient drainage capacity for the 3m wide Greenway. An additional closed drainage system will be required where the condition of the existing drainage ditches warrant replacement.

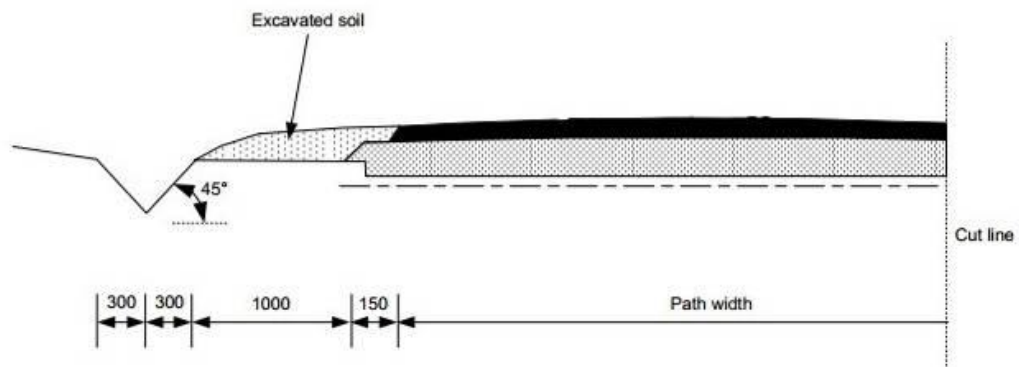


Figure 7.1: Example of drainage ditch detail for a Greenway. (Source: Sustrans)



Photo 7.9 - Example of cutting drainage on the Great Western Greenway in Mayo

7.2.5 Screening

The existing railway corridor between Waterford and New Ross passes close to a number of residential areas and individual houses along its route. The proposed Greenway will follow this route and as such will direct members of the public past a number of residences. The provision of screening at affected houses should be provided in order to protect the privacy of local residents. The method of screening could vary from planting a number of trees/shrubs to providing a fence along the affected area. The extent of screening will be determined following landowner consultation and during detailed the design stage of the project.

7.2.6 Lighting

It is proposed to provide 'Smart Lighting' at the urban sections of the proposed Greenway in Waterford and New Ross. These areas will be the most heavily utilised and the provision of specifically designed lighting will ensure the use of the facility in the winter months and also provide a safe environment for users. The final lighting

design should be sympathetic to local residences and be sensitive to environmental issues and of issues raised under **Section 7.2.5 Screening** above.

7.3 Environmental Mitigation

As part of the development of this Preliminary Design Report A Screening for Appropriate Assessment (AA) was carried out to determine the potential effects, if any, of the proposed scheme on sites with European conservation designations (i.e. Natura 2000 sites). The purpose of the assessment is to apply the legal test pursuant to Article 6(3) of the Habitats Directive of the proposal in the context of the conservation status of such sites. Please refer to the AA Screening Report for further details.

The following is a non-exhaustive list of the mitigation measures which are proposed following the environmental assessment:

- i) All material including oils, solvents and paints will be stored within temporary bunded areas or dedicated bunded containers;
- ii) 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;
- iii) All machinery and plant used will be regularly maintained and serviced to ensure that leakage of diesel, oil and lubricants is minimised;
- iv) 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;
- v) Where possible the excavated spoil will not be stored beyond the working day, however in the event that this is not practical, appropriate precautions in relation to the material will be taken. These precautions will include appropriate storage and covering;
- vi) Full method statements will be provided by the contractor and approved prior to the commencement of construction;
- vii) A pre-construction survey of the route will be required within the optimal survey period (e.g. May, June) to identify if any Japanese Knotweed is present along the route;
- viii) Where any invasive species i.e. Japanese knotweed is identified on site during construction the National Roads Authority's (NRA) *Guidelines on the Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads* (2010) and in particular the measures listed in the UK Environmental Agency's *Managing Japanese knotweed on development sites, The Knotweed Code of Practice* should be adhered to, a link to both these documents is provided in Section 10.0 below;
- ix) As Japanese Knotweed has been recorded previously in the area, a bio-security protocol will be put in place during the construction phase of the development. This will ensure that all plant machinery and equipment will be thoroughly cleaned and inspected for invasive species prior to leaving site;
- x) All soil imported for landscaping purposes will be screened and verified as free of noxious weeds and invasive non-native species. Due care will be applied to ensure invasive alien species of plant and animal are not inadvertently spread during the landscaping works.
- xi) Once the development is completed the Rural Recreation Officer for County Kilkenny will take over management for the trail maintenance of the Greenway in accordance with Trail Kilkenny's methodology for maintenance.

7.4 Construction Stages

The existing railway corridor passes over a number of local roads over its length, all of which will provide excellent access points for construction materials and plant. It is proposed to carry out the construction over a phased basis which may be carried out in four 5km segments as outlined on the drawing series AL-101 to 108. These sections can be easily broken down into small sections if required due to time or budgeting issues.

7.5 Maintenance Programme

As with all infrastructure projects a maintenance programme is required to ensure that a high quality facility is provided not just in the first year but also subsequent years, this is especially the case with public and tourist facilities. Trail Kilkenny has extensive experience in developing and maintaining trails and it is proposed that Trail Kilkenny will operate the following maintenance plan on the proposed Waterford to New Ross Greenway.

7.5.1 Overall Management

The Rural Recreation Officer (RRO) for County Kilkenny will take over management for the trail maintenance of the Greenway. He / She will:

- Act as point of contact for any trail issues
- Liaise with landowners over ongoing maintenance
- Design a trail maintenance regime
- In co-operation with Rural Social Scheme (RSS) Supervisor, manage the Trail Maintenance Team.

7.5.2 Maintenance

The trail will be added to the suite of trails managed under the "Trail Kilkenny" project. The current Trail Kilkenny trails are maintained by a team of RSS workers co-ordinated by a Charge Hand and managed by a RSS Supervisor. The team have the training, skills and equipment to maintain a trail of this type.

7.5.3 Inspection

The Greenway on completion will become an official trail and be registered on the National Trails Office Database. The trail will be inspected by National Trails Office (NTO) inspectors and a report given to the RRO.

7.5.4 Insurance

The trail will be insured under the Irish Public Bodies (IPB) trail insurance policy. The NTO inspection process is part of the NTO insurance policy.

7.6 Access to Greenway

Access to the Greenway will not just be provided at either end but at regular intervals over its total length at each road crossing point. Locals living along the route of the Greenway will be able to avail of the excellent access the facility provides into Waterford and New Ross. The regular access will also give people an opportunity to explore the local countryside or access attractions and facilities along the route. As constructing such access points is relatively straight forward the provision of access points can be explored during the consultation process with local groups.

8.0 PRELIMINARY COST ESTIMATE

At this early stage in the project it is difficult to provide a detailed cost estimate due to a number of design decisions which will be taken at detailed design stage. It is possible however, to provide an initial cost estimate based on the preliminary design and using our previous experience in working on similar schemes.

An initial cost of **€3.24m** has been calculated for a 3m wide bituminous Greenway with verge and associated structures and other ancillary works. A detailed cost estimate is outlined in **Appendix C**.

9.0 ARCHITECTURAL HERITAGE

A number of architectural heritage sites have been recorded by the National Inventory of Architectural Heritage (NIAH) in the vicinity of the proposed Greenway. The sites themselves are located over 80m away from the Greenway and as such the proposed facility will have little impact on the sites. The sites themselves may be tourist attractions such as The Abbey Church in Ferrybank. The history and location of such attractions could be included on tourist information boards along the Greenway.

As outlined previously it is important to retain the local railway heritage in any project which is proposed. This heritage is not outlined in the NIAH records but it is important in the overall success of the project as a strong railway theme should be seen when using the proposed Greenway.

Table 9.1: List of Architectural Sites recorded by NIAH in the vicinity of the Greenway

Name	NIAH Ref	Date	Location	Description
Abbey Church	22900905	1820 - 1825	Ferrybank, Waterford	Detached three-bay double-height single-cell Board of First Fruits Church of Ireland church
Abbey House & Gate Lodge	22900907 & 22900906	1830 - 1850	Ferrybank, Waterford	Detached five-bay two-storey over part-raised basement house with Gate Lodge
Holmwood House	15605262	1915 - 1935	Rosbercon, Wexford	Detached three-bay two-storey house
6 Saint Canice's Terrace	15605261	1925 - 1930	Rosbercon, Wexford	Semi-detached two-bay two-storey over basement house,
2 Saint Canice's Terrace	15605260	1925 - 1930	Rosbercon, Wexford	Semi-detached two-bay two-storey over basement house

Source: <http://www.buildingsofireland.ie> (NIAH Website)

10.0 NATIONAL MONUMENTS

A number of archaeological monuments have been identified following the Archaeological Survey of Ireland (ASI) which recorded such monuments for a national database of over 130,000 national monuments. As Counties Waterford, Kilkenny and Wexford are so rich in historical sites there are a number of monuments located near the proposed Greenway, such monuments are identified on the drawings. A list of the numerous monuments shown on the drawings was not deemed necessary as none are located directly on the proposed route and as such will not be impacted by the scheme, but a number of monuments are located near the proposed Greenway corridor which can be seen in **Table 11.1** below. .

Table 10.1: List of National Monuments recorded in the ASI & located near the Greenway

Name	NIAH Ref	Date	Location	Description
Religious house & graveyard	WA009-008 & WA009-008001	11 th – 12 Century	Ferrybank, Waterford	No trace of buildings remain
Fulacht Fia (2 No.)	KK046-12 & KK046-11	N/A	Abbeylands, Kilkenny	No site description available
Religious house	WX029-013007	12 th Century	Rosbercon, Wexford	No visible remains at ground level, traces of foundations exist

Source: <http://www.archaeology.ie>

11.0 CONCLUSIONS

The Waterford to New Ross Greenway project will fit seamlessly into the surrounding environment using the disused rail corridor and will provide an excellent facility for locals and visitors to the area of Waterford and New Ross as well as the surrounding countryside of County Kilkenny. The Greenway, as well as providing a recreational facility for walkers and cyclists, will also provide a safe traffic free commuter route for local people into the urban centres of Waterford and New Ross.

The existing width of the rail corridor does vary across the 22km between Waterford and New Ross and as such a number of 'pinch points' will be located along the route. The total potential length of these pinch points (where a 3m wide Greenway is not possible) are mainly located over structures or in short areas of cutting/embankment but they are limited and should not have significant impact on the quality of the facility. These pinch points reduce the width to 2.5m (with some rare instances of 2.0m wide) and will not affect the overall quality of the Greenway as outlined in the National Trails Office document (refer to **Section 7.1.3** of this report). The fact that the proposed scheme is located entirely off road will provide a greater advantage to the cyclist who most likely won't be put off by a short section of 'narrow' Greenway.

As outlined in Section 3, a Narrow Gauge Railway cannot be accommodated adjacent to the proposed Greenway as there is insufficient space available. As has also been noted in Section 4 of this report the existing structures and rail corridor would require significant widening in order to provide both the proposed Greenway and the Narrow Gauge Railway. The existing disused railway corridor will only allow the provision of either the Greenway or Narrow Gauge Railway, not both. It is important however that the inclusion of railway heritage features should be retained and included in the final design.

The scheme does not include any large obstructions which would necessitate any large civil works etc. Most of the proposed works involved could easily be carried out by a small contractor or local community group. It is important however that the finished product is up to the required standard and that the appropriate equipment required such as a paver is used to ensure a smooth surface is provided. The only relatively large works involve providing the various bridge decks and parapets as well as some fencing along the route. The exact extent of these works will become clearer when the detailed survey at these locations is completed and a more comprehensive review is carried out at detailed design stage.

The proposed scheme will provide a crucial link to the Waterford to Dungarvan Greenway which is currently in the final stages of planning. The Waterford to New Ross Greenway together with the Waterford to Dungarvan scheme would provide over 60km of high quality Greenway in the south east and as such will be a major attraction for tourists, recreational users and commuters. A number of studies have been carried out which highlight the significant benefits of providing such a facility and are highlighted in **Section 1 Introduction** of this report. Providing such a facility has also been identified as a key objective in the various local and county development plans and as demonstrated in this report, the proposed project has a number of positive aspects to the local community and indeed local economy.

From reviewing the above conclusions it is evident that a Greenway between Waterford and New Ross will be a positive and a beneficial project for the locality and the wider communities in Waterford, Wexford and Kilkenny.

12.0 RECOMMENDATIONS

Following the completion of this study the following recommendations can be made:

- (i) A more detailed review of the various bridge crossings is required in order to determine whether any further works other than those identified are required.
- (ii) An informal consultation process should be carried out with the local landowners to inform them of the proposals and to gather any feedback which can be useful during the Part VIII application.
- (iii) Detailed consultation with development groups of the The Deise Greenway and the Red Bridge Walking and Cycling Trail should be carried out.
- (iv) The next step for the project is a full Part VIII planning application.

Appendix A Drawings

(Note: Refer to separate book containing project specific drawings)

Appendix B

Access Controls

B1.0 Access Controls in Urban Environments

The provision of what type of access controls, if any, is an important consideration in developing a Greenway especially in a semi-urban environment as encountered in this project in Waterford and New Ross

Examples of Access Controls



Photo B1: Example of simple Access Control using bollards (Essen, Germany)

The preferred access control which would restrict vehicular access but not limit or hinder the cyclist and pedestrians from trying to access or continue along their journey on the proposed Greenway would be the use of bollards. An example of the position and spacing of the bollards can be seen from **Figure B2** below.

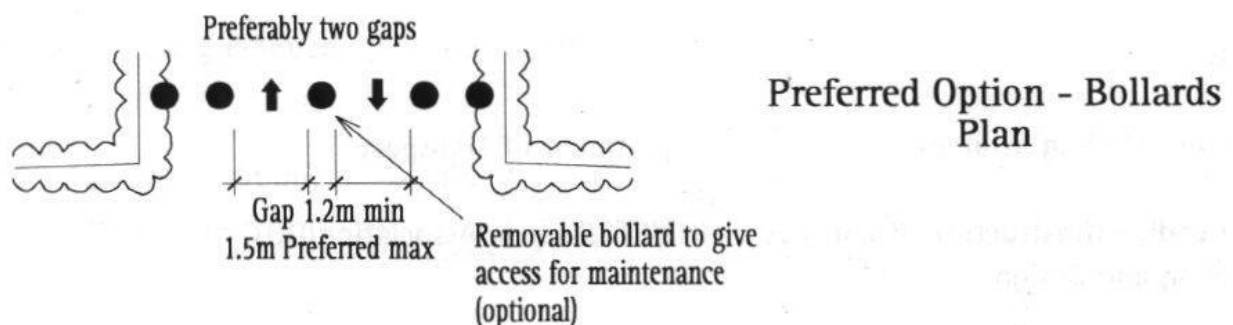


Figure B2: Example of a suitable bollard layout

Appendix C

Preliminary Cost Estimate

**Waterford to New Ross Greenway
Kilkenny LEADER Partnership - Preliminary Design - Cost Estimate**

Project No. 13.224
Made: DC Checked: SMG
NRA Rates database July 2013 + recent tenders

Section 1	5.0
Section 2	5.6
Section 3	3.8
Section 4	7.0
Total	21.4 Km

Item	Unit	Quantity	Rate / unit	Section 1	Section 2	Section 3	Section 4	Amount	Totals
<i>Advanced Works</i>									
Topographical Survey (At various structures and road crossings)	item	1	20,000.00	-	-	-	-	20,000.00	
Condition Survey of Structures	item	1	10,000.00	-	-	-	-	10,000.00	
Total									30,000.00
<i>Site Clearance</i>									
Site Clearance	ha	13.2	1,000.00	3,000.00	3,360.00	2,280.00	4,200.00	12,840.00	
Removal of Rail Track	item	1	100,000.00	-	-	-	-	100,000.00	
Total									112,840.00
<i>Fencing</i>									
Timber and Post Rail Fence	lin.m	10% of Length	15.00	7,500.00	8,400.00	5,700.00	10,500.00	32,100.00	
Steel Farm Gate	no	36	500.00	6No.	22No.	8No.	-	18,000.00	
Total									50,100.00
<i>Services and drainage</i>									
Diversions of existing utilities	lin.m	21.4	8.00	40,000.00	44,800.00	30,400.00	56,000.00	171,200.00	
Total									171,200.00
<i>Earthworks</i>									
Excavation	m3	21.4	10.00	15,000.00	16,800.00	11,400.00	21,000.00	64,200.00	
Deposition	m3	21.4	8.00	4,000.00	4,480.00	3,040.00	5,600.00	17,120.00	
Total									81,320.00
<i>Pavement</i>									
Sub-base (150mm)	m3	9,630.0	18.00	40,500.00	45,360.00	30,780.00	56,700.00	173,340.00	
Surface Coarse (40mm)	m2	64,200	20.00	300,000.00	336,000.00	228,000.00	420,000.00	1,284,000.00	
Total									1,457,340.00
<i>Kerbs</i>									
Timber Edging Kerb	lin.m	21.4	8.00	80,000.00	89,600.00	60,800.00	112,000.00	342,400.00	
Total									342,400.00
<i>Signs, Lighting & Road Markings</i>									
Greenway Signs (10,000 per section)	no	4	10,000.00	1No.	1No.	1No.	1No.	40,000.00	
Road signs & Road markings	no	4	10,000.00	1No.	1No.	1No.	1No.	40,000.00	
Access Controls and Signs @ Road Crossings	no	5	10,000.00	1No.	1No.	1No.	2No.	50,000.00	
Furnishings and Bike Racks	no	4	8,000.00	1No.	1No.	1No.	1No.	32,000.00	
Street lighting	Item	1	200,000.00	-	-	-	-	200,000.00	
Relocation of existing services (€5,000 per section)	no	4	5,000.00	1No.	1No.	1No.	1No.	20,000.00	
Total									382,000.00
<i>Structures</i>									
Bridge Deck (20m ² @ €800/m ²)	no	5	16,000.00	1No.	-	1No.	3No.	80,000.00	
Parapets	lin.m	108	110.00	-	12m	72m	24m	11,880.00	
Total									91,880.00
Section Totals				€648,000.00	€599,640.00	€440,280.00	€884,040.00		
Sub Total									€2,719,080.00
Preliminaries		10%							€271,908.00
Contingencies		5%							€149,549.40
Total Construction Cost									€3,141,000.00
Planning, Design and Construction Supervision (Est.)									€100,000.00
Land Acquisition	ha	0.0	0						€0.00
Total Cost Estimate (ex VAT)									€3,241,000.00

Estimate Costs to provide connection into Waterford with Pedestrian Bridge (see Note 5) €18 - 20m
Estimate Costs to provide connection into New Ross with 'Clip on' bridge €1 - 2m

- Notes:
1. Costs are preliminary estimate only, additional costs may be incurred following detailed structural survey
 2. If surface course is changed to Quarry Dust Surfacing Total Cost = €2m
 3. Unit rate of Farm Gates include possible additional fencing
 4. Refer to Drawings AL-101 to 108 for location of Sections 1 to 4
 5. Based on previous study on providing a pedestrian bridge which would require a moveable span to allow ships to enter port

Appendix D

Red Bridge Walking and Cycling Trail

D1.0 New Ross Red Bridge Walking and Cycling Trail

New Ross Town Council aims to develop a looped shared walking and cycling trail adjacent to the town. The proposed development is called the 'Red Bridge Walking and Cycling Trail'. The development will consist of a looped trail approximately 5km in length; the trail will use elements of the existing road network as well as sections of the disused railway line located to the north west of the Town including using the railway bridge which crosses the River Barrow.

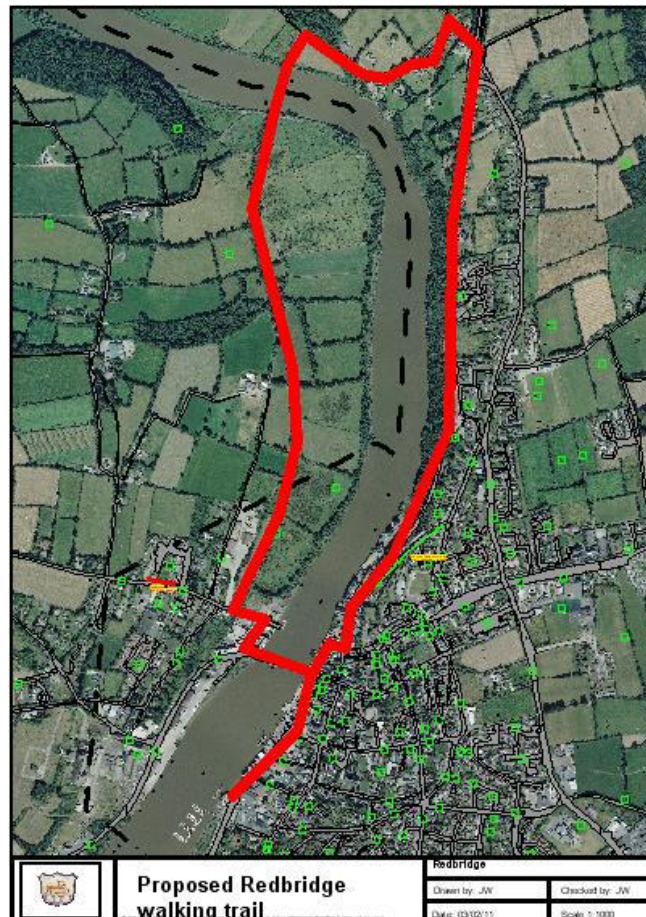


Figure D1.1 – Route of Red Bridge Trail (source AA Screening Report)

D1.1 New Ross Red Bridge Walking and Cycling Trail Documents

New Ross Town Council has commissioned a number of studies to determine the feasibility of such a trail. The reports are as follows:

- AA Screening Report (Stage 1 Screening Report)
- Site Assessment Report (National Trails Office)
- Bridge Condition Report (Red Bridge)
- New Ross Active Travel Towns – Walking and Cycling Strategy

A soft copy of the above reports can be requested if required.

