North Northamptonshire Council

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Wellingborough to Rushden

21 September 2023

Executive summary

The focus of this study is assessing the feasibility of creating a new, commuter and leisure route from Wellingborough to Rushden. The route will make use of the many existing quiet lanes, Public Rights of Way (PROW) and access tracks within the Nene Valley and existing disused railway greenways within Wellingborough and Rushden

The proposed Cycleway will provide a quiet lane and traffic-free route, connecting the urban centres of Wellingborough and Rushden. The proposed route has been considered with a sealed tarmac surface, at least 3m in width with access at multiple key locations.

The route could be used very practically, eventually linking to the LCWIP route into Rushden town centre and to Wellingborough train station at the opposite end.

Further benefits will come as this multi-user trail re-uses as much as possible the old Wellingborough to Little Irchester and Wellingborough to Rushden/Higham Ferrers railway alignments between the two.

Like all trails the development of this one relies on the goodwill of landowners, the ability to overcome Engineering challenges and Ecological biodiversity.

Estimated between £10 to £15m nothing is a foregone conclusion, but the access to open space, rural countryside, and the ability of small-scale enterprises to set up and flourish should not be underestimated.

There are few significant engineering challenges, but those that exist provide a different perspective on the world.

Two new bridges are proposed over the river Nene and that will create better accessibility for users to commute from the two towns and an opportunity to explore further afield.

The Nene Valley is home to nesting birds and opening the area to users may cause disturbance to this ecologically important habitat, which may seem on the face of it ecological desecration, but on the other hand, the path is currently already being used as an access track by the public and therefore the biodiversity in the location are accustomed to its usage.

1. Introduction

North Northampton Council has commissioned Sustrans to undertake a masterplan study to investigate the creation of a new cycleway utilising existing PROW, private tracks, and quiet lanes.

Severance to active travel between Wellingborough and Rushden has been caused by the A45, part of the National Highways' Strategic Road Network.

In this study the cycleway has been designed with a sealed surface, meaning it is suitable for all mobility needs – walkers, cyclists, people with pushchairs, users of wheelchairs and mobility scooters.

1.1 Background to the project

The existing predominantly rolled stone surfaced Greenway between Rushden and Thrapston with links to Irthlingborough, makes up 17 kilometres of traffic free provision, mostly along disused railway line. The existing Greenway is a well-used, popular route for both leisure and utility journeys.

The potential to extend the existing East Northamptonshire Greenway and NCN536 from Irthlingborough/ Rushden to Wellingborough has long been recognized by the Greenways board (previously the East Northamptonshire Greenways Board) and is included in the Greenways forward Plan which aims to eventually provide a traffic free Greenway all the way to Northampton.

The link to Wellingborough is also supported by Local Wellingborough and Rushden politicians.

There are two developments that form important parts of the Irthlingborough/Rushden to Wellingborough links.

The development of a high-quality multiuser greenway link through to Wellingborough will connect people with employment opportunities in the town, in Rushden, at Rushden Lakes and in Irthlingborough.

Retail and Leisure opportunities at Rushden Lakes, and historic Northamptonshire at Chester House Estate.

The greenway unlocks a valuable new, free facility for local people facility for local people, connects communities and improves local access to green space and the natural environment.

Fig 01 Existing bridge over the creek on the River Nene, inaccessible for many potential users.

Fig 02 Artistic impression of a replacement structure, wider and more accessible for all users as part

Fig 03 Wellingborough to Rushden and associated connections.

2. NCN principles

2.1 Why we have the NCN principles:

The National Cycle Network design principles set out key elements that make the Network distinctive and need to be considered during design of new and improved routes forming part of the Network.

Where the Network is not traffic-free it should either be on a quiet-way section of road or be fully separated from the carriageway.

For a National Cycle Network route on a quiet-way section of road traffic speed and flows should be sufficiently low with good visibility to comply with design guidance for comfortable sharing of the carriageway.

Signs and markings should highlight the Network.

Whilst the Council and partners may not necessarily have considered the development of the greenway ultimately becoming part of the National Cycle Network it fills a gap in this network and would be considered part of NCN 536.

Sustrans, in alliance with the Department for Transport, have agreed a set of key design principles for all routes.

Principle 1:

Traffic-free or quiet-way

Where the Network is not “traffic-free” it should either be on a quiet-way section of road or be fully separated from the adjacent carriageway.

For a National Cycle Network route on a quiet-way section of road the traffic speed and flows should be sufficiently low enough to encourage cycling for all ages and abilities.

It should have good visibility to comply with design guidance to allow for comfortable sharing of the carriageway.

Signs and road markings should highlight the Network.

Figure 4: Safe crossing for all, helping continuity on traffic free routes

Principle 2:

Wide enough to accommodate all users.

Width of a route should be based on the level of anticipated usage, allowing for growth. A minimum width of 3m shall be delivered.

Where it is not possible to deliver this, all other avenues should be fully explored before path widths are reduced.

Physical separation between users should be considered where there is sufficient width and a higher potential for conflict between different users.

Structures should be designed to maximise movement space. A minimum path width between parapets of 4m shall be maintained.

Figure 5: At grade crossing of side road with separation for traffic, cyclists and pedestrians

Principle 3:

Designed to minimise maintenance.

A maintenance plan should be put in place during the development process.

Construction quality should be maximised to minimise future maintenance needs.

New planting should be kept well clear of the path.

Sufficient tree work should be undertaken as part of construction to minimise future issues.

Routes should be managed in a way that enhances biodiversity.

Figure 6: Easily maintained

Principle 4:

Signed clearly and consistently.

Signage should be a mix of signs, surface markings and wayfinding measures.

Every junction or decision point should be signed.

Signage should be part of a network-wide signing strategy directing users to and from the route.

Signage should direct users of the Network to trip generators such as places of interest, hospitals, universities, colleges.

Signage should be used to increase route legibility and branding of routes.

Signage should help to reinforce responsible behaviour by all users.

Figure 7: Clear signing

Principle 5:

Smooth surface that is well drained.

Path surfaces should be suitable for all users, irrespective of age, ability, or mobility needs.

Path surfaces should be maintained in a condition that is free of undulation, rutting and potholes.

Path surfaces should be free draining and verges finished to avoid water ponding at the edges of the path.

In, or close to, built-up areas a Network route should have a sealed surface to maximise the number of path users.

Figure 8: Smooth, tarmac surface, accessible for all non-motorised users

Principle 6:

Fully accessible to all legitimate users.

All routes should accommodate a cycle design vehicle 2.8 metres long x 1.2metres wide.

Any barrier should have a clear width of 1.5 metres.

Gradients should be minimised and as gentle as possible.

The surface should be maintained in a condition that makes it passable by all users.

Figure 9a: Accessible for all

Figure 9b: Corridors that provide continuity, that create short-cuts and are away from traffic, in attractive environments

Principle 7:

Feel like a safe place to be.

Route alignments should avoid creating places that are enclosed or not overlooked.

Consideration should be given as to whether lighting should be provided.

Figure 10: Safe for all

Principle 8:

Enable all users to cross roads safely.

Road crossings should be in accordance with current best practice guidance.

Approaches to road crossings should be designed to facilitate a slow approach speed to a crossing, have enough space for several users to wait safely.

Signalised road crossings should be designed to minimise the wait time for NCN users. Where possible advanced notification systems should be used.

All grade separated crossings should provide step-free access.

Figure 11: Safe crossing for all

Principle 9:

Be attractive and interesting.

Network routes should be attractive places to be in and pass along.

Landscaping, planting, artwork, and interpretation boards should be used to create interest.

Seating should be provided at regular intervals along a route.

Opportunities should be taken to enhance ecological features.

Figure.12: Attractive and interesting areas

3. Guidelines and Standards

The most relevant guidance is listed on the Sustrans website at https://www.sustrans.org.uk/for-professionals/infrastructure . Local Authority Guidance and policies are also relevant. Examples of relevant guidance are given in this chapter.

General guidance for England

- **Department for Transport LTN 1/20 Cycle Infrastructure Design**
- **Highways England CD 195 Designing for cycle traffic**
- **Department for Transport Local Transport Notes**
- **LCWIP Technical Guidance for Local Authorities (DfT).**

Low Traffic Neighbourhoods

- Sustrans introductory guide to low-traffic neighbourhood design
- Manual for Streets
- Slow Streets Sourcebook (Urban Design London)
- Streetscape Guidance (Transport for London)
- Achieving lower speeds: the toolkit (TfL).

Local Authority Guidance and Policies

The most relevant guidance / policies to the successful development of this corridor are listed below. Sustrans has not reviewed each policy in extensive detail.

North Northamptonshire Joint Core Strategy

This includes thoughts round the development and delivery of green infrastructure and linking this with water based (blue) infrastructure. The opportunities that developing this corridor will ensure that walking / cycling can be developed to enhance water borne habitats and eco-systems. Northamptonshire Transport Strategy.

Policy 19 sets out the intention for the development / maintenance and enhancement of such corridors and multi-functional spaces and corridors.

Northamptonshire Transport Strategy

Cycling Policy 8 - Cycle friendly infrastructure will be developed at, and on key routes leading to, transport interchanges and key bus stops. Cycling Policy 9 - New developments will be required to demonstrate or provide connectivity to the existing cycling network and within the development as appropriate.

Wellingborough Town Transport Strategy.

Under Cycling the Strategy states the following about the future of the East Northamptonshire Greenway:

'During previous consultation with local communities a desire was expressed for a cycling link between Wellingborough and Northampton – particularly in respect of linking the outlying Wellingborough Town Transport Strategy 63 industrial areas which are around 6 miles apart. This will be considered in further detail as part of the Cycling Strategy. In a similar vein, the recently approved Rushden Lakes will become a major attractor for those living in Wellingborough. All opportunities to provide cycling links, should be investigated and integrated with the build out of Wellingborough East.'

Plan for Borough of Wellingborough

Policy GI1 of this 2019 document recognizes the development of Local Green Infrastructure corridors. The development of the new corridor will need to ensure that the design and development of it protects and enhances the existing green routes and there subsequent connections. The corridors of both the River Nene and the River Ise are strongly linked and interlinked within the borough.

East Northamptonshire Local Plan Part 2

Policy EN7 relates to the development of green infrastructure, and Policy EN8 is specifically related to the development and strengthening of how this route brings local enhancements and connections to the wider network of routes.

River Ise Strategic Plan

The Ise valley runs north-south around the eastern edges of Wellingborough. Whilst much of the strategic plan covers an area outside of this study area the South Ise zone of this plan is appropriate.

East Northamptonshire Council Economic Growth, Tourism and, Regeneration Strategy:

The Greenway is highlighted as a key network underpinning local tourism development.

Northamptonshire Enterprise Partnership (NEP) Strategic Economic Plan.

Notes the Greenway as a key infrastructure tool to enable connectivity.

LTN 1/20 Cycle Infrastructure Design and its implications for design options.

The Government set out its ambitions to see a *"step change in cycling and walking in coming years"* in Gear Change – A bold vision for cycling and walking (Department for Transport, July 2020). The document sets out key design principles, which are the basis for the updated national guidance for highway authorities and designers, given in LTN1/20.

Although LTN 1/20 is issued as guidance its adoption will also be a condition for Government funding of all local highways' investment, as well as new cycle infrastructure.

"It will be a condition of any future Government funding for new cycle infrastructure that it is designed in a way that is consistent with this national guidance.

The Department for Transport will also reserve the right to ask for appropriate funding to be returned for any schemes built in a way which is not consistent with the guidance. In short, schemes which do not follow this guidance will not be funded." (Extract from Foreword LTN1/20)

LTN 1/20 has therefore been taken as the starting point when considering design options for this scheme. Some of the major implications in relation to the space needed for cycling, to ensure that the guidelines are met are:

- Properly protected bike lanes, cycle-safe junctions and interventions for low-traffic streets are needed for the whole scheme, with little scope for exceptions.
- Cycle infrastructure should be accessible to everyone from 8 to 80 and beyond.
- On urban streets, cyclists must be physically separated from pedestrians and should not share space with pedestrians.
- Cyclists must be physically separated and protected from high volume motor traffic, both at junctions and on the stretches of road between them.
- Cycle infrastructure should be designed for significant numbers of cyclists, and for non-standard cycles.

LTN 1/20 notes that physical separation of cyclists from motor traffic can be an option in all situations but may not be necessary at lower speeds and lower volumes of traffic. This is an important factor in scheme design because measures that reduce traffic volumes and/ or speeds can change the requirements for provision for cyclists.

LTN 1/20 has many other implications for cycle infrastructure design and maintenance and needs to be read as a whole, to fully understand the required design standards (including the Cycling Level of Service Tool and Junction Assessment Tool). To justify expenditure on this scheme the whole scheme has to be to a good standard and there should be no Critical Fails using the Cycling Level of Service Tool, with junctions to a good standard for all movements.

Figure 4.1 and table 6.1 of LTN 1/20 (overleaf) shows the appropriate protection from motor traffic on highways, with the aim being that traffic flow, speed and type of separation should fit within the green area.

The space needed for cycling needs to allow for pedestrians and needs to be separated from motorised traffic by the desired or absolute minimum separation as outlined above, with absolute minimum a last resort.

LTN 1/20 generally recommends that cyclists are segregated from pedestrians but suggests that:

"Shared use may be appropriate in some situations, if well-designed and implemented."

The guidance on widths for rural routes is given in Table 6-3, which states that for routes recommended minimum width is 3m. This is the width that has been used throughout for this study. In the villages cyclists need to be segregated from pedestrians and a width of 3m has also been used for a bi-directional cycleway reduced to 2.5m at pinchpoints.

For rural roads the speed limit is generally 60mph or 50mph, which means that any path must be at least 1.5m from the edge of the carriageway. Paths also must be kept well clear of hedges, which could be another 2m, so with a 3m wide path that means that at least 6.5m of highway verge space would be needed to construct a new path carrying less than 300 pedestrians per hour and less than 300 cyclists per hour the

Table 6-1: Minimum recommended horizontal separation between carriageway and cycle tracks*

Speed limit (mph)	Desirable minimum horizontal separation (m)	Absolute minimum horizontal separation (m)
30	0.5	0
40	1.0	0.5
50	2.0	1.5
60	2.5	2.0
70	3.5	3.0

Healthy Streets

Healthy Streets are a measure of how healthy our environment is. It is a recognition that “Every decision we make about our built environment, however small, is an opportunity to deliver better places for people to live in and thereby improve their health.” (https://www.healthystreets.com/what-is-healthy-streets)

There are 10 evidence based Healthy Streets indicators as shown below and streets can be assessed and given a score, which can be audited.

The expectation is that Local Authorities and designers should aim to improve the Healthy Streets score on their streets and for any new infrastructure an assessment should be made before design work starts and after a scheme has been delivered. To properly assess a street, traffic flow data is needed, and the professionals involved should have been trained in the process.

For this study it is premature to conduct Healthy Streets Audits, but as options are developed Healthy Streets audits of the village streets should be completed, with a clear aim of improving the healthy streets score on the streets concerned.

4. Design constraints

4.1 Environment Agency

The route sits within the Nene valley, and roughly 50% of the proposed alignment falls within recognized flood zones. Development of the greenway is regarded as being water compatible development and therefore although a concern should not be regarded as a "showstopper".

River Nene

The River Nene floodplain impacts a large section of route within the western end of the overall project.

The design and development of new structures over the River Ise and River Nene will need to consider known flood levels and allow for increased impact through climate change, as well as the navigation clearance requirements of the River Nene.

Bespoke environmental permits for flood risk activities will need to be sought.

The Environment Agency is actively engaged in communications about the project and is supportive of the greenway. They, together with the Lead Local Flood Agency, will be a key party to ensuring that the developed designs fit the requirements for locally managing flood risk.

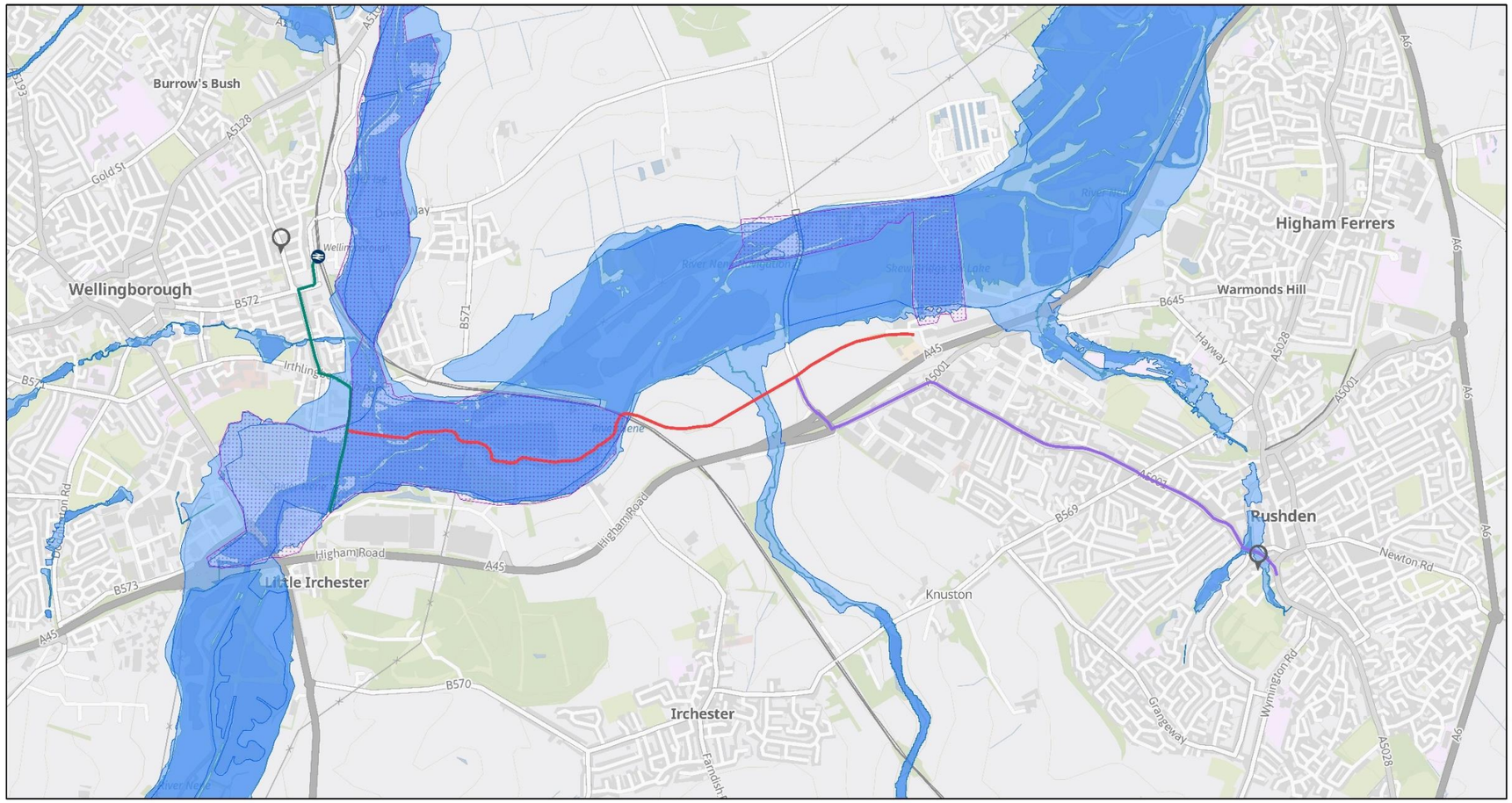


Fig 13 Environment Agency flood risk mapping

The design and construction of the main greenway route will need to take into consideration both the practicality of maintenance and the timing for construction.

This is not going to be a quick project, and ecological surveys / mitigation works may preclude main construction periods from being during typically drier summer months.

This would raise concerns with respect to not just working conditions but also the safe storage of materials and plant if works are undertaken during the traditionally wetter autumn / winter months.

4.2 Ground and Geology

Underlying Geology

Despite the area having extensive borehole coverage, both around Prologis, the gravel workings and Rushden Lakes shopping village, accessible information is limited to three locations.

SP96NW150

Located on the SE edge of Wellingborough, the date of this borehole is unknown, however it may prove useful for initial design work relating to the connection required between the railway formation and Irthlingborough Road.

This borehole indicates a layer of fill over sands and gravels, with running sand in evidence at a depth of 2.0m and “grey clay” at a depth of 5m.

SP96NW157

Located within the flood plain and associated with the existing electricity distribution network, may provide an insight into the underlying ground conditions across the wider lakes area. The information in this borehole is from 1974.

This shows general soils to a depth of 1.9m overlying alluvium and river gravels to a depth of 5.0m. A layer of Upper Lias Clay is identified at 5.0m with a depth indicated of +1.6m

SP96NW160

Located on the northern side of the Midland Mainline viaduct this borehole may provide an insight into the underlying ground conditions within the area needed to enable a new River Nene crossing point. The information in this borehole is from 1974.

This shows general soils to a depth of 2.0m overlaying river gravels to a depth of 4.1m. A layer of Upper Lias Clay is identified from 4.1m with a depth indicated of +1.0m

If it is possible to access the protected borehole date across the site, then a more detailed understanding of the conditions can be achieved. Borehole information will be necessary to help form the designs for the ramp connections onto the old Wellingborough / Little Irchester railway, the replacement River Ise bridge, the new River Nene bridge, and any other earthworks associated with the development of the route.

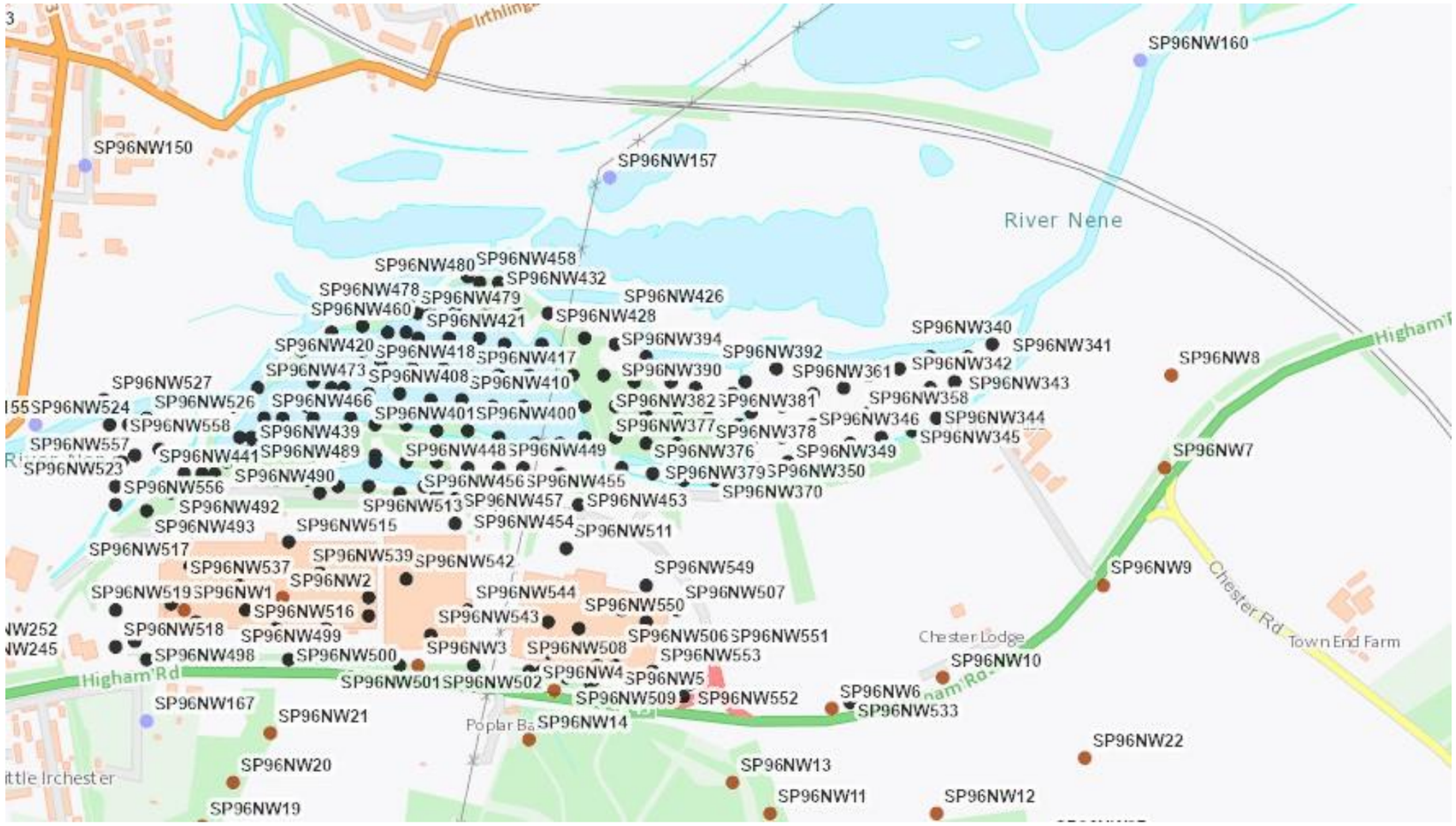


Fig 14 Borehole date from British Geological Survey

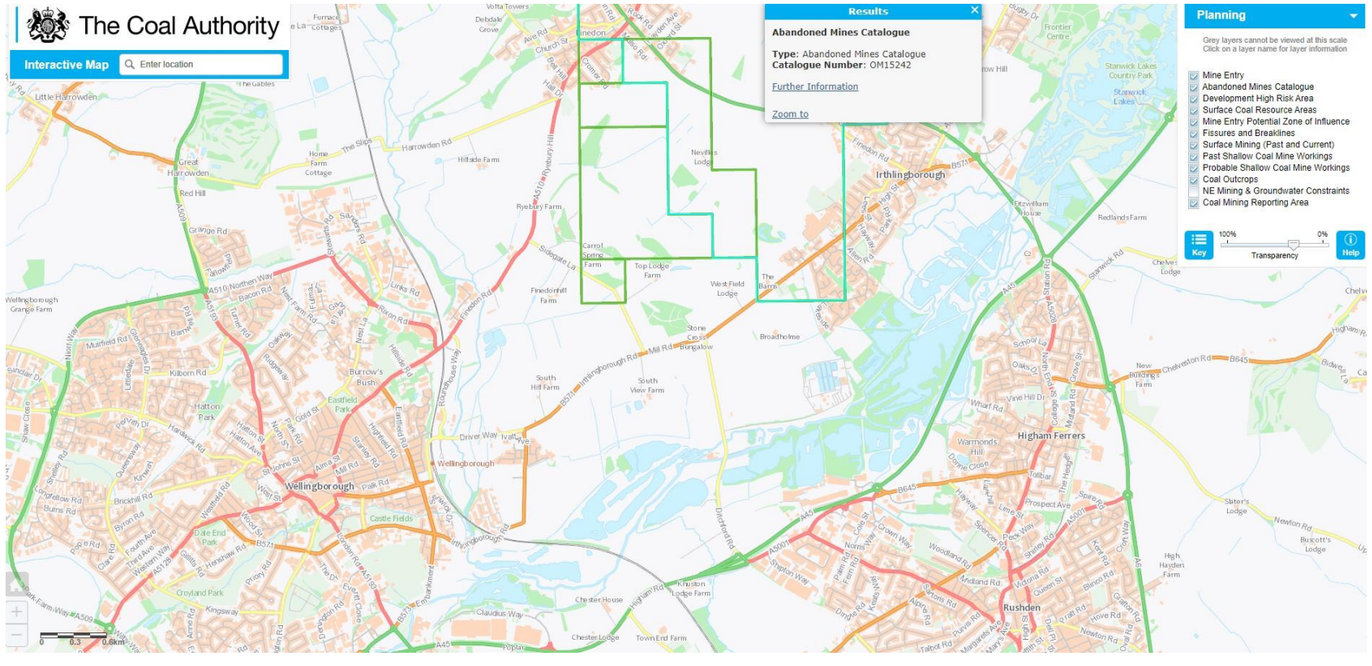
Coal Mining

The area is not naturally associated with coal mining; however, the Coal Authority records have highlighted the area between Irthlingborough and Wellingborough as being within the “Abandoned Mines Catalogue”.

Further investigation of the “Coal Mining Data” does not highlight disused mines, mine entry or the existence of coal seams.

The area was subject to extensive quarrying for sand and gravel, as well as Northamptonshire Ironstone. Some of these workings involved underground extraction.

A request to the Mineral Planning Authority for further information in this area has been made and the report will be updated in due course.



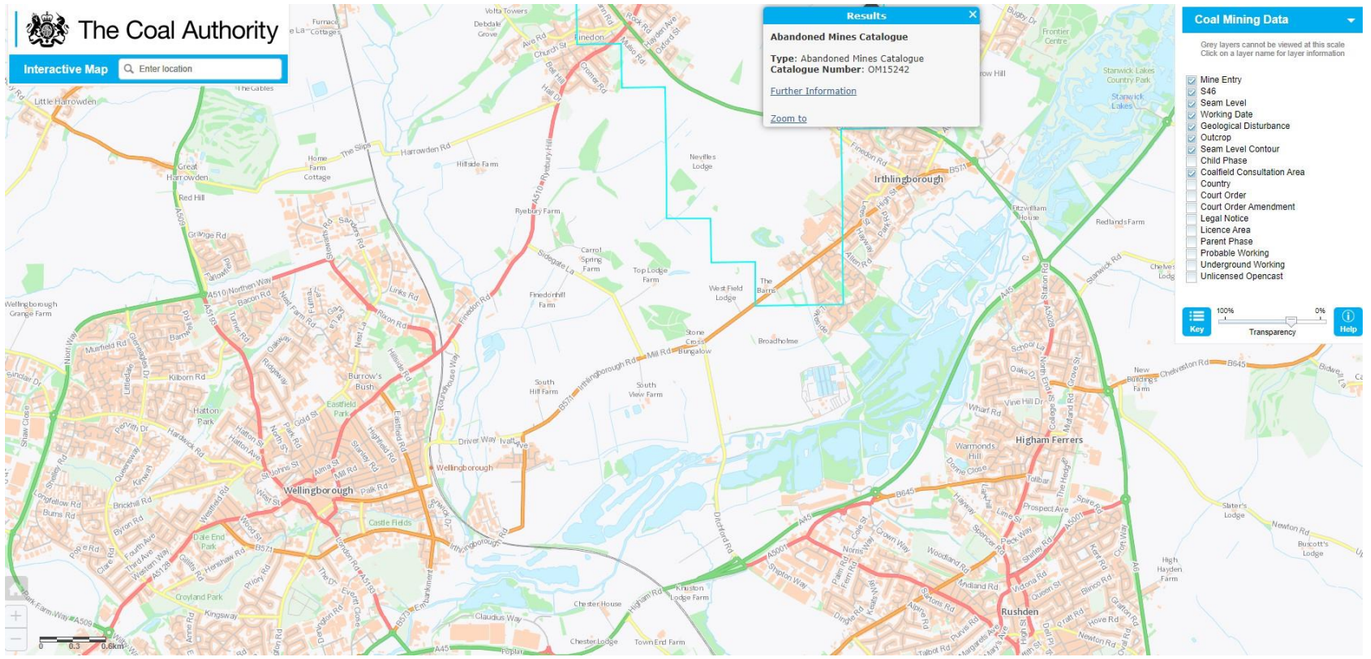


Fig 15 Coal Authority mapping

4.3 Utilities

No assessment of existing utilities has been undertaken at this stage, and detailed searches should be undertaken to establish constraints.

GAS

Plans obtained from Cadent indicate the presence of significant infrastructure at the northern end of the disused railway link into Wellingborough.

An area of land is identified as a Gas Compound on Irthlingborough Road to the western side of the railway embankment and all infrastructure feeds into this compound area.

Of concern are the medium pressure main that runs on the southern side of Irthlingborough Road, where the main is indicated within the footway adjacent to the remaining bridge abutment.

Of concern is the 273mm diameter ST LHP main that runs from this compound area, under the existing railway embankment and across the flood plain area, where it then crosses the River Nene approximately 20m east of the existing railway viaduct and heads eastwards towards Ditchford Lane.

The pipe turns 90 degrees and crosses the old railway formation at 90 degrees to the track bed before turning 90 degrees again at a point approximately 50m east of the existing brick underbridge and runs parallel to the railway formation, crossing Ditchford Road on the southern side of the alignment.

This main is clearly traceable on site with regular marker posts, although the area around the railway viaduct is not as clearly indicated as the plans, as the pipe appears to turn at this point.

Record plans have been obtained and are included in the appendices to this report. No depths have been ascertained from Cadent. The 273mm diameter main may be Cathode protected but records do not specifically state that it is.

Further investigation works will be necessary around the Irthlingborough Road link (replacement access ramp), River Nene viaduct (new river bridge) and at points along the railway formation where interaction with the pipe is unavoidable.

ELECTRIC

Network plans received from Western Power Distribution indicate the presence of Low and High voltage infrastructure in the footway immediately adjacent to the southern bridge abutment on Irthlingborough Road. The High voltage network is indicated as being 11Kv.

The network plans also indicate the presence of 11Kv and 132Kv overhead wires crossing the floodplain area.

WATER

No network plans have been obtained for water or sewer services.

BT

No network plans have been obtained for BT services.

4.4 Heritage and Historic Environment

Heritage England website search indicates that there is a significant area identified as being of importance.

The area hatched red on the plan indicates the site of the former Roman settlement of Irchester, with the site of the original Iron Age settlement and the medieval settlement of Chester over the Water included in the citation.

Chester House Farm and its associated outbuildings are identified as Grade II listed.

Any works within the hatched area will require Scheduled Ancient Monument consent. This could be of significance if the agreed route alignment is to the south of the River Nene, or there are options to upgrade the existing level of provision along Claudius Way.

The elevated nature of the buildings at Chester House Farm may also present an “aesthetic / visual impact” that will need to be addressed.

Fig 16 Scheduled Ancient Monuments Chester House

4.5 Public Rights of Way

The alignment of the proposed greenway will follow the alignment of several identified Public Rights of Way (Footpaths).

Paths UL4, UL5, UL6, UL7, UL8, UL9, UL10, UL 36 and TL11 are all potentially impacted by the creation of this route.

The key area of concern will focus on the retention of these routes on the definitive mapping, an area that is likely to raise objections with local walking groups.

The proposed greenway alignment would seek to minimise any impact on these existing Rights of Way for several reasons.

Upgrading the main riverside path would place the route on top of the riverbank, and lead to significant ecological damage and habitat removal – and an alignment away from this is recommended.

Upgrading the “straight line” paths UL4 and UL8 would place the new greenway into conflict with the requirements of Natural England and the protection zone for the adjacent RAMSAR site.

A new alignment would retain the existing Rights of Way on the Definitive Map whilst providing a parallel sealed surface fully accessible greenway suitable for all.

A new alignment would follow the existing, worn grassed access track that runs from the railway viaduct to the River Ise.

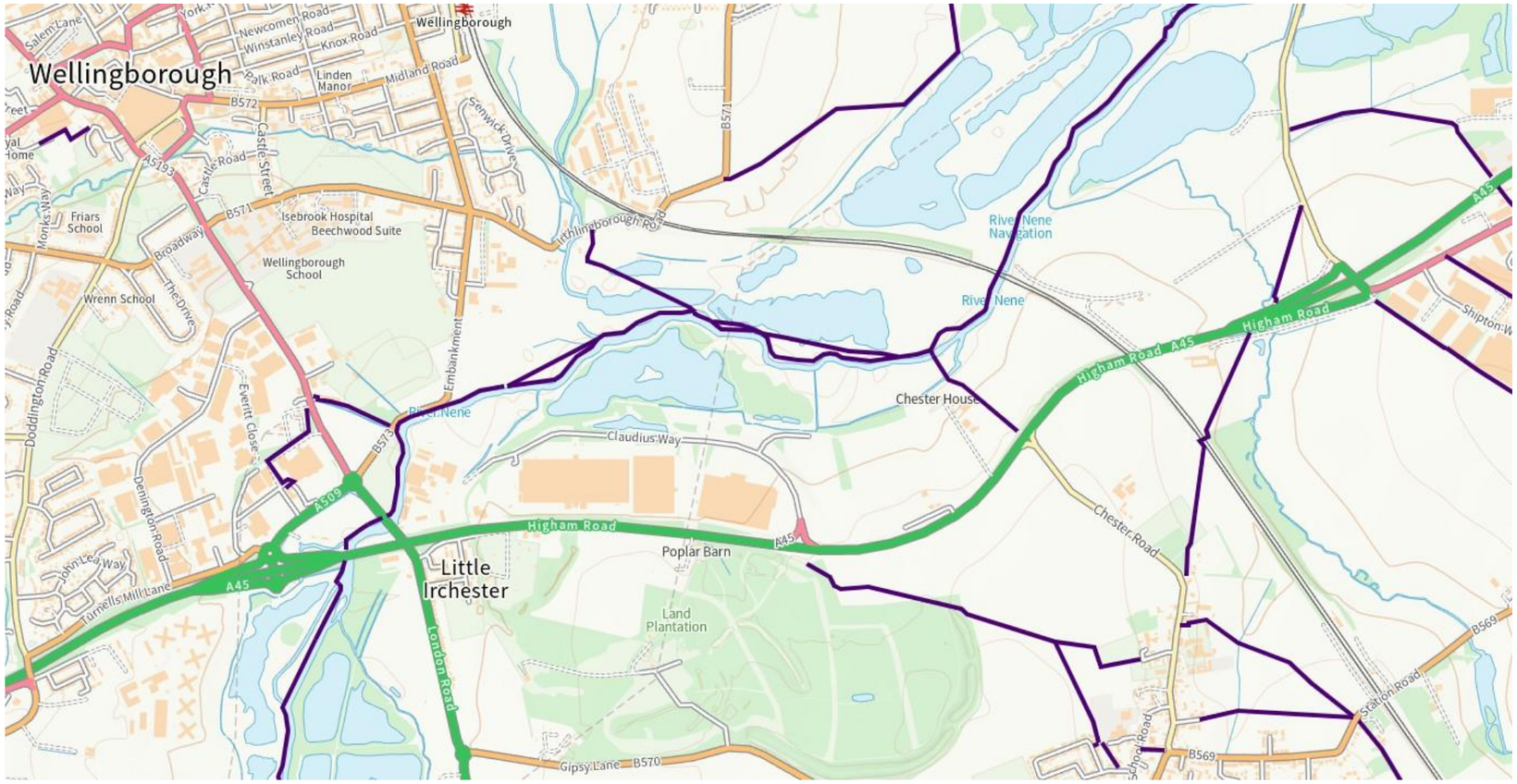


Fig 17 Public Rights of Way

The new greenway would include a new, wider, and more accessible crossing of the River Ise and similar for the small creek.

It would require an adjustment to UL7 to accommodate the new structure. The old structure could be retained on the alignment of the PRoW; however, it would mean North Northamptonshire Council maintaining 2 structures. Other local authorities have followed similar processes and been left with two structures – others have sought to maximise benefits over a short distance and successfully merged with a new route and existing Right of Way.

Unless North Northamptonshire wishes to proceed with a lengthy, and potentially contentious Cycle Tracks Act application the new greenway is recommended to be determined as a Public Bridleway. This will provide the legal mechanism for cycle traffic to legally access the route and may provide an opportunity for the Council to shift the current Public Right of Way alignment from the top of the riverbank to a place better suited for greater accessibility and enjoyment.

Wellingborough Embankment currently has no formal Right of Way established along it, and this would need to be created as part of the developing alignment.

Similarly, the old railway formation between the River Nene and Ditchford Road has no established Right of Way. It is under third party ownership, with established Network Rail access rights and may be more complicated to deliver as a Right of Way. A Permissive Path agreement may be more appropriate through this section, although it should be noted that this may not necessarily give the Council security of route alignment.

5. Landscape Character Assessment

As part of the development of the greenway strategy Sustrans commissioned ES Landscape Planning to undertake a character assessment of the valley and to aid the development of the visual impact that the new greenway would have.

Their comprehensive report sits alongside this feasibility study and masterplan as part of that process.

Key Findings

As part of Natural England's Regional Landscape Character Assessment mapping the overall alignment of the route falls into an area classified as "Northamptonshire Vales".

On a more local level the alignment itself is classed as the "Nene Broad River Valley Floodplain", the rising ground to the north as "Irthlingborough Slopes" and to the south as "Wollaston to Irchester Limestone valley slopes".

The proposed alignment sits in a valley that includes significant man-made influences – the lakes are old gravel pits, the area is bounded on the west by a disused railway embankment, and on the north / east edge by an operational railway embankment and significant railway viaduct.

Public access already exists across the wider floodplain area, through use of the existing Rights of Way, informal path network around the lakes, and for the maintenance of the railway, electric pylons, gas mains and waterside infrastructure.

Introducing a new greenway into the area is significant, but not as significant if this were an unused and remote area – and done sensitively would have a minimal impact upon Chester House Estate and the environmental significance of the area.

Route Alignment and Landscape Capacity

The development of the greenway alignment by Sustrans has been guided by the information received as part of this assessment and both ESL and Sustrans have walked the route together.

The ES report has broken the study area down into a series of "Character Areas" and looks in more detail at the ability of the landscape to support the development of the proposed greenway.

Re-purposing the existing railway corridors that remain through LCA2 (area to the east of the railway viaducts) and LCA11, (railway embankment link from Irthlingborough Road) provide the greatest ability to support the greenway.

The area containing Claudius Way / Prologis, LCA12, also supports the development of the greenway, however Scheduled Monument status also appears to extent to the kerb edge of Prologis Way, and sensitive improvement of this transport corridor will be necessary.

Classified in the report as Landscape Character Area 08 the report is supportive of developing an alignment through this character area.

There is existing human activity as noted in their key findings, and the greenway presents an opportunity to connect the greenway users with the history and environmental significance of the valley.

The open nature of this area will ensure that the greenway remains visible from Chester House Estate but natural features, existing planting, distance and sensitive additional planting / screening will mean that there is a limited impact upon the views from Chester House.

Both LCA1 (Chester House) and LCA9 (Lakes south of the River Nene) are identified as being unlikely to support the greenway. It is noted that access to the current visitor car park requires access through LCA1.

Historic England prefer a main access for cycle traffic to utilise the Prologis Link. This is a link road dominated by HGV traffic and in its current layout not likely to encourage greater numbers of cycle traffic.

Any alterations to the layout to enable improved cycle connectivity may need to consider a partial alignment through LCA9 and may also bring into play the western extents of the Schedule Ancient Monument designations.

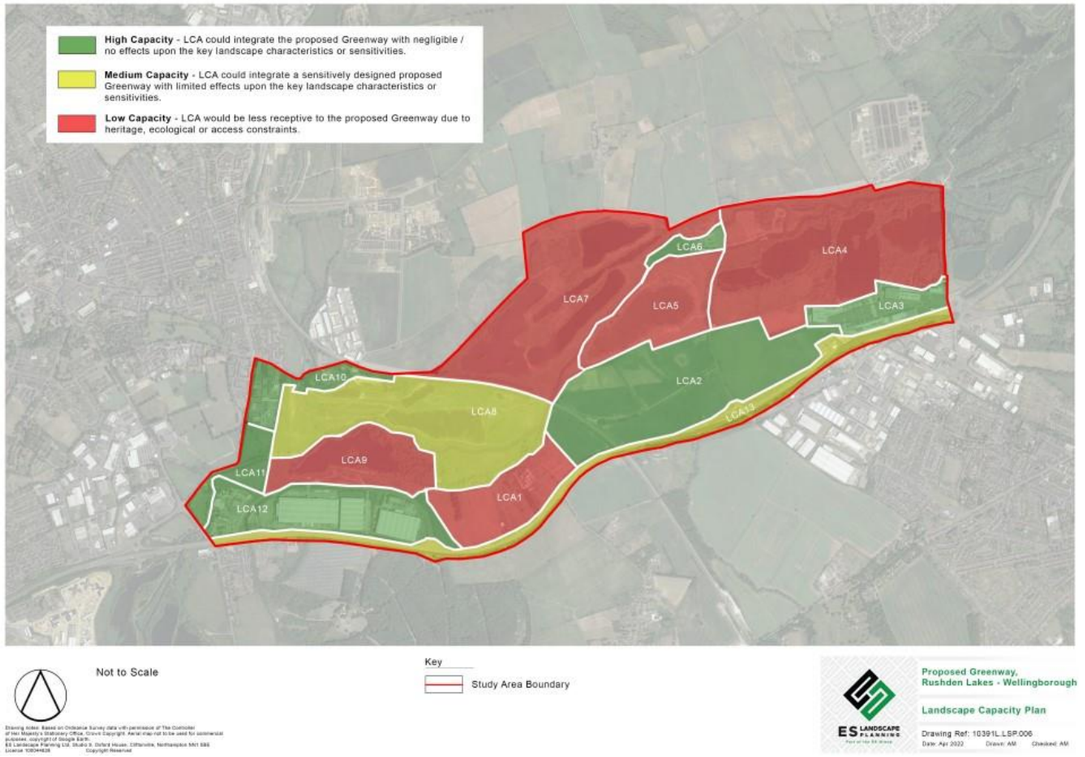


Fig 18 Landscape Character Areas

Design Criteria

As part of the landscape assessment a series of design criteria has been identified to help with the overall development of the route.

- Locate development sensitively within study area.
- Sympathetic layout and appearance of greenway
- Retention of key vegetation
- Reinforce vegetated character with new planting.
- Promote biodiversity net gain.
- Promote educational benefits.

Further detail behind these 6 principles is available within the ES report, and these have been considered as part of the developing designs.

Aspects of each of these design criteria have been taken into wider discussions with Natural England and Historic England.

Locate development sensitively within study area.

The old railway corridors forming the link to Irthlingborough Road, and between the River Nene and Ditchford Road are to be integral parts of the overall greenway, with development to be sensitive to mature trees, and retaining some areas of scrub planting to act as defensive barriers to property.

The existing worn access track across CLA08 will be used wherever practical to reduce the wider impact of the greenway. Upgrading the existing Right of Way where necessary to improve accessibility but leaving the riverbank path alone to minimise ecological and environmental damage.

Sympathetic layout and appearance of greenway

The proposed greenway will need to blend into the landscape and ensure that the impacts of movement through CLA08 are retain within a defined corridor.

The impact of “legs” and perception of predators by wildfowl can be mitigated by layering vegetation and creating screening of the greenway.

The surface of the new greenway needs to be managed and not intrude into what is otherwise a green landscape. The final surface should be one that blends in and is absorbed by the environment.

Retention of key vegetation

Significant vegetation removal should be avoided where there is the ability to realign the greenway. Mature trees, especially those along the railway alignments, should be retained.

Reinforce vegetated character with new planting.

A layered screening of the greenway, from short grasses through to hawthorn / blackthorn and semi mature trees will retain the feel of an “informal byway” through the landscape.

Promote biodiversity net gain.

Enriching the local biodiversity by careful management of any removed scrub to encourage the reemergence of native wildflowers.

Appropriate planting and habitat creation / management to ensure that existing biodiversity is retained and encourage new species or expand habitats for existing flora / fauna.

Promote educational benefits.

Work with Councils, Historic England, Natural England, and the Environment Agency to make this a place for learning about the Nene Valley, how wildlife and humans interact and how they have, and continue to shape, the landscape.

6. Design considerations

Overall

The solutions applied to the corridor will vary depending upon several parameters. The key parameters would be.

- Location
- Available space
- Number of cycle and pedestrian movements
- Landowner agreement where route is lost.
- Ecological impact

6.1 Wellingborough Embankment railway corridor

The former railway line between Wellingborough and Irchester runs north-south at the western extremity of the project area, and although heavily overgrown is already a valuable pedestrian link between the industrial premises on the A45 and the residential areas of Wellingborough.

Including this within the study and re-constructing it as part of the overall project would be invaluable.

The railway sits on an embankment, c4m above the surrounding flood plain area. At the northern end the original railway bridge across the Irthlingborough Road has been demolished, only the southern abutments remain.

Two rough, but clearly visible, tracks have been established through the vegetation and there is a clear demand for this to become a usable path. Currently able-bodied pedestrians scramble up the vegetated embankment.

Fig 19 Railway bridge abutments and clearly formed access tracks onto the old railway.

Although heavily vegetated at the northern end, the southern end is much clearer, and significant amounts of railway ballast exist, which could be re-used as part of the new path construction.

Fig 20 Clearer and heavily ballasted railway corridor at the southern end.

Fig 21 Wellingborough Embankment railway alignment

Cadent Gas

Significant Cadent Gas infrastructure exists at the northern end of this railway embankment. This pipe or pipes passes under the existing embankment to access the Governor station on Irthlingborough Road. Identified as 273mm Local High Pressure (LHP) main this may, or may not, also carry a 6.0m wide easement. We are not able to establish whether this is the case.

Whilst alignments are clearly indicated on the ground with regular marker posts – the depth of mains has proved more difficult to establish. Further “ground penetrating” surveys are recommended to establish exact depths.

As the proposed path needs to descend from the railway embankment to road level, this may present a risk at detailed design stage, however these mains also pass under the River Ise riverbed and therefore may be less problematic.

Works may also need to consider the impact of vibration through what is in effect a made ground structure and the potential for the movement of plant and machinery to inadvertently damage pipe joints.

A separate 125mm medium pressure main is in Irthlingborough Road and doglegs into the current car park site to the western side of the railway embankment.

Works in/around the existing railway bridge abutment should take this into account, especially if demolition and re-grading to create a new ramped access is delivered. No in-depth details are indicated, but infrastructure within a public highway should be easy to establish.

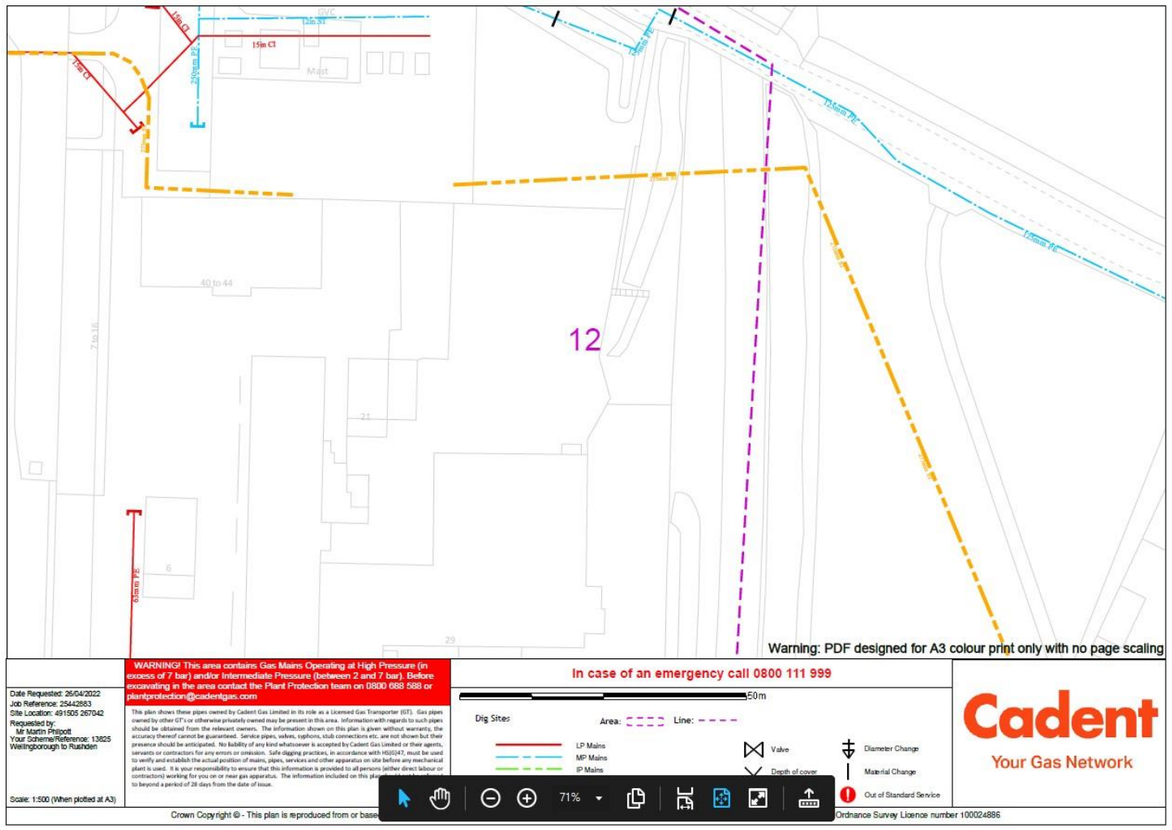


Fig 23 Cadent Gas Network mapping for the northern area of railway embankment

Fig 22 Marker post for the 273mm LHP main passing under the existing railway embankment

Upgrade of railway alignment

The existing alignment is on a c4m high embankment, and the biggest challenge may be the ability to access this linear alignment.

Vegetation has grown since the lines closure in the mid 1960's and is therefore largely scrub although mature trees exist, and these should be retained.

The embankment structure appears firm, there is evidence of old railway ballast still within the undergrowth and detritus, and where possible this could be re-used.

Re-constructing a new 3m wide sealed surface route between Irthlingborough Road and the existing River Nene bridge would therefore be beneficial to this project and provide a significantly improved connection for those already walking along this track to reach employment sites.

Path construction for this section would therefore consist of a simple specification, with the need for "No Dig" areas to be considered where there are specific areas of mature trees to be retained or where there is the need to avoid disturbance to existing badger setts.

In this situation the appropriate licence will be required from Natural England and any design robust enough to prevent undermining and path collapse.

There is currently no formal Public Right of Way along this section of path, and therefore designation as a shared path would be plausible.

Developed cleverly, this railway alignment becomes a significant link within a network of routes linking not just Chester House Estate but employment sites, residential areas, leisure facilities and transport hubs across this part of Wellingborough.

Anything less than 3m will create pinch points and a poor experience for path users, at 3m there is a risk that capacity is reached with no room for expansion, however widening significantly beyond these risks greater ecological impact and this therefore is regarded as a suitable balance.

A straight-line approach is the easiest to build and will guarantee good forward sight lines, but this encourages higher cycle speeds which will have a detrimental impact on the experiences of pedestrian users or those with mobility or visual impairments.

By introducing subtle meanders to the path alignment, a cycle user is forced to consider the interaction with others, and by retaining the "long view" of the route both all path users have an awareness of each other.

The meandering of a path can also be used to force users away from adjacent buildings. Old railway corridors have succeeded in creating impenetrable barriers and the reopening of them to public access may present concern to adjacent property owners. Moving the path away from susceptible boundaries can help to overcome these concerns.

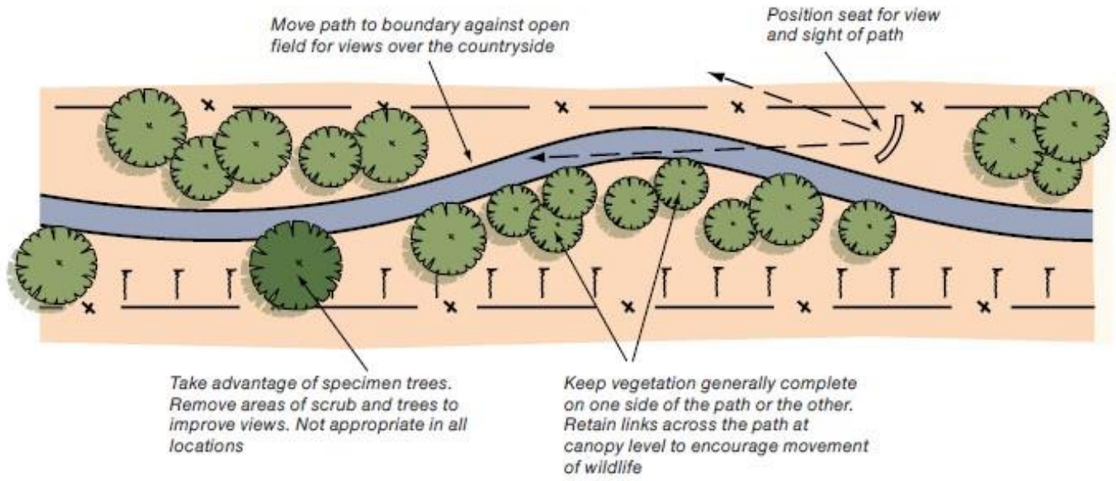


Fig 24 Meandering path alignments can work to slow cycle users and avoid conflict.

Fig 25 Materials pallets stacked and tied together and filled with branches and soils creates habitat.

Fig 26 Well positioned benches provide rest areas for mobility impaired and passive points for security.

Lowering the path level can also help to retain security, but also removes / reduces noise and visual intrusion.

As the railway is on an embankment and access ramps required, this last aspect of providing security to adjacent properties could be partly incorporated into the design of the access ramps.

Fig 27 Stone car park area to west side of railway. Creating an access ramp using the edge of this area may be viable but requires third party landowner consent.

Fig 28 Removing the bridge abutment and creating a sinuous ramp within the railway formation may retain the route in one landowner but risks greater ecological impact.

Removal of the southern abutment and regrading of the area will enable creation of a new access ramp, graded to 1:20 to be constructed.

The recently commissioned topographic survey indicates a level difference of approximately 3m between railway and road levels, so a 60m ramp would fit a 1 in 20 solution.

Aligning a ramp to utilise the unused area of the adjacent stone car park would offer potential to create a 60m ramp, which may just about reach the existing railway formation level at the same point at which the existing gas mains pass under the embankment.

The gas main is located roughly 25m from Irthlingborough Road and therefore a 1 in 20 ramp would lift the path 1.25m, some 2m below the current railway formation. This may still present a concern for Cadent and the development of designs on this section needs all parties to agree to a solution.

Areas that are heavily vegetated adjacent to the industrial premises on the western side of the railway embankment should be retained as much as possible, although removal of some to increase biodiversity or to provide a meandering alignment should be considered in the design process.

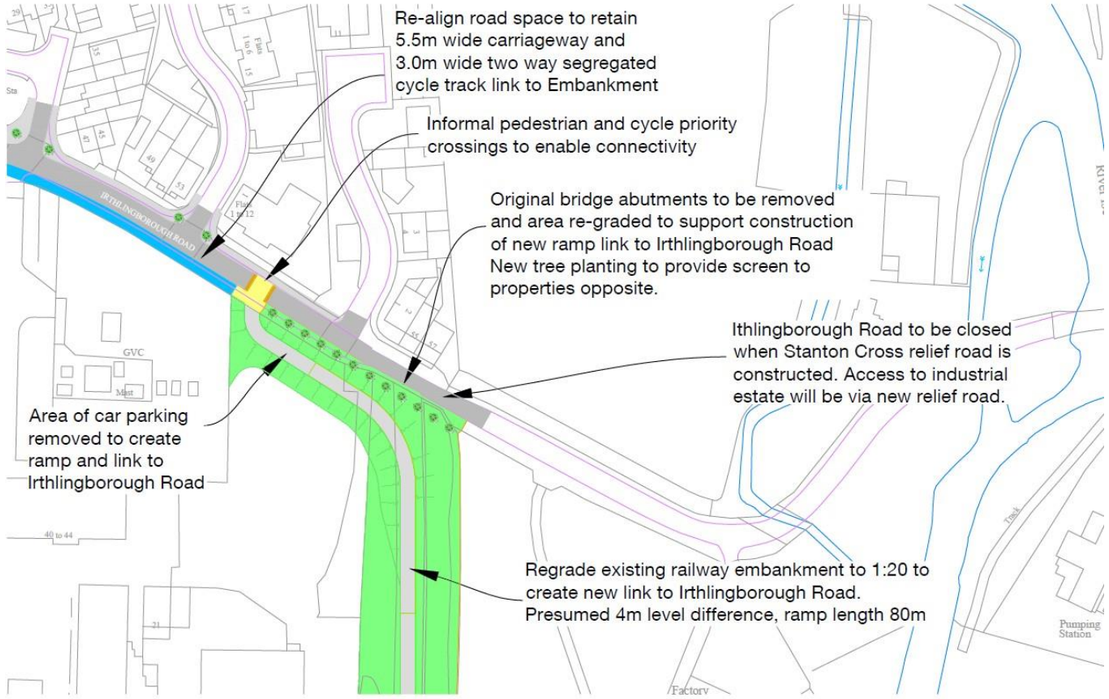


Fig 29 Indicative plan showing how any ramped link from the railway formation could work by using adjacent third-party land.

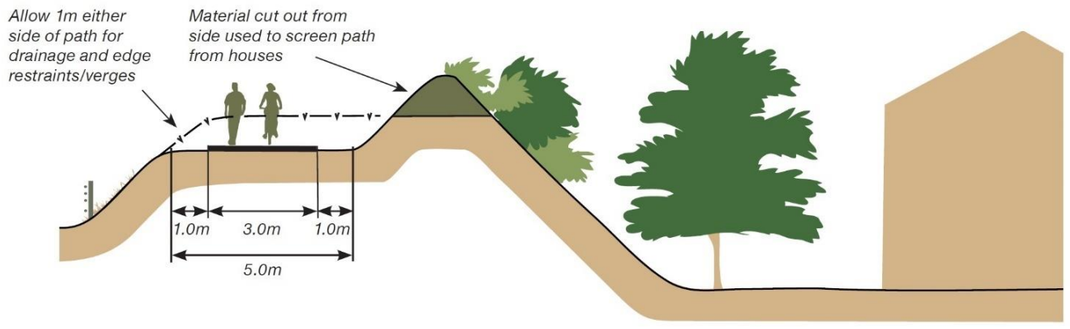


Fig 30 Indicative plan showing how use of cut / fill process can lower a path within a railway formation to create protective noise / access bunds as part of the final solution.

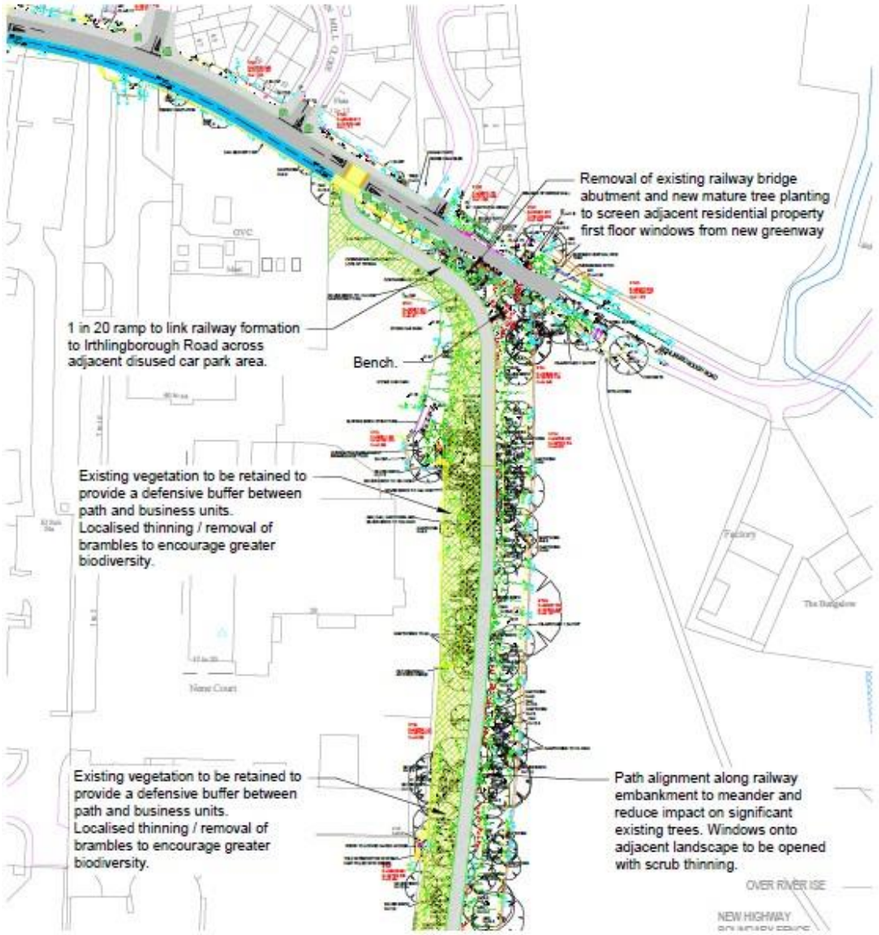


Fig 31 Indicative plan for the development of the railway alignment (northern section).

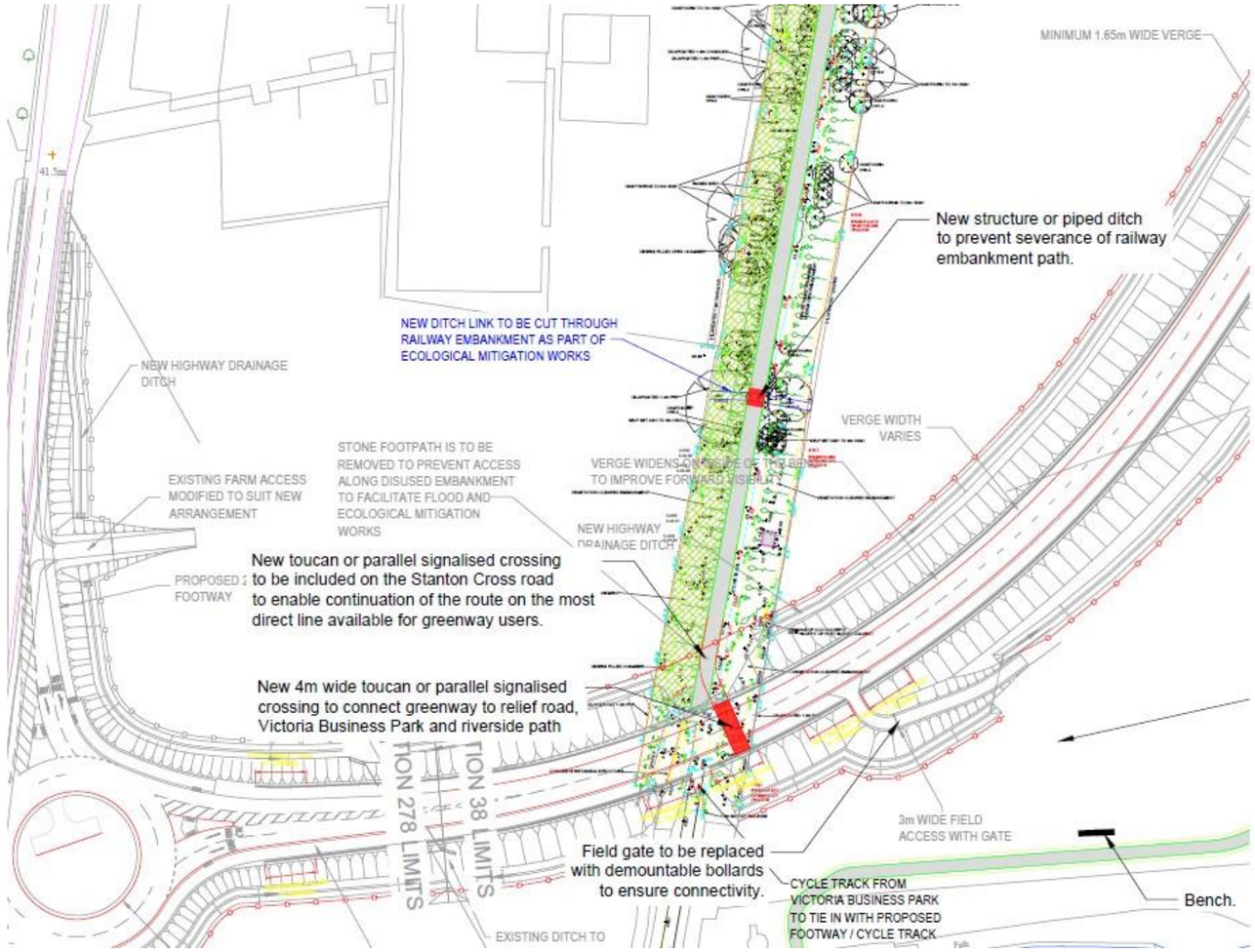


Fig 32 Indicative plan for the development of the railway alignment (southern section).

The southern section of the railway embankment is due to be sliced by the development of the Stanton Cross No 2 road. Discussions with the developer have led to an agreement to provide a signalised crossing at this point and to ensure the long-term viability of this corridor.

Whilst ground levels are being established as part of this road link it is unclear as to whether there will need to be an adjustment in levels on the railway embankment to aid connectivity.

Whilst a toucan crossing has been agreed as a permanent solution, consideration should also be given to this intervention being LTN1/20 compliant – and the movements of pedestrian and cycle traffic split.

The proposed 3.0m wide shared footway on the southern side of the new road provides for wider connectivity back to Stanton Cross, links directly to the existing bridge over the River Nene and, by converting the proposed field gate on the new access ramp with demountable bollards, gives a connection to the riverside area.

Plans from the developer also indicate that the area between the railway embankment and Embankment Road will act as flood overspill storage. If this is to happen, then the railway embankment may be broken elsewhere and a further lightweight structure 4m wide between parapets and perhaps 10m in length may also be needed on this southern section.

6.2 Riverside path

The main element of this scheme, the riverside path, runs between the railway alignment on the edge of Wellingborough, to a new bridge over the River Nene on the eastern side of the existing railway viaduct.

This section of route is challenging for several reasons:

- It is a highly protected wildlife site (RAMSAR / SPA)
- It is floodplain for the River Nene
- It sits alongside the Scheduled Ancient Monument site at Chester House Estate.

The alignment chosen as being the more practicable to deliver follows the existing worn track that runs parallel to the northern bank of the River Nene and whilst this presents engineering concerns the careful development of this alignment will be more favorable with Natural England and Historic England.

Whilst this section looks at the options available for the riverside path it also links into how cycle provision is achieved at Chester House Estate.

Although the alignment is across a naturally and historically significant landscape the views from Chester House Estate are still ones that have largely been shaped by human intervention.

The lakes are former gravel extraction areas, and the northern boundary is dominated by the Midland Main Line railway embankment and River Nene viaduct.

Fig 34 Toucan Crossing outline design across Road 2 link to Stanton Cross

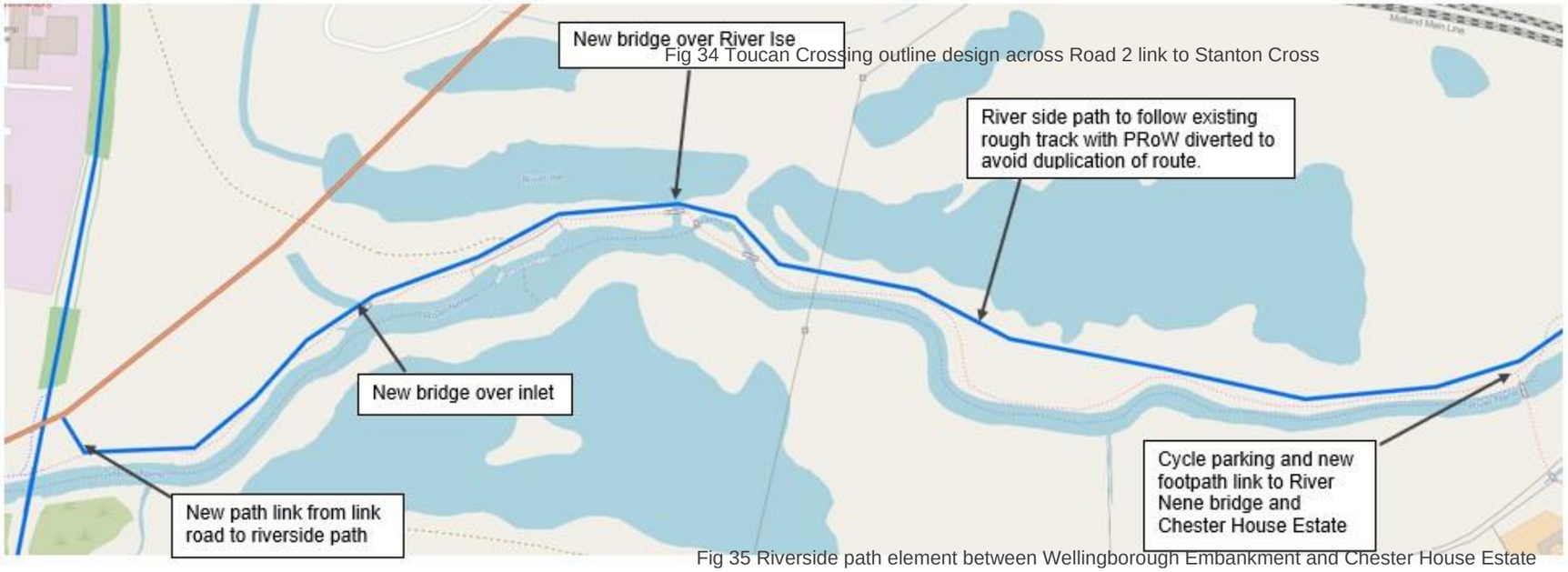


Fig 35 Riverside path element between Wellingborough Embankment and Chester House Estate

Historic England

The Scheduled Ancient Monument register covers the area around Chester House Estate and as identified in Section x the area of greatest concern reaches as far as the southern bank of the River Nene.

Path alignment and visual impact

Discussions with Historic England have been positive to any new path alignment on the northern riverbank, and there is a general acceptance that the public are already walking across the landscape.

The elevated position of the farmhouse / visitor centre relative to the proposed new path alignment is of concern to Historic England and a stretch of path, c 450m in length, has been identified as being the “most susceptible” to visual impact / detriment to the setting of the Chester House Estate.

Historic England are aware of the needs for funding to come from central government (Dept for Transport) to deliver this project, and the emphasis that this then places on having to meet design guidance requirements – which if deviated from risks the ability to access funding.

They acknowledge that a path constructed as a sealed surface offers significant benefit to a wider range of path users, and offers greater protection from flood damage, however there is concern over the visual impact.

To satisfy Historic England, the path would need to be surfaced dressed, ideally tar and chip, with a locally sourced stone.

There would also need to be an understanding of how the County would maintain the visual impact of the path, and an appropriate maintenance plan put in place, which may ultimately necessitate re-dressing the path every 5 years. This issue needs to be addressed with highways and suitable funding made available to ensure that it is deliverable.

The replacement structures across the River Nene and the flood channel, being constructed in 2022, are pedestrian only and no provision for cycle traffic has been allowed.

Cycle Parking

Historic England acknowledges that there will be a demand for cycle visitor traffic and has not ruled out the inclusion of new, simple, cycle parking facilities at the northern landing point of the River Nene bridge.

The cycle parking should not be extensive and the use of a structure to screen it from the visitor centre is not essential. Historic England would prefer to include new and more extensive cycle parking facilities within the current car park area served from Claudius Way.

For visitors from Wellingborough this does not present a significant detour and would be acceptable but for those from Rushden / Higham Ferrers if cycle parking at the northern end of the River Nene bridge is full then the extra distance may present a challenge.

As there is currently no accessible path alignment from either direction or parking provision within the Claudius Way car park then it is difficult to establish numbers without a clear baseline.

What is acknowledged is that Wellingborough, Rushden and Higham Ferrers have growing populations and that this greenway is likely to be a popular leisure corridor as well as a key route between towns for employment and transport connectivity.

Natural England

This area is significantly important for over-wintering wildfowl and is designated as both a RAMSAR site and Special Protected Area.

Natural England's concerns relate primarily to long term disturbance of the wildfowl. There is greater concern with pedestrian accessibility, and especially dog walkers, than there is from cycle traffic. Wildfowl are extremely susceptible to "movement of feet" than they are wheels.

There is acceptance that people already access the area, and although there is a designated Public Rights of Way running along the northern bank of the River Nene this is rarely adhered to – and that people (and dogs) walk randomly across the landscape.

There is therefore already a level of disturbance that the wildfowl is subjected to, however Natural England's concern is that without there being a formal path the level of disturbance is low – especially during winter / periods of wet or poor weather and that creating a formalized path will increase that disturbance.

Path alignment

The lakeside areas are of greater immediate concern as there is limited space between the edge of them and the River Nene bank. Any path alignment will need to retain, where practicable, a 5m buffer to the River Nene and a 10m buffer to the lake edge.

The field areas away from the lakes are equally valuable foraging grounds to the over-wintering wildfowl, and public disturbance of these areas is a major concern for Natural England.

Retaining a path alignment that minimizes impact, as well as public accessibility is essential. Screening / fencing the route so that public access is restricted to the path only will be important.

There will need to be retained access for both Cadent (gas main) and Network Rail (railway embankment) but this can be located close to the current railway viaduct and the current rough track retained "as is".

Path screening

Natural England are willing to support the delivery of a new path alignment if it can be suitably screened and that a buffer between path alignment and edge of lakes can be maintained.

This would also benefit the visual impact of the path from Chester House Estate and developing a solution that "appears natural" would most probably be welcomed by Historic England as well.

Whilst the nature of any screening would be developed with ecologist / landscape input there would also need to be parallel conversations with regards to the construction and future maintenance of the path alignment, and any additional ecological interventions.

Screening of the path from the lakes would need to be continuous and the use of layered vegetation would be appropriate.

Any new planting would need to be set a minimum of 1.5m from the path edge to ensure that growth doesn't reduce the available path width – there would need to be a maintenance regime in place. It would also need to be dense enough, and mature enough, to have an immediate impact.

Construction and Maintenance

Natural England understands the rationale for constructing the new path using the current "worn grass track" alignment rather than one that re-constructs a (better quality) path on the line of the current, overgrown, Public Right of Way.

Whilst the alignment may put path users closer to the lakes, there is less ecological damage to existing flora / fauna and a significantly reduced construction impact.

A "No Dig" path construction – using proprietary products such as "Netpave" or "Cellweb" – may reduce the construction impact and this should be considered at design stage. With increasing costs for stone and tarmac this may offer a financial saving.

With the need to include screening for the path this option can also protect the path from longer term root damage.

The use of "bird hides", simple open timber structures at points along the route are acceptable to Natural England and whilst this may introduce a feature into the landscape, they would be set far enough away from Chester House to have minimal intrusion into the overall aesthetics of the landscape.

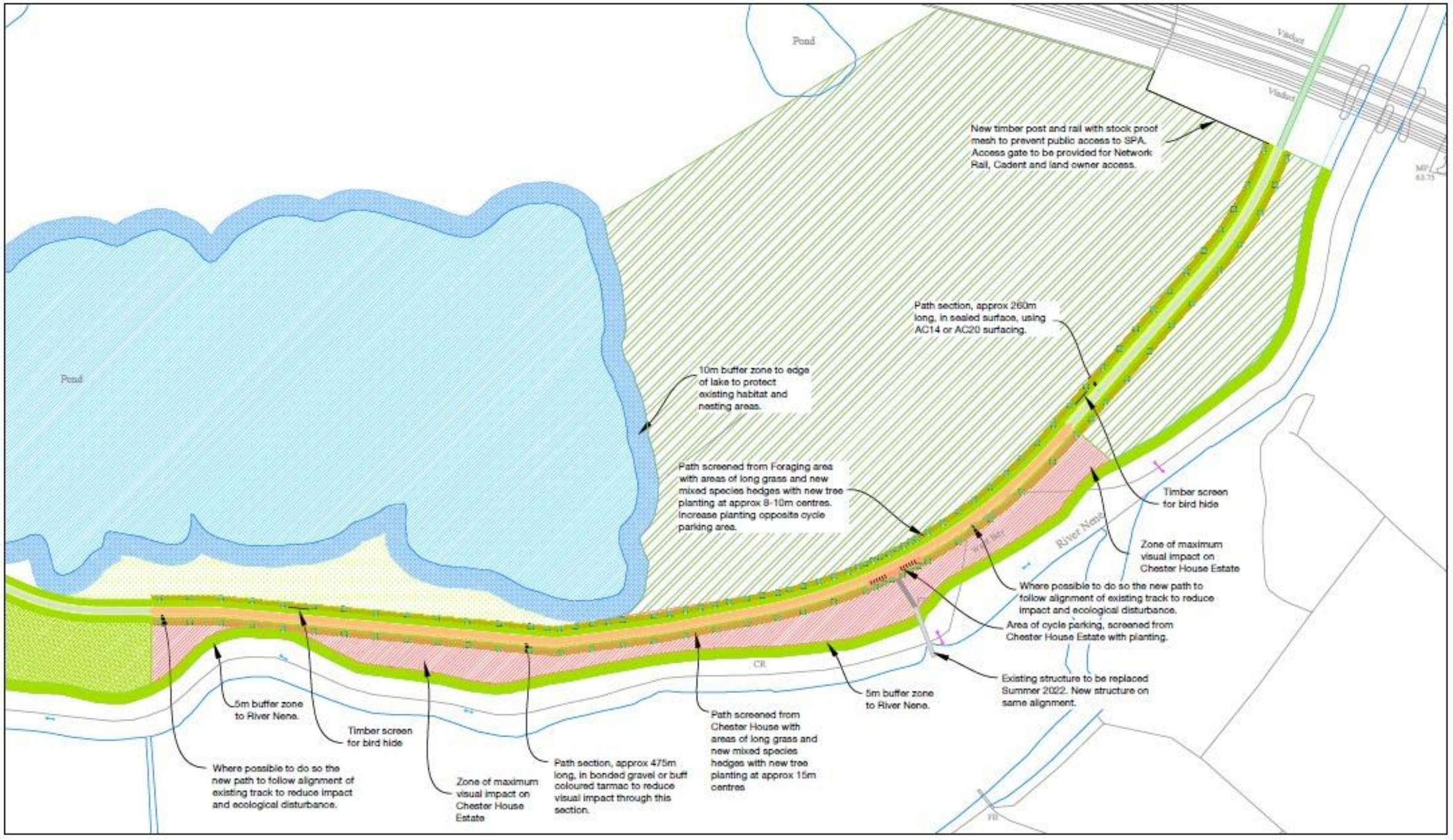


Fig 36 Key zone of influence for visual impact on Chester House Estate

Historic England has acknowledged that development of the greenway will result in cycle parking being required close to the new river bridge access onto the estate.

Two banks of 6 cycle stands are proposed to be located either side of a 2.5m wide connecting path roughly 25m long between the greenway and the new river bridge.

These stands are set 2m long and 1.50m apart, with sufficient additional hard standing area at each end to accommodate tag along / trailer bike adaptations.

Non-standard cycles such as those used as mobility aids can be catered for by extending the circulation space around the cycle stands at each end of the blocks.

Although elevated and at least 150m from Chester House the cycle parking needs to be screened but not necessarily covered.

This can be achieved by including the area within the existing screening strategy for the rest of the greenway – layered vegetation interspersed with semi-mature specimen tree planting.

Replacement bridge structures

The existing structure over the small creek, and the structure over the River Ise are narrow, poorly accessible, and not suitable for retention as part of the greenway corridor.

The proposed design solutions are to create LTN1/20 compliant structures, c15m long x 4m wide bridge decks, with 1.4m high parapets.

Whilst materials such as steel and concrete are very much understood by adopting engineers they would look out of place in this environment and a re-think of what is available is recommended.

The visual image and outline design opposite are taken from a design base that Sustrans have applied to their Lias Line greenway route in Warwickshire.

The bridge deck is formed from a series of perforated GRP composite panels, as used in canal marina pontoons, fixed to a lightweight steel frame, and sat either on helical piles or a concrete bankseat.

Parapets are in green oak timber, and the lower portion can be filled either with vertical timber slats or left open and screened using a wire mesh.

The overall width between parapets of 4m allows for an element of “watching and viewing” without fully compromising the ability of others to move along the greenway route.

Whilst off the shelf timber structures are available from many suppliers this novel approach increases the lifespan of the bridge deck to c40 years and, if sufficient support is included within the steel beams, may be capable of allowing an occasional lightweight maintenance vehicle to retain access.

The inclusion of a perforated deck will also allow for improved drainage – water simply falls through to the ground below and reduces the extent to which shadowing occurs – with benefits for some water loving species.

Public Rights of Way

As indicated in Section 4.5, the proposed greenway informally follows an existing Public Footpath of multiple definition between Wellingborough Embankment and the east side of the River Nene railway viaducts.

Designation of the greenway as Public Bridleway would legally permit cycle use along the new route and retain it within the Definitive Mapping but the ability for equestrian use elsewhere along the network is extremely limited.

Constructing a new greenway and leaving as Permissive Path would retain the alignments of the existing recognized Public Footpaths.

This approach may benefit the area around the lakes, where Footpaths UL7 and UL8 create an informal path through the open grassland and UL9, which is overgrown in places, puts people directly on the riverbank. Use of these paths may drop off as people simply revert to a new, wider, and less overgrown alignment.

The challenge in this scenario would be around the status of the replacement structures across the River Ise and the creek.

Retaining the existing narrow and largely inaccessible structures would protect the integrity of the current Rights of Way, but would result in new structures sitting alongside old, doubling the maintenance needs of the council.

Removing the old structures requires merging of the Rights of Way and the new greenway to enable a single alignment across the structures to be delivered that is to the benefit for all users but risks the existing Rights of Way becoming disjointed (on the mapping).

With a structure 4m wide to meet the minimum requirements of LTN1/20 it may be viable to dedicate a 1m strip on one side of the bridge deck as “Public Footpath” and have the remaining 3m as “Permissive Path”. That way the legal Right of Way remains on the mapping, all users have a right of access across the structure, and there is a new structure to benefit all users.

The path alignment heading out towards and under the River Nene viaduct is designed to follow an alternative alignment to the Public Footpath FP10, and the bridge design for the new River Nene bridge will over sail this as part of the design.

The link beyond, following the old railway alignment to Ditchford Lane is best retained as a Permissive Path agreement with the landowner, retaining Network Rail and landowner access.

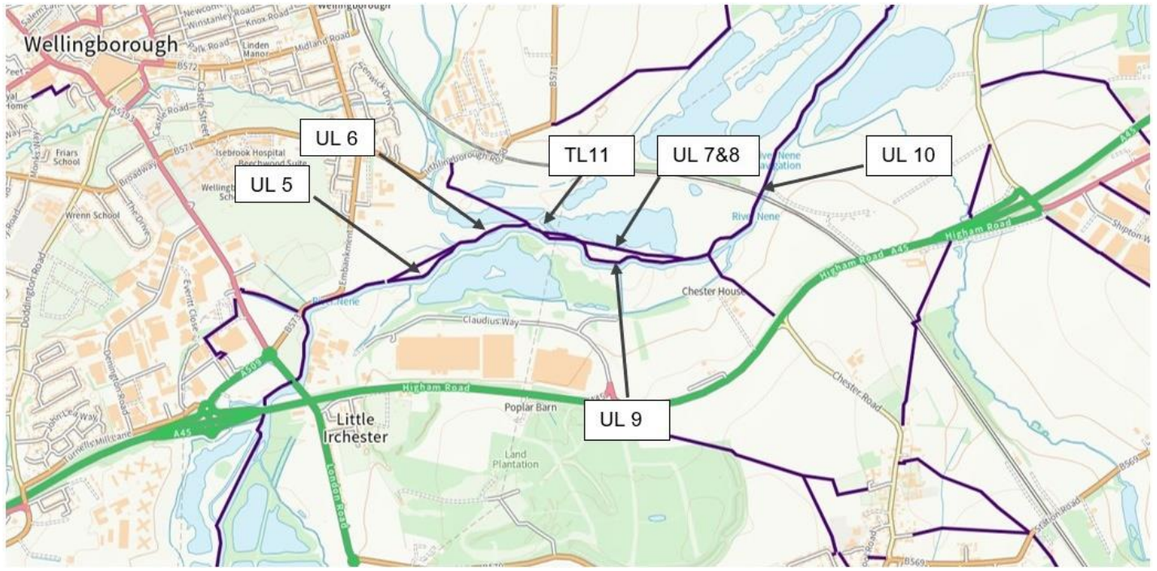


Fig 42 Route alignment between Chester House Estate and Ditchford Lane

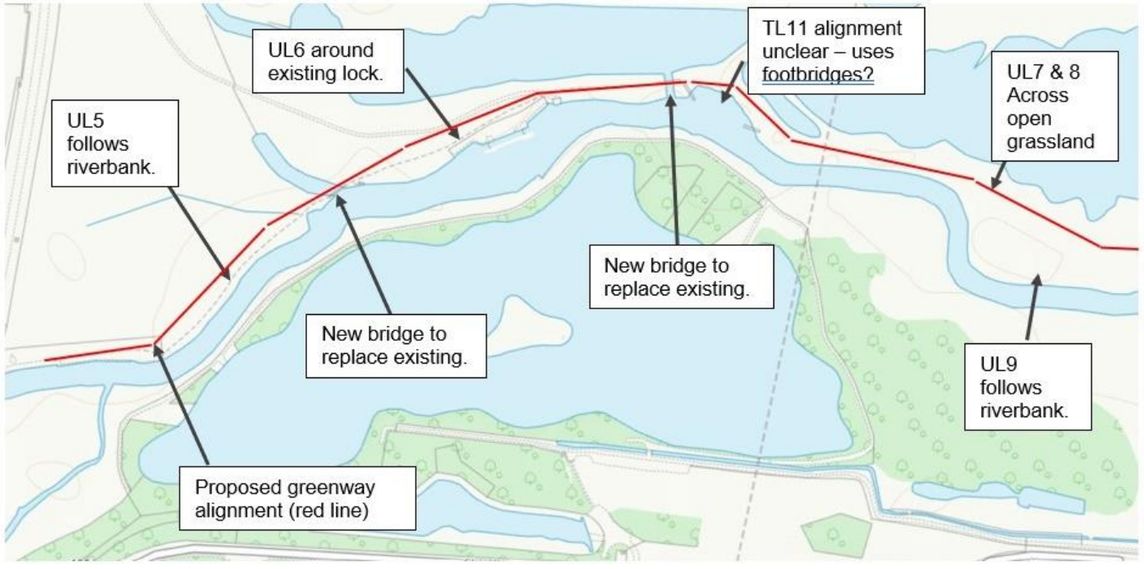


Fig 43 Route alignment between Chester House Estate and Ditchford Lane

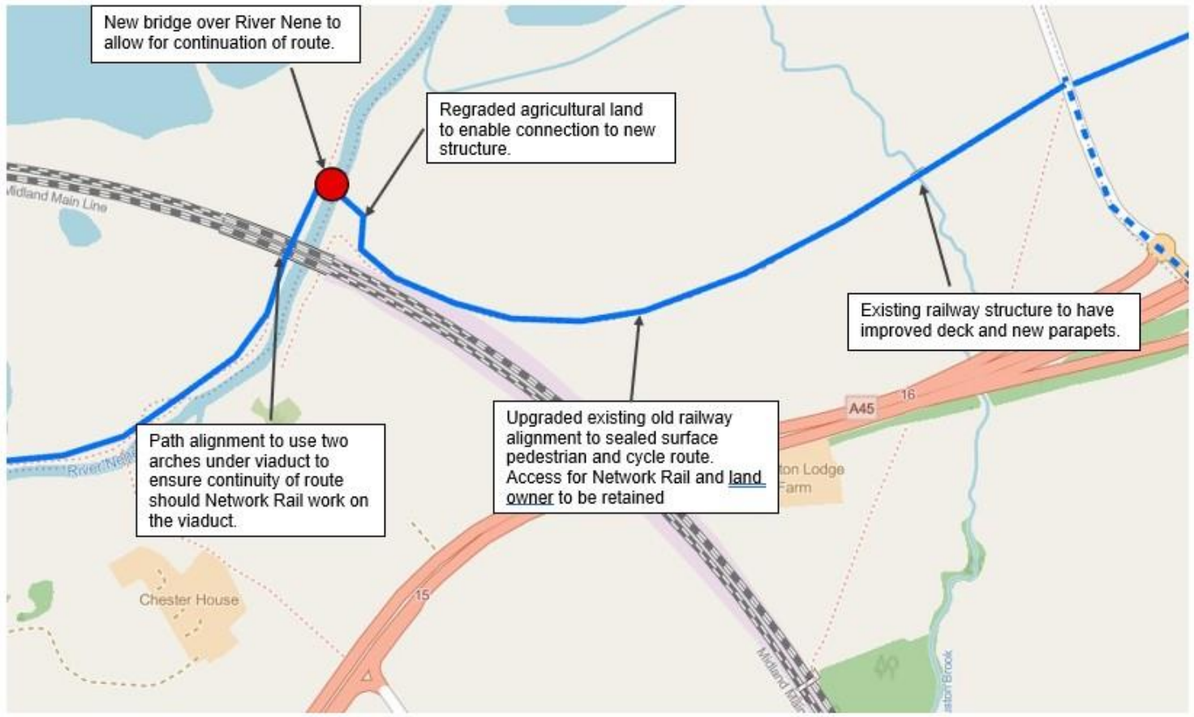


Fig 44 Route alignment between Chester House Estate and Ditchford Lane

Continuation of the greenway from Chester House Estate towards the Midland Mainline viaduct would follow the existing vehicle track rather than the public right of way for the same reasons outlined previously.

Whilst there are no lakes to consider immediately to the north of the new greenway, the open area of grassland is a significantly important foraging area for over wintering wildfowl.

There is already acceptance that a level of disturbance occurs but ensuring that this disturbance isn't escalated disproportionately by the creation of the greenway is a key point for Natural England.

To protect the foraging area from the public straying off the greenway the proposed layering of vegetation will need to be supplemented by an additional post and rail fence.

Access would need to be retained for Cadent and Network Rail around the northern edge of this area for maintenance of their assets and therefore a suitable gated area would need to be provided along with hard standing / turning area.

Network Rail and Midland Mainline viaduct

The route needs to pass under the existing Midland Mainline railway viaduct, which is two parallel but separate structures, and cross the River Nene to head up the river cliff to reach the former railway alignment link eastwards towards Rushden.

The railway viaduct, (Network Rail asset ID SPC02-80 River Nene Wellingborough), is not touched by the proposed path, but Network Rail will need to be consulted further about a path under their structure.

Currently there is a worn access track that passes under the viaducts using the second archway from the riverbank. The proposed greenway would utilise the third archway to increase the space available for landing a new structure across the River Nene and leave the maintenance track alone.

Early and high-level discussion with Network Rail have provided some indication that they are supportive of the scheme's development – but in-depth discussion would require North Northamptonshire Council to create an account with ACE. This will lead to the Council entering a BAPA (Basic Asset Protection Agreement) but allow ASPRO to support the project development however any support would incur additional cost.

"*We would find it difficult to estimate the full costs of the scheme from an Asset Protection point of view without a greater understanding of the construction methodology and programme. However, following entering an agreement, we could work with the project team to give an indication of costs based on their desired delivery plan.*"

ASPRO Network Rail (oraclecloud.com)

Path under the railway viaduct.

Network Rail do not have any initial objection to the route passing under the railway viaducts. They currently have access for maintenance and inspection of the structure, but this is limited to small plant and equipment.

Path design would need to be agreed with them as part of the BAPA agreement, however they have stipulated that the new route should drain away from the viaduct.

They have also flagged the potential need for the path to also use a second archway should the existing route be blocked for maintenance purposes (scaffolding / brick repairs / inspections).

Whilst this adds an additional cost and would influence the design of the greenway in this area the inclusion of this extra section of route would secure the alignment against any temporary closure Network Rail may need to employ. The greenway design could use the arch either side, but the second arch is already an access track, and may be blocked by vehicles if maintenance works are being undertaken – use of the fourth arch is identified as the preferred “extra”.

Path construction on the approaches to, and under, the railway viaduct would be best using a “No Dig” methodology. This would involve simply removing existing detritus, leveling the area and constructing the path base with “Cellweb” or “Netpave”.

Whilst this would limit the construction impact on the foundations of the viaduct, it may not resolve any drainage concerns that Network Rail have.

The distance between the brick arches is 8m, the new greenway is 3m wide and therefore would not utilise the full width of the space. Any surface water run off generated by the path would simply drain into the side vegetation.

Should Network Rail object to this solution switching these products for “Hydrocell” crates would allow for limited excavation underneath the structure and provide storage for any surface water run-off. Discharge into the river or additional soakaway trenches would ensure that water is moved away from the viaduct.

These crates have a load bearing capacity of 62T and should be acceptable to Network Rail’s maintenance vehicle requirements.

Bridge across the River Nene

The route needs to cross the River Nene and the preferred option for the location of a new structure is to the northeastern side of the railway viaduct.

At present we estimate that this would be 30 - 40m away from the railway viaduct. Network Rail have indicated that they have no initial objection to a new bridge being constructed at this distance.

They have raised usual concerns over construction activities, especially around installation of the structure and the future maintenance needs of their own asset, including access to the structure for vehicles.

Network Rail and Cadent both require access to infrastructure on the north side of the river and the new River Nene bridge may therefore need to allow for an unspecified vehicle headroom height where the proposed landing ramps would cross the current maintenance track from Ditchford Lane.

There are challenges with constructing a new bridge on either side of the viaduct but on balance the northeastern side is preferred.

Figure 40 overleaf highlights the constraints / challenges to delivering this structure.

The landforms fall from south to north and works on the southern / eastern side of the existing viaduct could be accomplished with earthworks and limited adjustment to the adjacent fields, and retain a good connection onto the old railway formation.

The bridge deck itself should be used as part of the solution to overcome the level differences. The river channel itself is c20m wide and allowing for an element of additional width to enable “low level” flood events to occur a bridge deck length of 40m would seem realistic. At a steady 1 in 20 fall that would equate to a level difference of 1.5m and 2.0m depending on the length of the structure.

Landing the bridge ramps on the northeastern side of the river is challenging, in part because of the soffit levels provided by the Environment Agency for the bridge deck.

At 45.8m this is approximately 6m above the existing riverbank level, and considerably above the underside of the new Chester House bridge installed some 400m west of this structure.

Bridge Location	Visual Impact	Access Ramps	Constraints	Opportunities	Next Steps
Southern side of railway viaduct	Significant	Navigable headroom c 3.5m means ramp length c70m at 1:20 gradient. Flood risk headroom of 6m means 120m long access ramps at 1:20 gradient.	Land to northern bank of River Nene is classed as high-quality foraging grassland for over wintering birds. Land on the southern bank of River Nene falls within the area requiring Scheduled Ancient Monument consent. Network Rail vehicle access will be difficult to maintain as landing ramps will need to be designed to minimize impact on the Scheduled Ancient Monument area. Constructing a new structure will require cranes to be operating in the proximity (albeit below) existing overhead electric wires serving the railway. The new structure will need to be located at sufficient distance away from the existing viaduct to ensure that any accidental damage is avoided.	Limited – but the structure could be used as a viewing platform across the gravel pits.	Topographical Survey required. Ground Investigations required. Network Rail BAPA (Basic Asset Protection Agreement) to be pursued and agreed. The landowner consents to be progressed and agreed. Further discussion with Environment Agency over size of ramps created by advised soffit levels for structure.
Northern side of railway viaduct	Low – the viaduct essentially screens the new bridge	Navigable headroom c 3.5m means ramp length c70m at 1:20 gradient. Flood risk headroom of 6m means 120m long access ramps at 1:20 gradient on the northern side of river. Reduced length on the southern side as ground levels are more favourable.	Existing high pressure gas main crosses the river c20m east of the railway viaduct and will impact upon the location and design of the structure and its foundations. The Northern riverbank is low, and ramps will need to be within floodplain. Southern/eastern bank forms part of a river cliff and will need to be regraded. Depending upon the available extent of earthworks this may result in longer ramps on the northern side. Ecological impact is still in evidence but reduced. Network Rail access still needs to be maintained, but careful re-grading of the river cliff may enable the walking/cycling route to be developed without restricting access.	The re-graded area needed for the southern side could be developed to create a new habitat. The structure and ramps could be used as a viewing platform along the River Nene towards Ditchford Bridge	

A headroom clearance of 6m will require the ramps to be 120m in length (at 1/20 gradient), and this will require a larger area take for the structure – and provide North Northamptonshire with a major structure to maintain in the future.

It would not be possible to accommodate a single straight ramp without compromising Network Rail's access under the viaduct.

Creating a ramp link therefore will require a significant footprint within an area that is ecologically sensitive (RAMSAR / SSSI) and

will need to sit visually within a sensitive broad river valley landscape.

A zigzag / out and back structure would offer a tight footprint, but ramp lengths could still compromise the ability of Network Rail to access the eastern viaduct, and foundations for supporting piers would need to avoid the high-pressure gas main.

An alternative, and preferred option would be to create a “box” using roughly 50m ramp sections and level areas at each corner and allow the new structure to loop back under itself.

Whilst this increases the footprint of the works area, using helical piles reduces the extents of any supporting works and longer-term ecological damage is limited to the arisings from the borehole.

The deck of any sizeable structure is also going to have a significant impact on the habitat below – shadowing can be problematic, and a solid deck surface will also prevent rainfall from reaching the ground below.

By utilising a different approach, the impact of both these situations can be reduced. Using a GRP type perforated deck (Duragrip 22mm marina decking) will give a robust and practical way of creating the ramp whilst allowing water and light into the grassland below. Its use on canal infrastructure around pontoon’s would mean that in theory it wouldn’t be totally out of place in this location.

Visually any alignment of the ramp is going to be extensive – rather than steel handrails, which whilst ornate and practical will feel out of place – consider using green oak timbers for a more “natural” visual impact.

The bridge structure itself will also need to “sit” visually within this sensitive environment. The size of span, and elevation above the river, will mean that this becomes a structure that requires concrete and steel form, however dressing the structures façade in a brickwork similar in colour to the existing viaduct will in part allow it to become merged with the much bigger railway infrastructure.

Routing the structural ramps away from the railway viaduct will also significantly reduce the impact upon the existing LHP gas main that crosses the river in this location. The “box” approach also allows for a different visual interpretation and engagement within the landscape – allowing path users to journey through rather than simply travel across – this area.

Further discussion with Natural England, Environment Agency, Network Rail and Cadent are necessary to determine the final alignment and approaches to the viaduct, but providing that all parties work coherently together no matter how challenging there is a solution that can be delivered.

Neither railway viaducts appear on the Scheduled Ancient Monuments register and appear not to be listed structures within Historic England’s register. Listed Building Consent is therefore not thought necessary for works under the viaduct – but Network Rail consent is.

6.3 Railway line link to Ditchford Road

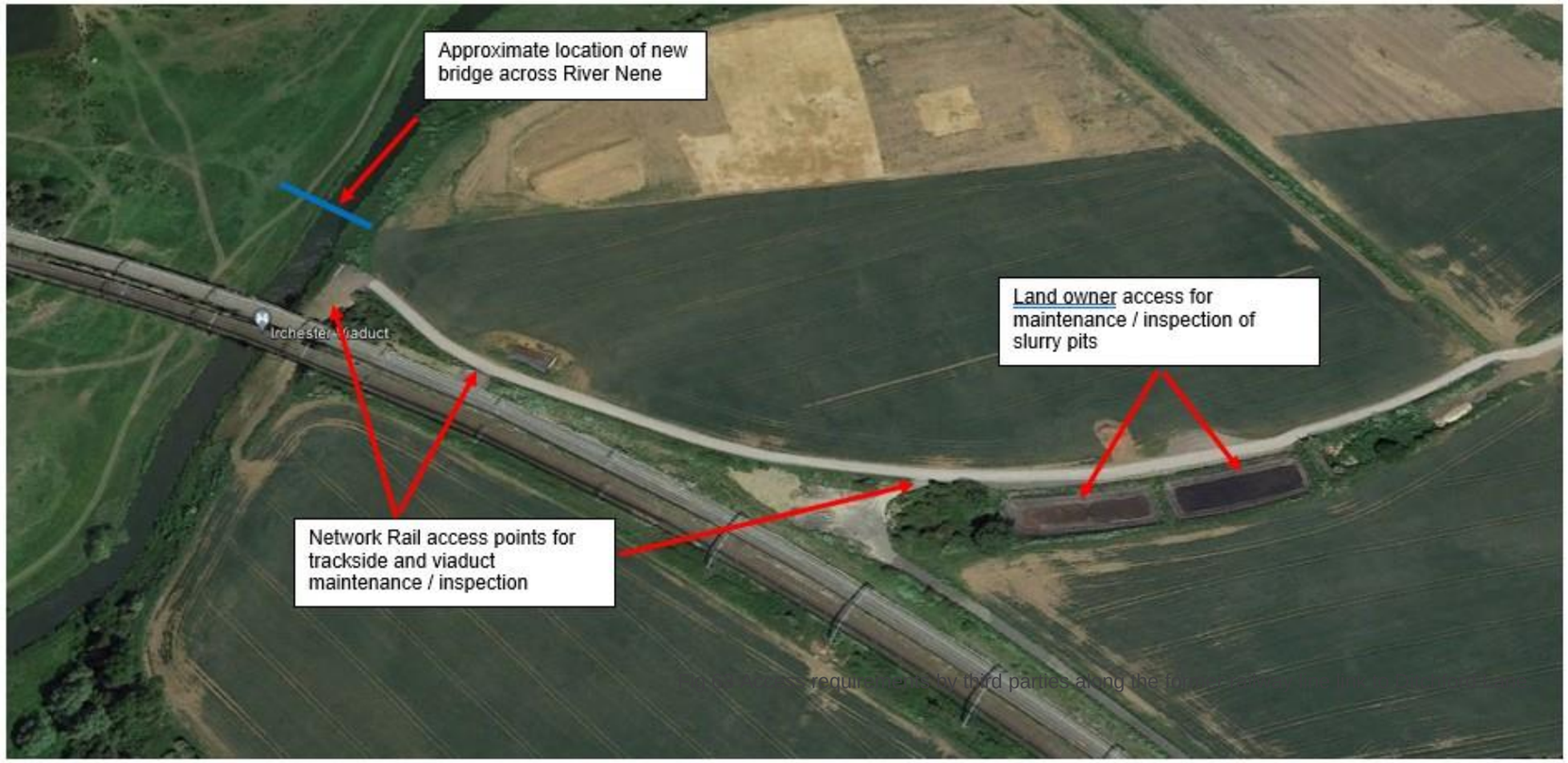
The path linking to Ditchford Road will follow the railway alignment where it is practicable to do so.

The former track bed is used by Network Rail on a sporadic basis, and by the landowner / tenant farmer for accessing adjacent fields. There are also two large slurry pits / balancing ponds that require infrequent access.

Network Rail require access, to trackside infrastructure, into the compound area at the southern end of the viaduct (the location of the former railway junction) and around the landing area of the new bridge for inspections of the

In any “phasing” of construction activity this section would not necessarily be regarded as a high priority – to access it requires the new structure over the River Nene to have been delivered – and in its current state provides a sound and viable surface for able bodied pedestrian and most cycle users.

Depending upon the nature of vehicles used by construction activities, Network Rail and the current landowner, and the damage that is caused to the overall surface, limited works to repair and retain the existing surface may be a viable short-term option.



Path Width

For practicality purposes the minimum width for pedestrian and cycle use, 3.0m, should be re-considered, especially if the alignment is to be used by maintenance vehicles.

There is insufficient width available with the existing railway formation to create a separate 3m wide greenway and allow for vehicle movements along a separate area.

Overall, the formation is roughly 4.5m wide and therefore creation of a new path 4.0m wide would allow comfort space should vehicle meet pedestrian on adapted cycle user.

Access Requirements

As well as Network Rail access needs, the existing slurry pits alongside the railway will require occasional emptying and maintenance.

The LHP gas main crosses under the railway formation and runs parallel to the railway embankment through to Ditchford Lane, and therefore access by Cadent for maintenance / inspection is required.

The operational needs of the various organisations will require occasional use by large vehicles and the design of the final surface will need to reflect this.

Frequency of vehicle movement is likely to be sporadic and infrequent. Peak usage for pedestrian and cycle traffic is expected to be around commuting patterns during the week and more regular flows over weekends and holiday periods.

Network Rail's operations around line closure or routine maintenance may therefore compromise user experience on occasion but this can be communicated in advance.

Significant works by Cadent on their infrastructure would also be planned by them and can also be communicated ahead of events.

Surfacing

In the immediate short term, the railway formation provides a sound and usable surface for a large majority of potential path users, and as part of phasing construction works would be lower down the list of immediate deliverable needs.

A low cost, deliverable option would be to re-grade and compact the current track bed, and where necessary adding a layer of geotextile and 150mm layer of type 1 stone and surface with a layer of base course.

This would withstand limited vehicle use (maintenance vehicle on intermittent visit frequency) but would be more susceptible to damage for frequent visit / large vehicle use.

A high cost, deliverable option would be to replace the base course with a layer of reinforced concrete and create a year-round, fully accessible solution.

A workable middle ground may be to employ a more traditional "road construction" layering, stone, upper and lower base course to give a more durable option but without resorting to a concrete track.

Shade and Shelter

This section of route is exposed to the elements, being on top of the ridgeline. Providing shade and shelter for path users will therefore improve their experience of the route.

This could be achieved by selective planting of semi-mature trees alongside the railway where space permits. As the railway runs predominantly west – east maximum benefit for shade is achieved by planting along the southern side.

Shelter from wind and rain is more difficult to predict and there is little space away from the railway formation to create "shelter huts".

Where there is space thought should be given to how benches can be installed and protected from the elements.

The existing, and currently inaccessible, old farm bridge can be re-purposed to provide both a viewing point on good days, and the substantial parapets providing shelter when necessary – adding a low bench provides a seating area.

Fig 64 to 67 Railway alignment opportunities:

The wide area adjacent to the slurry pits can be reimagined to create an area that encourages biodiversity whilst providing a defensive buffer from access by path users.

The existing bridge can provide both a viewpoint and shade /shelter from the elements.

The open nature of the path can be reduced by additional planting along the edges to provide shade and shelter.

Fig 68 Indicative options for a more engaging space – creating shade and shelter, increasing biodiversity, and viewing points.

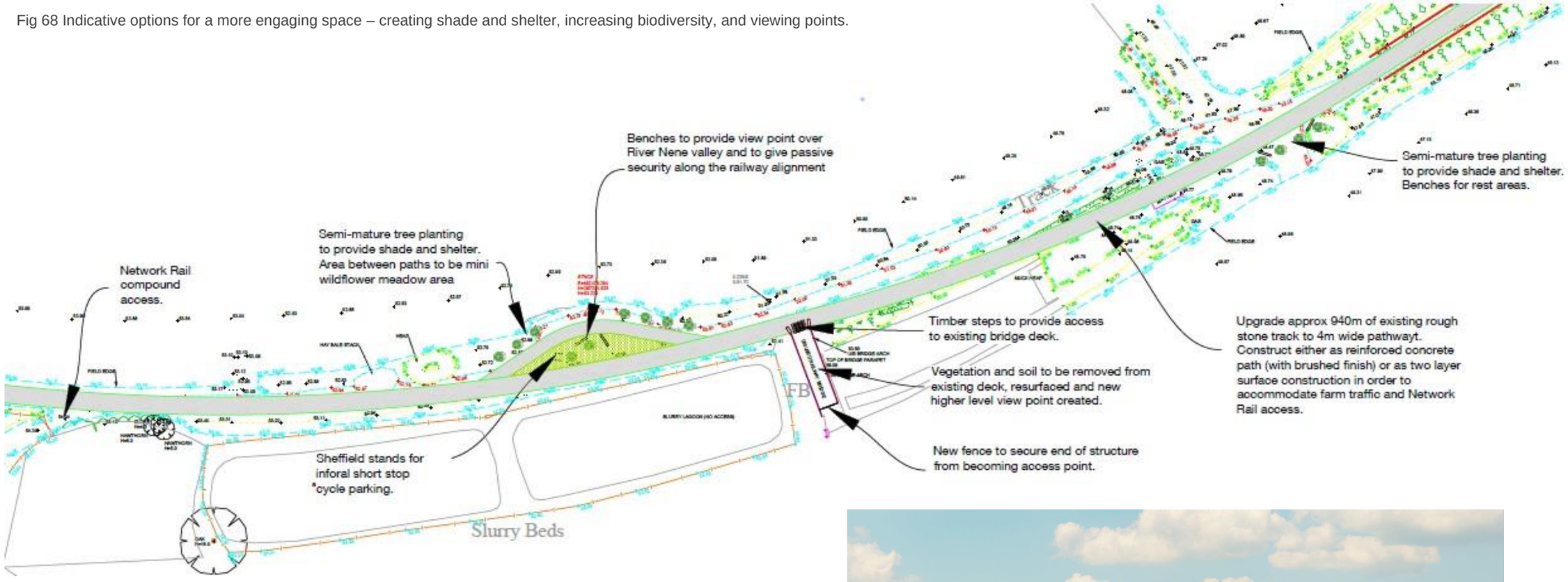


Fig 70 Impression of how the link along Ditchford Lane can become a viewing point.

Knuston Brook railway bridge

The existing railway bridge over the Knuston Brook is in good condition, albeit with some structural challenges to consider.

Recent inspections by Kier WSP have highlighted concerns over voiding within the existing brick arches which have implications for structural loading that could safely be supported.

They have recommended a 10T limit for vehicle movements, but this could be increased if additional work is undertaken to resolve some of the highlighted issues.

Sustrans, as owners of many existing and disused railway structures, are well versed in returning similar structures back to life.

The issues highlighted in the reports are not beyond resolution and a 10T working weight limit is not an unusual recommendation – and one that skilled contractors can work with.

To protect the integrity of the bridge, the current surface materials should be scraped from the deck to expose the original waterproof layer, which should be assessed for integrity, and any repairs – including a new waterproof layer if necessary – completed.

A dished drainage channel should be installed on each side, with a high point created in the centre of the structure to allow run off to be taken away from the deck.

Soakaways at each end of the channel will allow water to percolate away. Surfacing should be across the full width of the deck – with a 20mm stone size basecourse and a 6mm surface course layer applied.

Parapet heights will need to be checked and new railings added if the existing height is less than 1.20m.

Fig 71 and 72 West and East approaches to the existing Knuston Brook bridge.

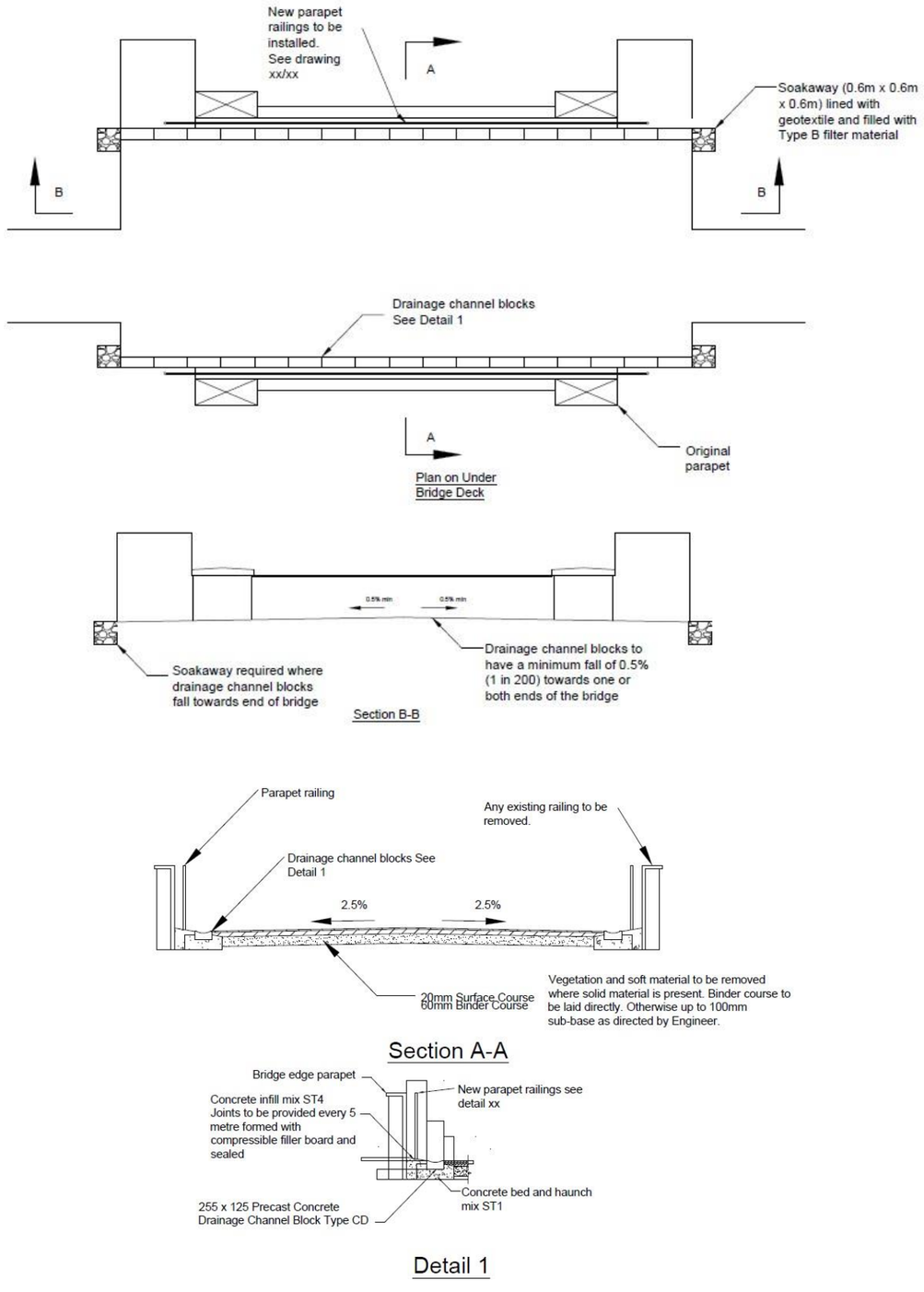


Fig 73 Design solution for a resurfaced deck on a brick arched bridge as employed by Sustrans on multiple greenway routes

Connection to Rushden Lakes.

The connecting link between the railway alignment and Ditchford Road needs to consider the impact of the proposed development of Rushden Lakes and ensure that the movements between the two are fluid, coherent and aren't compromised by space or poor design.

The access will need to be capable of providing a safe connection between the greenway route and a section of on road / shared footway, whilst ensuring that the access track remains secure for the landowner.

Ditchford Road is indicated as a "De-restricted speed limit" and therefore an offset between edge of carriageway and edge of connecting cycle track is of 2m (LTN 1/20 table 6.1)

This may have implications for how the proposed crossings / link with the intended access road for Rushden Lakes. This development is significantly advanced in terms of design / planning whilst funding for the greenway remains uncertain, onsite works to enable a future connection will consist of adaptations to the access road junction.

Sight lines in both directions are good and a 2.0m offset with 3.0m wide path would appear to be deliverable within the extent of the current highway verge, however at the point where the proposed roadside path turns to connect onto the railway alignment the ground falls away sharply and the high-pressure gas main crosses both railway and road.

The design of this important crossing point also needs to reflect the changes in LTN1:20 and ensure that any central waiting area can safely accommodate the dimensions of a "design cycle".

This is a route that will attract family groups – Rushden Lakes has leisure as well as retail attractions – the designed crossing space should allow for more than one family group - potentially travelling in opposite directions – to wait / cross safely.

This crossing point therefore must be delivered to a standard far exceeding "bare minimum" for the route to be regarded as a success.

If pedestrian and cycle users are left compromised / vulnerable or lacking safety, then the aim of the corridor will be lost.

Offset to carriageway – it is noted that a reduction in vehicle speed to 40mph is proposed through this section. From a pedestrian / cycle user comfort the minimum required offset of 0.5m would meet LTN 1/20 requirements – but this is a rural link road carrying HGV traffic and therefore an offset of 1.0m is more appropriate.

Road crossing – A staggered uncontrolled central refuge layout is unlikely to support a safe waiting space for those using non-standard cycles and is unlikely to enable a "design cycle" to turn within the space available.

The LHP gas main also reappears at this point, compromising the space win which any new crossing, or adjustments to footway can be easily accommodated.

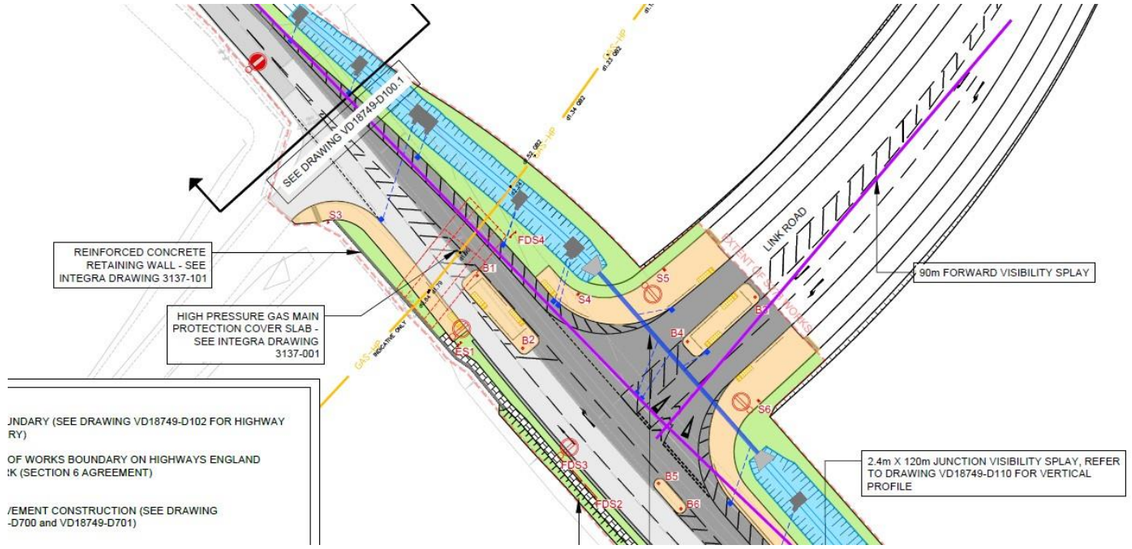


Fig 74 Current access arrangement for the new Rushden Lakes access road, with immitted crossing facilities.

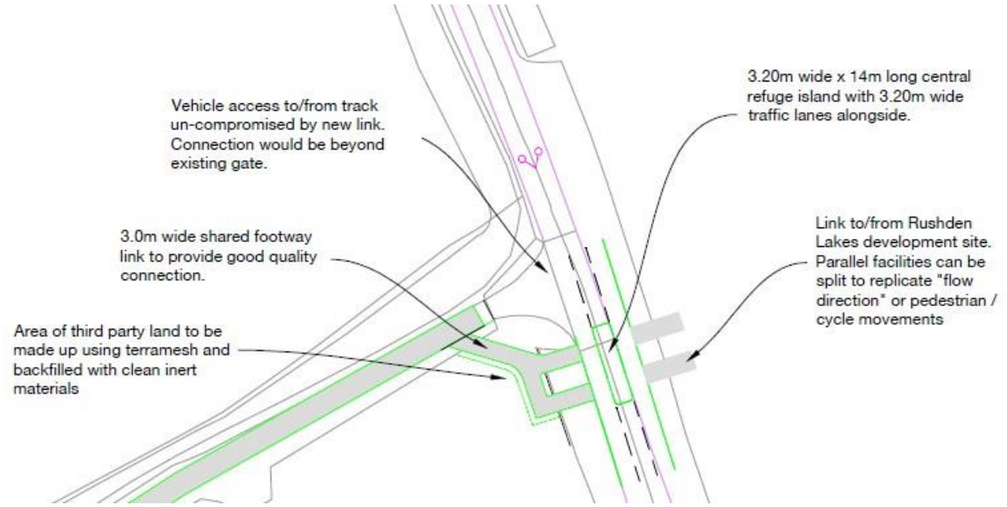


Fig 75 Improved connections between greenway and Rushden Lakes over Ditchford Road

6.4 Rushden links

Rushden Lakes access road

The link to Rushden Lakes from Ditchford Road has been subject to a planning application / consent – ref no 20/00534/FUL, approved in May 2021.

Provision within the link road is acceptable but relies on 2 no 3.0m wide shared footways. One footway runs adjacent to the new link road, and with a 1m wide buffer. This would make it acceptable under LTN1/20 requirements. The second footway, also a 3.0m wide shared facility, is remote from the proposed access road, and meanders through the “landscaped area” to the north of the road. Again, this would be acceptable under LTN1/20 requirements.

However, the provision of two shared facilities – in perhaps an area where there is potential for limited pedestrian movement - may result in points of conflict as cycle traffic may not be aware of pedestrian provision.

Crossing facilities for the new access road are limited and left vague as “footway/cycleway crossing of link road”. In all locations the provision of parallel pedestrian and cycle zebra crossings should be regarded as the “minimum acceptable” design option.

The crossing of the HGV access is set well back but whether enough has been allowed for this to be a priority crossing is not easy to establish. As a minimum this crossing point should also be a parallel pedestrian and cycle zebra crossing – and should be located far enough from the current give way to enable an HGV to wait without blocking the main access road. This may require a slight amendment to the overall design of the approach paths but is far from impossible.

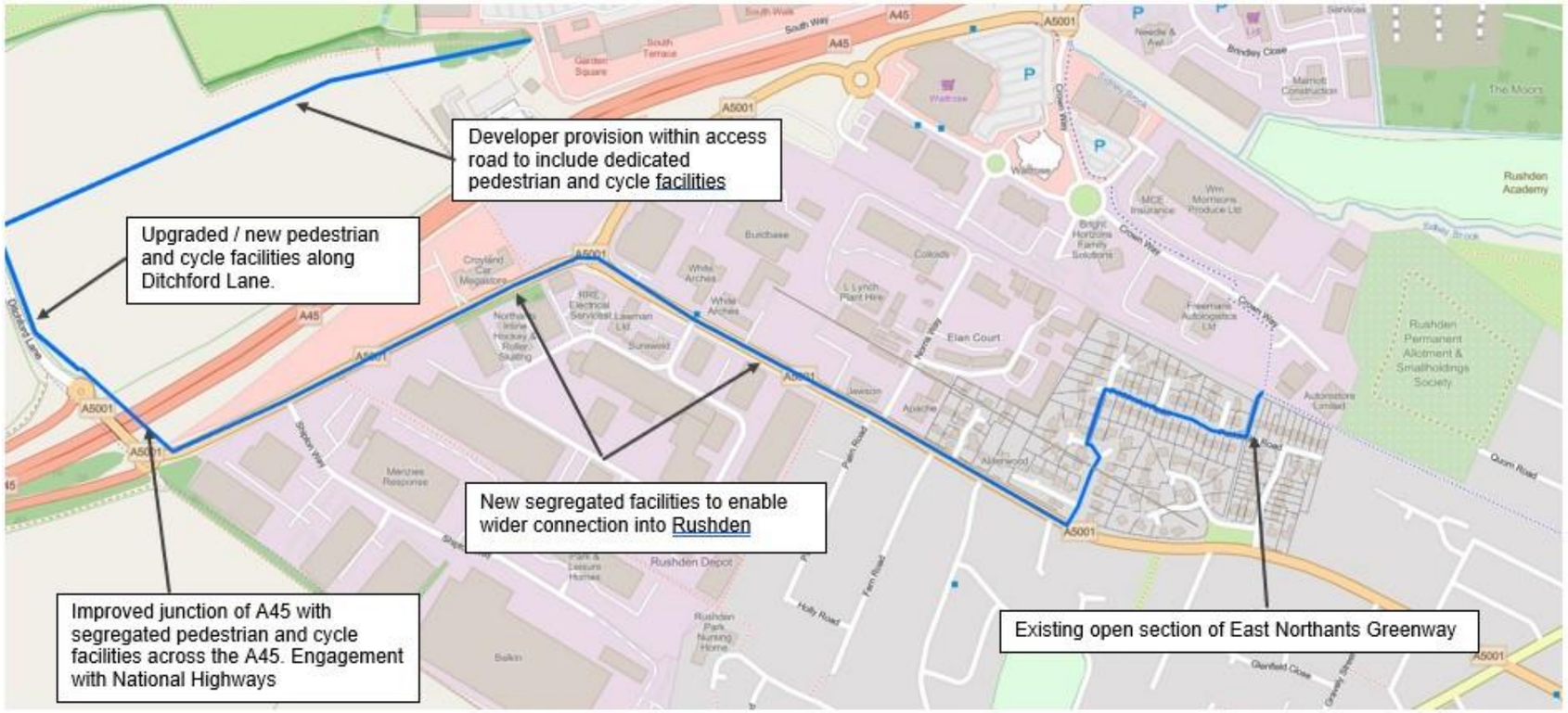


Fig 76 Connectivity within Rushden

Ditchford Lane improvements

Failure to create a high-quality pedestrian and cycle environment between the new Rushden lakes access and the southern side of the A45 will restrict the number of pedestrian and cycle journeys made – with a knock on to the overall or perceived, success of the riverside corridor.

The Vectos general arrangement drawings within the planning application detail the proposed changes to Ditchford Road between the new junction and the A45.

The designs as presented are good but become compromised and this may ultimately become a weak link in the overall scheme. The shared footway provision is 3.50m, and so more than the minimum required by LTN1/20 – however there is no recognized buffer to the traffic lanes – simply incorporated into the wider footway. Retaining a planted verge and reducing the path width to 3.0m may be more appropriate, especially as the adjacent “hatched buffer” within the carriageway tapers down to nothing.

This shared path is continuous through the re-modelled roundabout for the A45 / Ditchford Lane slip road, but again would benefit from there being a verge rather than the 3.5m wide footway.

Under LTN 1/20 there is a need for a buffer verge at 40mph of 0.50m – and amending the current designs to include this, rather than simply building a 3.50m wide tarmac path would be regarded as a better provision.

Unless the provision over the A45 is significantly improved then the creation of a 3.0m or 3.5m wide link will see very little use.

A45 road bridge

The road improvement scheme stops at the existing A45 bridge. This structure has a carriageway width of c8.90m and 2 2.0m wide footways on each side.

In its current format this would place it outside of LTN1/20 requirements, however it is not an easy option to fix.

Reprofiling the bridge users – is arguably the easiest, but possibly controversial, option and would restrict traffic flows using it to private car use – which would enable the bridge deck to be re-profiled to provide widened footways.

This option would force any HGV traffic wanting to access the new Rushden Lakes development or serve the existing industrial estates into using alternative – less suitable options and therefore is discounted.

Weight limit on the structure – would remove larger HGV traffic with similar results to fully re-profiling but may allow for LGV vehicles. This is not ideal and will still be a challenging environment for pedestrians and inexperienced cycle traffic.

Provision of a new walking and cycling bridge – would provide a dedicated, safe and fully LTN1/20 compliant way of accessing Rushden.

The A45 is a significant barrier to movement and National Highways are keen to remove cycle traffic from this section of road. If cycle traffic cannot safely access the facilities on the northern side of the A45 then the problem that they are trying to eradicate may not be possible.

A new structure, 4 – 4.5m wide and c120m long, is needed to achieve this. The approach from the north can be realigned so that the proposed 3.0m wide shared path can be removed from the proximity of the roundabout and a high-quality connection delivered.

Re-configuration of the current slip roads - allows for additional west bound exit and east bound access. In providing this there is then an opportunity for Northampton Road to be reconfigured to allow for one way vehicle working, releasing space for high quality segregated walking, and cycling facilities. This would involve improving the current pedestrian and cycle facilities across the current Ditchford Road/ A45 bridge to maintain an LTN 1/20 compliant corridor.

Northampton Road

The LTN 1:20 compliant route is challenging along the length of Northampton Road, without significant changes.

This road is the natural feed onto the A45 from Shipton Way and Sanders Lode Industrial Estates – especially for traffic heading west to Northampton and the M1 – and lane widths are at a premium.

Vehicle restrictions, - such as weight limits / timed access could be utilized to prevent HGV and LGV movements on to the A45 at Ditchford Road with vehicles using the more accessible A45 / A5001 roundabout – however to achieve this whilst retaining access for all industrial premises the location of access points / suitable connecting roads may make such an option unworkable.

One way vehicle operation – It is possible to deliver a one-way loop – if both County Highways and National Highways are prepared to sanction an increase in vehicle traffic at the A45 / Ditchford Lane exit, and the A45/A5001 roundabout.

This would create sufficient space within the Highway limits on Northampton Road for high quality segregated pedestrian and cycle facilities, but the layout of the A45 / Ditchford Road junction, with only westbound access / exit would be problematic.

Shared provision – LTN 1/20 permits shared footways where pedestrian footfall is low, and along this section may be quite low – and therefore as an option this becomes workable.

Whilst there are numerous industrial buildings served by this section of road, it is very much arterial feeder out to the A45, and no residential areas or school journeys would be impacted.

A consistent 3.0m wide shared footway, with 3.0m wide traffic lanes and 3.0m wide ghost islands (to access Shipton Way and the car sales) can be delivered with an appropriate 1.0m wide buffer.

It is not simple, whilst remaining within highway-controlled land, and requires a significant shift in carriageway alignment – NCC will need to compulsory purchase / negotiate areas of land from adjacent 3rd parties.

Fig 77-80 Northampton Road, Rushden

High numbers of HGV, low numbers of pedestrian movements and limited highway space to play with makes a high-quality shared footway a preferred option.

Wellingborough Road

An LTN 1:20 compliant route along Wellingborough Road is essential to connect the existing section of the East Northants Greenway with the overall scheme.

It is not easy, and although it relies on road space re-allocation this is not excessive.

There are junctions to be remodeled, and an understanding of how single and bidirectional cycle tracks need to connect / flow – but it is far from undeliverable.

Of concern is the level difference between the line of trees along Wellingborough Road and the rear of the grass verge, however this can be resolved with an open-minded approach to engineering solutions – the use of Terramesh as a means of supporting a new footway is significantly cheaper than resorting to a standard brick wall.

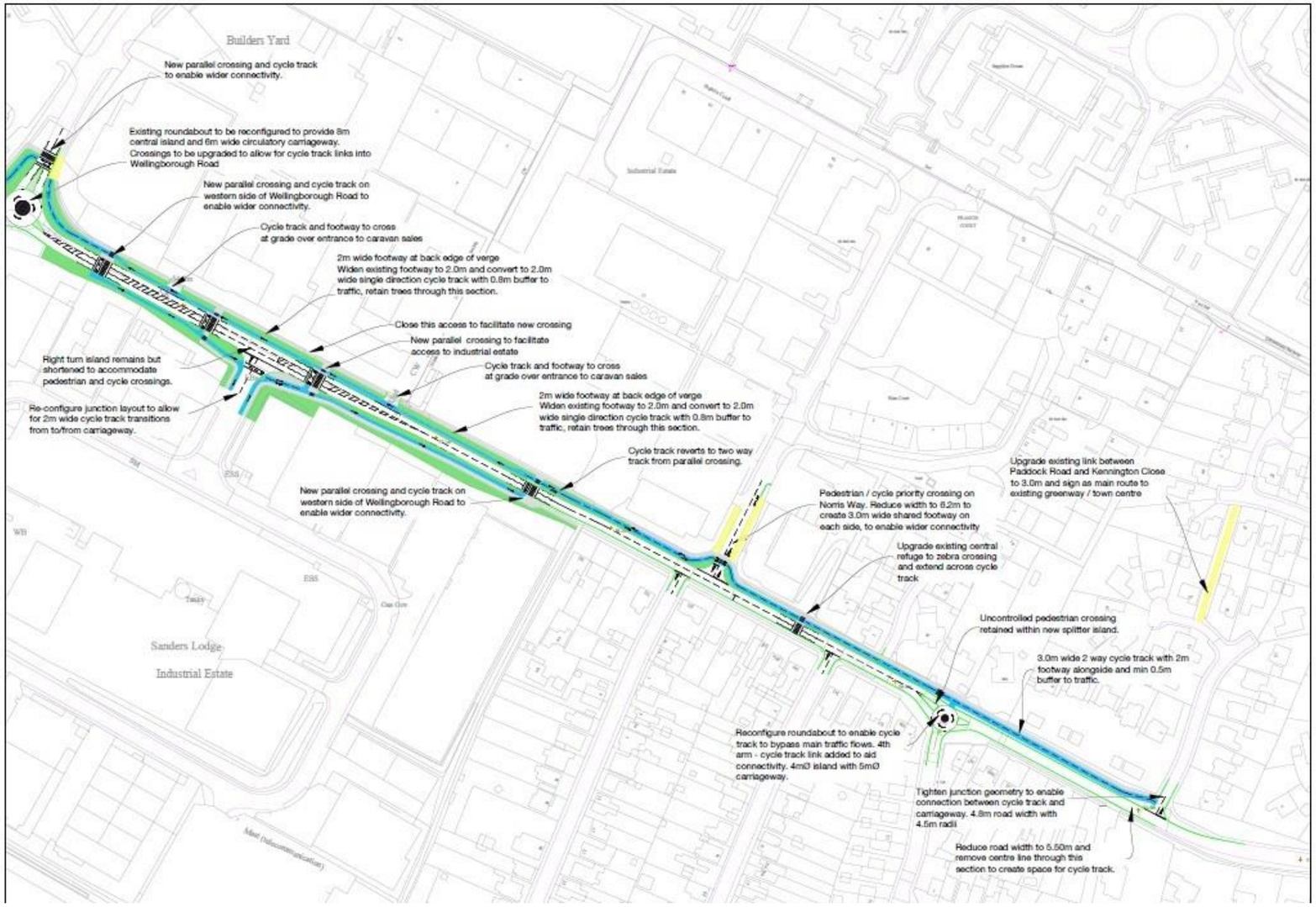


Fig 81 Wellingborough Road, Outline designs for a LTN 1/20 compliant corridor and link to East Northants Greenway.

Fig 82-85 Wellingborough Road, Northampton challenges and opportunity within the existing road layout.

6.5 Wider Wellingborough links

Onward links within Wellingborough need to be LTN 1/20 compliant and this is achievable with the development of the link road to Stanton Cross.

Delivery of this road alignment can have a significant and positive impact on traffic movements into and around Wellingborough.

Locking in changes to Senwick Road, Embankment and Irthlingborough Road at the same time as the construction of the link road will enforce changes to how people move.

This new link road will serve the Leyland Trading Estate meaning that beyond Senwick Road, Irthlingborough Road becomes a dead end serving a limited number of residential properties.

This creates an environment where perhaps traffic flows and speeds are low and slow enough to share the road, or an environment where narrowing carriageways can lead to segregated cycle tracks.

The link road will also enable a connection to Wellingborough station, which will allow for re-working of the current road layouts on Senwick Road and Embankment to reduce through traffic and create an environment that supports the development of high-quality walking and cycling infrastructure.

On Senwick Road, the reduction in traffic flows especially improves the quality of environment (noise / air quality / safer roads) for those living directly on it.

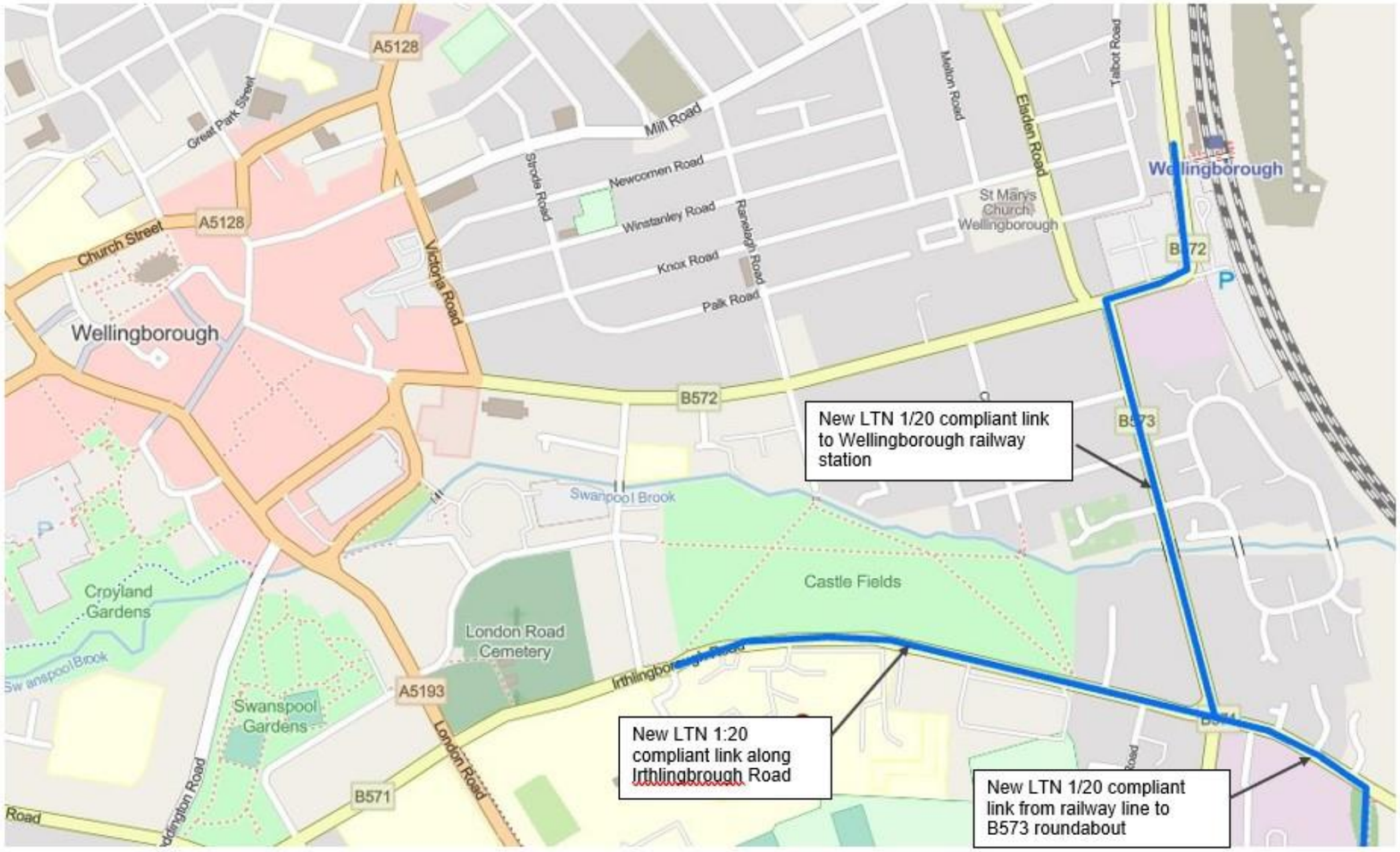


Fig 86 Wellingborough connectivity

On Irthlingborough Road, where partial closure should be explored, the ability to create a high-quality link into and then through Castle Fields not only opens up access to the town centre, but also joining up routes that currently head north via Ranelagh Road can connect Finedon via a series of traffic calmed “Quietway styled” streets.

The timescales for delivery of the link road are therefore fundamental to the creation of the onward link – however this should not mean that development of the improved network should be left until it is opened, rather the changes needed can be developed / refined, the local community engaged, and funding sought for implementation.

The changes are radical, but in line with both LTN 1/20 and with the ambition of many other local authorities – North Northamptonshire Council and the Highways teams can be equally ambitious.

Connecting the greenway project into places where people live and work, or where they need to get to, to make onward journeys is essential to the wider success, and access to

employment / transport is a significant driver for accessing central government funding.

Should the overall development of the greenway become delayed, the section of works within Wellingborough, including the upgrade of the old railway alignment will have a significant, and positive, impact and can be delivered as “standalone” aspects of the project.

6.6 Claudius Way link

The creation of a cycle friendly link between the old railway line and the car park for Chester House Estate, using Claudius Way is the preferred route from Historic England’s perspective – with the creation of cycle parking facilities at the current parking area.

Claudius Way is currently a 30mph road, with low traffic numbers – but crucially a large percentage of vehicle movements are LGV and HGV. This challenges the “safe” and “attractive” basis of high-quality cycle provision and may not lead to any significant increase in cycle traffic.

The current footway provision serves the industrial units of Prologis Park and is therefore located to benefit access to these, rather than as a direct link into Chester House Estate.

There are several concerns to delivering a high-quality link – they can be overcome, but rely on agreement between several parties:

1 -There is a c400m section at the western end where verge space is limited and the presence of crash barriers on the outside of the bend makes installation of a continuous route impractical. Road space reduction is not a viable option.

2- The Scheduled Ancient Monument designation extends to the kerblines of Prologis Way between the estate access road and the access into the fisherman’s car park.

3- Claudius Way does not appear to be listed as part of the Local Authority maintained road network.

4. Ecological designations appear to extend to the edge of Claudius Way in one location.

Claudius Way though is relatively new – constructed since 2005, and any disturbance to the monument site will have already occurred – therefore it is hoped that intrusive and expensive investigations can be avoided.

Fig 88 overleaf identifies the available options and requirements for delivery.

8. Ecological assessment

8.1 Report Overview

8.1.1 Scope and limitations of assessment

The likely ecological constraints for the preferred alignment of the East Northamptonshire Greenway from Wellingborough to Rushden have been assessed and are summarized below. A Preliminary Ecological Appraisal in line with CIEEM (2017) guidelines was undertaken including a walkover survey from publicly accessible land. This was undertaken by Hannah Lewis in May 2022. A significant constraint of the walkover survey was that no access was obtained for the section of the route south of the river. Recommendations have been provided to update this report to include this section and the full works area required including works compounds and storage. As this project is in the feasibility stages and the design has not been finalized this should not be a comprehensive assessment but identifies any major constraints for the proposal and the next stage of survey and assessment required.

8.1.2 Scheme Viability and Risks

The main constraint on route deliverability in this location is the proximity of the path to important bird areas in the Special Protection Area. The path development has potential to increase disturbance to the bird population in this site. Early consultation with Natural England suggests that this will not be a complete barrier to route creation, but further survey and assessment will be required to inform a Habitat Regulations Assessment. Measures to reduce and offset the additional access will be necessary, this may include screening and restricting access to other parts of the SPA to create disturbance-free zones.

8.2 Ecological Baseline

8.2.1 Designated nature conservation sites

The preferred alignment is situated within the Upper Nene Valley Gravel Pits Special Area of Protection (SPA), Ramsar site and Site of Special Scientific Interest (SSSI) and three locally designated sites. It is also situated within 10m of another locally designated site. No other sites with statutory designations were identified within the search area. A further fourteen locally designated sites were identified within 1km of the proposed route.

8.2.2 Habitats

The disused railway embankment at the west of the route comprised broadleaved woodland and scrub. Most of the route through the lakes was situated on a short-mown grassland path through less intensively managed neutral grassland. The route crosses the River Nene and side channels which supported marginal and emergent vegetation. The section of the route south of the River Nene has not been accessed for close inspection but follows an existing track through an arable field.

8.2.3 Species and Statutory Controls

Badger setts were recorded near the proposed alignment. Suitable habitat was noted for great crested newts, nesting birds (including skylark and kingfisher), white-clawed crayfish, bats, otter, water vole and reptiles. Two invasive species, Himalayan balsam and water fern were both recorded on site.

8.2.4 Species and Notable Assemblages

The habitats summarised above had potential to support species of principal importance including toad, hedgehog, harvest mouse, brown hare and a range of invertebrate species, primarily moths.

8.3 Anticipated Impacts

8.3.1 Designated Nature Conservation sites

The proposal will lead to increased recreational and commuter activity along the preferred alignment which is adjacent to lakes and grassland within the SPA and through an area understood to be a compensation area for damage to the SPA from a nearby development. Without appropriate mitigation, this could result in a significant negative impact of the proposal on the SPA and would not be permitted by Natural England. The proposal is unlikely to impact the breeding bird population or habitats for which the SSSI is designated, although any work within the SSSI will require NE consent. Minor habitat loss is anticipated in the Local Wildlife Sites through which the route is situated. Opportunities for habitat improvement works in these LWS and PWS have been identified as compensation and for a biodiversity net gain scheme.

8.3.2 Habitats

The proposal will result in the loss of woodland/scrub habitat on the railway embankment including the loss of some mature trees. It will also result in the loss of neutral grassland to build the new bridge over the Nene. Elsewhere most of the habitat loss will be short mown modified grassland along the existing track. Disturbance to the verges of the track may be anticipated during construction, but it is anticipated that this habitat will re-establish. A new hedgerow is proposed to create screening.

8.3.3 Species with Statutory Controls

Depending on the detailed design, impacts that would contravene current legislation (killing, injury and/or disturbance to resting places) could be anticipated for great crested newts, white clawed crayfish, nesting birds, badgers, bats, otter, water vole and reptiles if these

species are present. Further survey and/or avoidance or mitigation measures will be required in relation to these species. If not properly controlled, the work has potential to spread two invasive non-native species within and beyond this site. This can be readily avoided through good biosecurity measures during construction.

8.3.4 Species and Notable Assemblages

No significant impact to populations of species of principal importance have been identified although the works have potential to kill/injure individuals of such as toad, hedgehog and harvest mouse.

8.4 Recommendations

8.4.1 Further survey, assessment and consultation to ensure compliance with statutory legislation.

A Habitat Regulations Assessment will be required to determine the level of impact on the SPA. Where insufficient data exists to support this assessment, two years wintering bird surveys will be required to inform this assessment. Continued consultation with Natural England is recommended as their consent will be required for any development in the SSSI and in and around the SPA. The PEA must also be updated to include all works areas to assess potential risks to species with statutory controls. Further surveys will be required in relation to badgers and water voles.

Surveys for bat roosts and white-clawed crayfish may be required dependent on the detailed design. Updated surveys of invasive weed species will be required to inform the CEMP. Given the high ecological significance of this proposal, these elements should be tied together in a full Ecological Impact Assessment including a Biodiversity Net Gain scheme.

8.4.2 Further survey, assessment and consultation to ensure compliance with planning policies.

Consultation with planning ecologists is recommended at an early stage to ensure all required issues are addressed and the need for a full Environmental Impact Assessment determined. In order to fully characterise impacts, inform design and enable a biodiversity net gain calculation to be undertaken.

- Assessment and consultation with the Local Authority to characterise impacts on locally designated sites and identify opportunities for compensation and enhancement measures.
- An Arboricultural Impact Assessment (compliant with BS5837) underpinned by a full topographical survey will be required to inform final designs for the route on the disused railway embankment.

The provisional biodiversity unit calculation should be updated for the detailed design based on updated habitat condition assessments. A compensation/offsetting scheme will need to be developed to provide the appropriate level of biodiversity net gain.

8.4.3 Additional considerations for detailed design

Detailed design should.

- Include all avoidance and mitigation measures identified in further studies.
- Minimise habitat loss, particularly of important habitats.
- Maintain a minimum of 5m buffer from lake and riverbanks wherever feasible to protect water vole, white-clawed crayfish and reduce disturbance to species using marginal vegetation.
- Avoid lighting and design any fences to allow free passage of wildlife.

Include biodiversity enhancements as agreed with the local authority.

8.4.4 Licences which may be required.

If impacts cannot be avoided, licences may be required for work relating to bats, otters, water voles and badgers. This project is currently within a great crested newt district level licensing scheme although a site-specific licence can be obtained.

8.4.5 Construction and Environmental Management Plan (CEMP)

A CEMP must be prepared that includes all species and habitat protection measures as identified in Section 4.5 of this report and in further species survey reports. It must also contain construction control measures to minimise the spread of invasive species.

8.4.6 Landscape and Ecological Management Plan (LEMP)

A LEMP should be produced to protect and enhance habitats and populations in the long term (for at least 30 years). This must include measures identified in Section 4.5 of this report and detailed information on the funding and responsibilities for implementation to ensure compliance.

9. Community engagement

Feasibility reports should not seek to undertake community engagement unless specified by the Client.

9.1 Evidence of Support

The proposed development of the route is being led by North Northamptonshire Council but is already engaging several external organisations as well as internal staff and elected members.

All parties understand that delivery of this route is challenging, and several “significant organisations” need to be bought together and various constraints unpicked.

External organisations involved in discussions to date include:

- Historic England
- Natural England
- Environment Agency
- Network Rail
- National Highways
- Nenescape Partnership.

Question	Yes / No	Where	Comments
Does the route pass close to property or are they likely to be overlooked	Yes	Irthlignborough Road and Senwick Road	Visual impact from Chester House Estate needs to be considered. Impact on properties within Wellingborough and Rushden
Does the route pass through a sensitive nature site?	Yes	Along much of the length	Refer to the ecological section for detailed information. PEA essential. Biodiversity element of new planning regulations will add considerable cost unless the improvement of the railway route can be tailored to mitigate.
Does the route follow a footpath that we might want to upgrade?	Yes	Existing PRoW between Embankment and River Nene viaduct	A new route would divert the existing RoW onto it to avoid increasing ecological disturbance. Will need to engage local rambling groups to avoid need for public inquiry.
Do we need to convert a current footway to a better level of provision?	Yes	Between the railway alignments at Wellingborough and NE of the existing viaduct.	The current PRoW along the north bank of the River Nene is largely inaccessible and the creation of a new RoW, (Bridleway) will enable greater use. The RoW will need to be upgraded to permit legal use by cycle traffic
Do we need to convert a public footpath to legally permit cycle use?	No		The existing RoW would be re-defined as a Bridleway on a new alignment
Do we need to use private land?	Possible	River Nene valley and on links to Rushden	
Are we likely to spoil the aesthetics of a well-loved beauty spot?	Possible	Castlefields Park, Wellingborough	Access to open space should be regarded as beneficial, even where the overall route alignment is to occupy a narrow slither between protected areas. Castlefields Park can potentially unlock an expanded cycle network that ultimately links this scheme with residential and employment areas elsewhere in the town.
Does the route pass through floodplain?	Yes		Nene Valley, construction specification to be robust enough to survive flood events Risk of environmental damage from flooding during construction period / location of site access / compound in flood plain needs to be thought through.

9.2 Audit of Engagement Risk

Development of any new route is likely to generate support from the people that want to use it, but also concerns and perhaps vocal “anti” voices – especially from impacted landowners or adjacent property owners.

The greenway and the changes to the urban areas are beneficial to all and should not be regarded simply as a way of encouraging cycling.

There are significant benefits for mental health (access to open spaces / physical exercise); respite care or improved experiences for parents with disabled children, changes to air quality from reduced traffic flows, access to employment opportunities for those that cannot drive or cannot afford to run a car.

Fig 94 Engagement Risk

9.3 Audit of Engagement Opportunity

There are likely to be many ways in which the public can become engaged is this project.

Public Engagement can be a challenge, and when done right can be hugely beneficial in generating a ground swell of positive noise about a project.

The 3rd party landowners are they key to this project, without them there is limited scope for development of the whole route.

9.4 Engagement Plan

Successful engagement will be determined by how each set of Stakeholders are approached. Visual interpretation of design ideals will be easier understood by “nontechnical” minded people.

No two sets of engagement are going to be the same, dealing with residents may have similarity but there are several businesses who will need to be considered, and ensuring that there operations are not compromised will be essential.

Private landowners are also likely to be skeptical – especially where it is not obvious what the benefit is to them. There is no generic solution, each landowner will have their own set of concerns, but with thought and good design practice concerns such as “illegal access” can be overcome.

The development of the greenway, and the routes into Wellingborough and Rushden should be regarded as an opportunity to benefit both communities, and engaging around the whole of the

project, rather than focusing one section at a time will help to garner wider support.

Political support, both at a national and local level is essential – but when the time comes for difficult decisions – especially around re-allocation of road space – then there must be full understanding of what ultimately the changes can deliver and see these phases as part of the much bigger picture.

Question	Yes / No	Where	Comments
Does the route pass close to a school?	No		
Does the route pass close to employment areas?	Yes	Prologis Park, Wellingborough hospital, Rushden Lakes shopping village	Railway alignment will link to Prologis Park, LTN 1/20 compliant schemes to link to Wellingborough hospital and railway station, new routes into Rushden
Is there greenspace alongside the route that could be improved with tree planting or play equipment?	Possible	Creation of linear park would add interest.	The proposed alignment will require screening within the SPA/ RAMSAR site – details to be agreed with Natural England
Does the route open links that improves the current Right of Way network for walkers or equestrian users?	Yes	Along the length of the route	The current PRoW along the north bank of the River Nene is largely inaccessible and the creation of a new RoW, (Bridleway) will enable greater use. The RoW will need to be upgraded to permit legal use by cycle traffic
Do we need to convert a current footway to a better level of provision?	Yes	Between the railway alignments at Wellingborough and NE of the existing viaduct.	
Do we need to convert a public footpath to legally permit cycle use?	Yes	The riverside path between the Embankment and River Nene viaduct	The existing RoW would be re-defined as a Bridleway on a new alignment
Do we need to use private land?	Yes	The riverside path between the Embankment and River Nene viaduct Potential links into Rushden	
Are we likely to spoil the aesthetics of a well-loved beauty spot?	No		

Fig 95 Engagement Opportunity

10. Key stakeholder engagement

The following organisations have been identified as Key Stakeholders to develop the route options. The list is far from exhaustive and individual businesses have not been named except for where there are key land or access concerns.

The next stage is engaging with the community and residents of North Northants.

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Stakeholder	Requirement
North Northamptonshire Council	Full engagement to establish planning consents, Highways agreements and to enable construction
National Highways	Full engagement especially over links into Rushden
Natural England	Full engagement, River Nene corridor and licensing for works
Historic England	Full engagement, especially for works associated with the visual impact on Chester House
Environment Agency	Full engagement for works within the floodplain and for construction of a new bridge over the River Nene
Network Rail	Full engagement for works in/around the railway viaduct and the link to Ditchford Road and at Wellingborough station
Cambridge University	Full engagement for the section of land W of Ditchford Road
Crown Estates	Full engagement for the section of land E of Ditchford Road
Rushden Lakes	Full engagement for the section of lane E of Ditchford Road
CADENT GAS	Full engagement where there is an impact on infrastructure (Irthlingborough Road. River Nene bridge, Ditchford Road)
Prologis	Full engagement where there is an impact on access to Claudius Way
Wellingborough Town Council	Full engagement for works within Wellingborough
Rushden Town Council	Full engagement for works within Rushden
Local Parish Councils	Full engagement with all local Parish Councils along the new route
Nenescape	Full engagement for works along the River Nene valley
Ramblers Association	PRoW and creation of new routes / realignment of existing
British Horse Society	PRoW and creation of new routes / realignment of existing
Vistry Homes	Landowner
Northamptonshire Local Access Forum	
Wellingborough Rail User Group	Full engagement for works in/around Wellingborough station
Royal Mail	Full engagement for works in/around Wellingborough station
Northamptonshire Healthcare FT	Full engagement for works in/around Isebrook Hospital – general engagement over greenway / access to open space

Fig 96 Key Stakeholders

11. Pre-app discussion results

A pre-app discussion should be undertaken with the relevant local Authority to understand the issues that might come with an application and to inform the levels of work likely to be needed at the Detailed Design stage.

Discussion overview

No formal pre-app discussion has been had with North Northamptonshire Council planners, although they have very much been engaged in previous discussions.

The development of the scheme will need to consider whether / how works can be phased, and which external stakeholders need to have created involvement at discussion stage.

The long linear nature of the route and the requirement for a new river bridge makes splitting the scheme into multiple phases a challenge.

Historic England

Discussions with Historic England have been largely positive – they remain very supportive overall but need to protect not just the Roman remains, but also how Chester House Estate (Grade 2 listed) sits within the landscape.

Key indicators include:

Path must blend with the landscape – they accept that a sealed surface construction is necessary, but request that it is top dressed in a local stone.

Screening of the path – to partially obscure the path from the elevated viewpoint of Chester House, using hedge row planting, grassland mowing maintenance.

Cycle parking – permissible within the footprint of the new structure, however accessing from the path would be problematic, locating several simple hoops (Sheffield stands) adjacent to the path and screening as path of the path screening may be preferable.

Main signed access – would be via Claudius Way and new cycle parking facilities within the car parking area. To achieve this the already small car park would be compromised and therefore a new area adjacent to the car park would be deliverable.

Scheduled Ancient Monument consent – would not necessarily apply to the path on the north side of the River Nene. Any new link along Claudius Way (large % HGV traffic will require segregated facilities) and the new cycle parking area would fall within the area covered by the SAM and consent would be needed.

Natural England

Discussions with Natural England have been largely positive – they remain supportive overall but need to protect the integrity of the Special Protected Area.

Key indicators include:

Path must be screened from wildfowl – they are particularly concerned with general pedestrian and dog walkers rather than cycle traffic. Wildfowl recognize the movement of legs as predatory and therefore screening of the path from the lakes and foraging grassland is essential.

Public access away from the path – currently although there are no formal paths, the public has access widely around the lakes. The screening of the path – especially the winter foraging areas – must remove public access. Access for Network Rail (to maintain railway infrastructure) and Cadent (to maintain gas main) would be permitted, but access limited to a gated approach using the existing rough track already in existence.

Areas of concern

Planning Consent is going to be necessary for any phase of this project.

The following areas are going to need to be considered and documentation produced to cover:

Flood Risk Assessment – the route will need to ensure that it does not create additional flooding issues. This route should be regarded as “water compatible” development.

Surface water runoff from the section path along the disused railway alignments at each end of the overall greenway alignment will be absorbed into the retained vegetation areas adjacent to the new path and are unlikely to present a significant impact.

QBar rates of between 0.5 and 1 would be anticipated – based on experience of developing railway corridors elsewhere.

A similar approach and QBar figure would be expected from the riverside path – any immediate surface water run off would be intercepted by existing vegetation before it reaches the river channel – and therefore immediate impacts would be minimal.

The riverside element would be more susceptible to flood events and path closure, and this may be of bigger concern. Any development within the river valley will need to be approved by the Lead Local Flood Authority (LLFA) which is North Northamptonshire Council

Construction Management Plan – This will need to highlight / document just how the route would be built, phasing, construction accesses etc. It will need to be a live document for the lifetime of the project and can be updated depending on how work / sections are phased.

Ecology ECEMP and Action Plan – Given that this is an ecologically sensitive and complex site this will require a complete suite of documents to deal with the implications of development, Specific species will require set licences. These will need to be agreed and signed off by Natural England rather than the local planning authority.

Highway and Highway work – Any works within the public highway, such as the changes to the road layouts in Wellingborough and Rushden will need to be designed to meet NCC Highways requirements whilst retaining the design criteria required under the DfT’s LTN1:20 requirements for new cycle infrastructure.

These shouldn’t present a problem – the solutions required are now not new to the UK road network, however the changes are quite

substantial, and will require a level of consensus to achieve the overall benefits.

The works being undertaken to enable access to Rushden lakes will need to be managed so that the proposed new junction layout on Ditchford Road does not compromise the ability of the new route from the west to connect in a safe and coherent manner.

The works associated with the A45/Ditchford Road junction only go so far, and further conversations with National Highways will be necessary to overcome the barrier created by the A45.

Public Rights of Way – Upgrading existing RoW from Public Footpath to Bridleway is most probably going to be supported by the British Horse Society but may face challenges from other competing organisations such as the Ramblers Association.

Any changes to the RoW network will also need to be agreed / approved by NNC Rights of Way officers, and therefore once a definitive alignment is agreed conversations with all parties, including landowners will help to shape delivery that works for everyone. The overriding design standard would still be LTN 1/20 – this standard from the DfT is what funding is secured against.

12. Cost estimates

The costing tables in this section have been complied to reflect the delivery of the project as a series of mini projects, however in reality the section between Wellingborough Embankment and Ditchford Road will need to be delivered as a single, and expensive, item.

With many timeframes limited to Financial Year spend profiles this at least highlights the amount of expenditure necessary to deliver the project in more able stages.

In 2022 there are several factors that are creating a squeeze on construction costs. The ongoing development of HS2 is forcing the local supply of Type1 stone, concrete and steel in ever increasing prices, and the 2022 red diesel tax to be introduced in April adds c£1.50 per Tonne to bitumen costs – and this + steel is also more exposed to increasing energy costs.

The information contained in this section gives a low unit cost and a high unit cost. For the greenway element these are taken from Sustrans 2021 Tender costs for the Lias Line project (the conversion of the old railway between Long Itchington and Leamington) which is currently under construction. For the one road sections, within Rushden and Wellingborough, a best judgement for the delivery of segregated cycle tracks is used depending upon the complexity of the network, but with a reference back to DfT reports with regards to the delivery of these route types (although DfT data is now c5 years old)

Items such as Biodiversity Net Gain are new and now a part of the planning process. The costs associated with this are “habitat specific” as well as “damage” and “offsetting” and

Item	*Item description*	*Unit*	*Low cost per m*	*High cost per m*	*Quantity*	*Low total cost*	*High total cost*	*Notes*
1	**Railway line upgrade Irthlingborough Road to River Nene embankment**	**Lin m**	**£1233**	**£2075**	**450m**	**£555,000**	**£934,000**	
2	**Railway embankment to River Ise bridges**	**Lin m**	**£817**	**£1388**	**520m**	**£425,000**	**£722,000**	
3	**Replacement bridges River Ise / boardwalk**	**Lin m**	£7200	£22,500	40m	£288,000	£902,000	Elevated high cost due to location / nature of works and market forces on steel price
4	**Riverside path River Ise bridges to new River Nene bridge / Nene viaduct**	**Lin m**	£698	£1037	1060m	£740,000	£1,100m	
5	**River Nene bridge and reworked river cliff on south side**	**Lin m**	£2823	£6449	160m	£903,625	£2,063m	Elevated high cost due to location / nature of works and market forces on steel price
6	**Reconfigured and upgraded railway formation to Ditchford Road, Ditchford Road crossing.**	**Lin m**	£1053	£2553	940m	£990,000	£2,400m	Elevated high cost due to market forces on concrete and steelwork and nature of vehicle movements needed to be considered on this section.
7	**Road improvements within Wellingborough to LTN 1:20 COMPLIANCE.**	**Lin m**	£1776	£2589	1600m	£2.842m	£4.143m	All on road / within Highway Booundary
8	**Road improvements within Rushden to LTN 1:20 compliance**	**Lin m**	£1578	£2727	1220m	£1.926m	£3.328m	All on road / within Highway Boundary
9	**Segregated cycle track Claudius Way and link to Chester House Estate**	**Lin m**	£2330	£3966	800m	£1.864m	£3.173m	
	Grand total				*6790m*	*£10.53m*	*£18.76m*	

Fig 97 Headline Costs

therefore the figures included in the following tables are subject to fluctuation. Riverside Biodiversity Net Gain calculations and impacts are significantly more complicated than other habitats and specialist advice will need to be sought.

Figure 85 above contains the headline figures for each section, with the cumulative total to construct the whole route indicated.

To go from “line on plan” to “people walking / riding” and without the links into both Wellingborough and Rushden the greenway element is likely to cost between £5.7-£11m.

The links into both towns, and the wider connectivity beyond even the scope outlined in this project, are essential and have not previously been included within the scope of the project – yet without these links the greenway itself remains largely inaccessible to residents / employers within the Communities.

User numbers may remain low, or indeed people “drive to use the greenway” – creating other- perhaps unforeseen – concerns over parking / additional road traffic.

This is not a cheap greenway to deliver financially – but get it right and a significant investment can become a successful and valuable part of the districts transport network.

Wellingborough Embankment and connection to Irthlingborough Road

Item	*Item description*	*Unit*	*Low cost per unit*	*High cost per unit*	*Quantity*	*Low total cost*	*High total cost*	*Notes*
1	**Vegetation and site clearance**	**Lin m**	**£100**	**£200**	**450m**	**£45,000**	**£90,000**	Will need significant engagement with arboricultural team, ecology and adjacent l/o. Our experiences suggest that clearance from top of embankment to top of embankment enable better engineering understanding.
2	**Construction of new sealed surface path 3.0m wide without timber or concrete edgings**	**Lin m**	**£200**	**£300**	**450m**	**£90,000**	**£135,000**	**Cost per l/m taken from current Sustrans / DfT schemes**
3	**Creation of new access ramp link onto Irthlingborough Road. Imported materials and reshape of existing embankment**	**Item**			1	£50,000	£100,000	Estimated figure based largely on ability to re-work some of the existing earthworks. Made, or contaminated ground within the current embankment would need to be discounted.
4	**Demolition and removal of the remaining southern abutment**	Item			1	£20,000	£25,000	Not sure – more finger in air, will need to consider traffic management costs. Material could be re-used as part of the fill / re-work for a new ramp rather than remove from site.
5	***Protection / diversion works to CADENT High-Pressure gas main***	*Item*	*£10000*	*£50,000*	*1*	*£10,000*	*£50,000*	*Exact line and level to be ascertained. May be avoidable with alternative construction methods.*
	Subtotal				*450m*	*£235,000*	*£395,000*	
	Ancillary Items	*10%*				*£23,500*	*£39,500*	*Benches / signing / information panels*
	Works total					*£258,500*	*£434,500*	
	Design & Preparation	*10%*				*£25,850*	*£43,450*	
	Contractors Prelims	*15%*				*£38,775*	*£65,175*	
	Contractors Profit	*15%*				*£38,775*	*£65,175*	
	Optimism Bias	*40%*				*£103,400*	*£173,800*	
	Traffic Management	*10%*				*£25,850*	*£43,450*	
	Inflation	*5%*				*£12,925*	*£21,725*	
	VAT	*20%*				*£51,700*	*£86,900*	
	Grand total					*£555,775*	***£934,175***	

Fig 98 Wellingborough Embankment headline

Wellingborough Embankment ramp connection to floodplain and path link to River Ise bridge

Item	*Item description*	*Unit*	*Low cost per unit*	*High cost per unit*	*Quantity*	*Low total cost*	*High total cost*	*Notes*
1	**Vegetation and site clearance**	**Lin m**	**£50**	**£100**	**520m**	**£26,000**	**£52,000**	Will need significant engagement with ecology team as to what can be cleared around the work area. May need more clearance around the locks and on the side of the railway embankment to facilitate the ramp.
2	**Construction of new sealed surface path 3.0m wide without timber or concrete edgings**	**Lin m**	**£200**	**£300**	**520m**	**£104,000**	**£156,000**	**Cost per l/m taken from current Sustrans / DfT schemes, also dependent upon whether there are implications for EA access to service lock.**
3	**Creation of new access ramp link onto floodplain from railway Imported materials and reshape of existing embankment**	**Item**			1	£50,000	£100,000	Estimated figure based largely on ability to re-work some of the existing earthworks. Made, or contaminated ground within the current embankment would need to be discounted.
	Subtotal				*520m*	*£180,000*	*£308,000*	
	Ancillary Items	*10%*				*£18,000*	*£30,000*	*Benches / signing / information panels / promotion*
	Works total					*£198,000*	*£336,000*	
	Design & Preparation	*10%*				*£19,800*	*£33,600*	
	Contractors Prelims	*15%*				*£29,700*	*£50,400*	
	Contractors Profit	*15%*				*£29,700*	*£50,400*	
	Optimism Bias	*40%*				*£79,200*	*£134,400*	
	Traffic Management	*10%*				*£19,800*	*£33,600*	
	Inflation	*5%*				*£9,900*	*£16,800*	
	VAT	*20%*				*£39,600*	*£67,200*	
	Grand total					*£425,700*	*£722,000*	

Fig 99 Riverside path cost to River Ise bridge

New River Ise bridge

Item	Item description	Unit	Low cost per unit	High cost per unit	Quantity	Low total cost	High total cost	Notes
1	Vegetation and site clearance	Lin m	£250	£500	150m	£37,500	£75,000	Will need significant engagement with ecology team as to what can be cleared around the work area. May need to factor in clearance around moving water and CDM concerns
2	Construction of new 4m wide structure	Lin m	£2000	£5000	40m	£80,000	£200,000	**Cost per l/m taken may be determined by over design, availability of materials / market forces and whether specific ecological mitigation works are necessary.**
3	Ground Investigation works	Item			1	£10,000	£25,000	Estimated figure largely depending on what is required at outline design stage.
4	Ecological mitigation works	Item			1	£10,000	£100,000	Allowance based on a limited impact or something that needs to offset habitat creation,
	Subtotal					*£137,500*	*£400,000*	
	Ancillary Items	*10%*				*£3,437*	*£40,000*	*Benches / signing / information panels / promotion*
	Works total					*£140,937*	*£440,000*	
	Design & Preparation	*10%*				*£14,093*	*£44,000*	
	Contractors Prelims	*15%*				*£21,140*	*£66,000*	
	Contractors Profit	*15%*				*£21,140*	*£66,000*	
	Optimism Bias	*40%*				*£56,374*	*£176,000*	
	Traffic Management	*10%*				*£0*	*£0*	
	Inflation	*5%*				*£7,046*	*£22,000*	
	VAT	*20%*				*£28,187*	*£88,000*	
	Grand total					*£288,917*	*£902,000*	

Fig 100 River Ise bridge costs

New path link between River Ise bridge and River Nene viaduct

Item	*Item description*	*Unit*	*Low cost per unit*	*High cost per unit*	*Quantity*	*Low total cost*	*High total cost*	*Notes*
1	**Vegetation and site clearance**	**Lin m**	**£50**	**£100**	**1060m**	**£53,000**	**£106,000**	Will need significant engagement with ecology team as to what can be cleared around the work area. May need to factor in clearance around moving water and CDM concerns
2	**Construction of new 3m wide path between River Ise bridges and area of most visual intrusion to Chester House Estate**	**Lin m**	**£200**	**£300**	**325m**	**£65,000**	**£97,500**	**Site access for construction will need to be given consideration to ensure that minimal damage is done to the environment and ecological factors may determine most practical alignment**
3	**Construction of new 3m wide path in bonded gravel across Chester House Estate frontage**	**Item**	£300	£400	475m	£142,500	£190,000	Bonded gravel or similar surface such as Natratex
4	**Construction of new 3m wide path between Chester House Estate and new River Nene bridge NE of current viaduct**	**Item**	£200	£300	260m	£52,000	£78,000	
	Subtotal				*1060m*	*£312,500*	*£471,500*	
	Ancillary Items	*10%*				*£31,250*	*£47,150*	*Benches / signing / information panels / promotion*
	Works total					*£343,750*	*£518,650*	
	Design & Preparation	*10%*				*£34,375*	*£51,865*	
	Contractors Prelims	*15%*				*£51,562*	*£77,797*	
	Contractors Profit	*15%*				*£51,562*	*£77,797*	
	Optimism Bias	*40%*				*£137,500*	*£207,460*	
	Traffic Management	*10%*				*£34,375*	*£51,865*	
	Inflation	*5%*				*£17,187*	*£25,932*	
	VAT	*20%*				*£68,750*	*£103,730*	
	Grand total					*£739,061*	*£1,115,096*	

Fig 101 River Ise bridge to River Nene viaduct costs

New bridge over River Nene and re-worked river cliff path

Item	*Item description*	*Unit*	*Low cost per unit*	*High cost per unit*	*Quantity*	*Low total cost*	*High total cost*	*Notes*
1	Vegetation and site clearance	Lin m	£50	£100	150m	£53,000	£106,000	Will need significant engagement with ecology team as to what can be cleared around the work area. May need to factor in clearance around moving water and CDM concerns
2	Construction of new bridge across the River Nene with bridge included as part of the general changes in level between river side path and river cliff	Lin m	£3000	£5000	60m	£180,000	£300,000	**Site access for construction will need to be given consideration to ensure that minimal damage is done to the environment and ecological factors may determine most practical alignment**
3	**Construction of new 4m wide path ramp link from new bridge to old railway formation on the rive cliff**	Lin m	£500	£1000	100m	£142,500	£190,000	Bonded gravel or similar surface such as Natratex
4	**Protection / diversion of HP gas main during works**	Item			1	£10,000	£250,000	Unknown – depth and actual alignment information needed from Cadent
5	**BAPA from Network Rail to enable protection of railway viaduct**	Item			1	£25,000	£100,000	Unknown – dependant on Network Rail and their requirements to delivering the structure.
	Subtotal				*160m*	*£410,500*	*£946,000*	
	Ancillary Items	*c2.5%*				*£10,000*	*£23,650*	*Benches / signing / information panels / promotion*
	Works total					*£420,500*	*£969,650*	
	Design & Preparation	*10%*				*£42,050*	*£96,965*	
	Contractors Prelims	*15%*				*£63,075*	*£145,447*	
	Contractors Profit	*15%*				*£63,075*	*£145,447*	
	Optimism Bias	*40%*				*£168,200*	*£387,860*	
	Traffic Management	*10%*				*£42,050*	*£96,965*	
	Inflation	*5%*				*£21,025*	*£48,482*	
	VAT	*20%*				*£84,100*	*£193,930*	
	Grand total					*£903,625*	*£2,063,946*	

Fig 102 River Nene bridge costs

New path between River Nene and Ditchford Road

Item	*Item description*	*Unit*	*Low cost per unit*	*High cost per unit*	*Quantity*	*Low total cost*	*High total cost*	*Notes*
1	**Vegetation and site clearance**	**Lin m**	**£50**	**£100**	**940m**	**£47,000**	**£94,000**	Will need significant engagement with ecology team as to what can be cleared around the work area. May need to factor in clearance around moving water and CDM concerns
2	**Construction of new 4m wide reinforced concrete path 250mm thick to accommodate farm traffic / network rail access as well as cycle route**	**Lin m**	**£300**	**£750**	**940m**	**£282,000**	**£705,000**	**Supply / demand of concrete and steel is being disproportionately impacted upon by HS2 and market forces are volatile. High cost is possibly too high but would rather over estimate at this stage.**
3	**Junction improvements at Ditchford Lane to accommodate safe crossing for pedestrian and cycle traffic into Rushden Lakes extension**	**Item**			1	£100,000	£250,000	Depending upon what requirements are for Rushden Lakes and National Highways A45 junction improvements this may need to be a signalised junction
4	**Protection / diversion of HP gas main during works**	**Item**			1	£10,000	£25,000	Unknown – depth and actual alignment information needed from Cadent
5	**BAPA from Network Rail to enable protection of the access track**	**Item**			1	£10,000	£20,000	Unknown – dependant on Network Rail and their requirements to upgrade the access track
	Subtotal				*940m*	*£449,000*	*£1,094,000*	
	Ancillary Items	*2.5%*				*£11,225*	*£27,350*	*Benches / signing / information panels / promotion*
	Works total					*£460,225*	*£1,121,350*	
	Design & Preparation	*10%*				*£46,022*	*£112,135*	
	Contractors Prelims	*15%*				*£69,033*	*£168,202*	
	Contractors Profit	*15%*				*£69,033*	*£168,202*	
	Optimism Bias	*40%*				*£184,088*	*£448,540*	
	Traffic Management	*10%*				*£46,022*	*£112,135*	
	Inflation	*5%*				*£23,011*	*£56,067*	
	VAT	*20%*				*£92,044*	*£224,270*	
	Grand total					*£989,478*	*£2,410,901*	

Fig 103 Railway line upgrade to Ditchford Lane costs

New LTN 1:20 compliant network Wellingborough

Item	Item description	Unit	Low cost per unit	High cost per unit	Quantity	Low total cost	High total cost	Notes
1	**Modification of traffic signals junctions at railway station and Midland Road / Senwick Road to accommodate segregated cycle infrastructure**	**Item**	**£100,000**	**£200,000**	**2**	**£200,000**	**£400,000**	
2	**Split level cycle tracks Senwick Road, associated junction changes and various modal filtering requirements**	**l/m**	**£1000**	**£1500**	**500m**	**£500,000**	**£750,000**	
3	**Segregated cycle tracks Irthlingborough Road between Senwick Road and hospital**	**l/m**	£1000	£1500	400	£400,000	£600,000	Segregated cycle tracks to extend as far as hospital entrance.
4	**New 3.0m wide segregated cycle tracks Castlefieds Park to link to town centre and beyond**	**l/m**	£200	£300	700	£140,000	£210,000	New cycle tracks parallel to existing path network, upgraded and resurface pedestrian paths.
5	**Junction works Irthlingborough Road / Embankment**	**Item**	£50,000	£100,000	1	£50,000	£100,000	
	Subtotal				*940m*	*£1,290,000*	*£2,060,000*	
	Ancillary Items	*2.5%*				*£32,250*	*£51,500*	*Benches / signing / information panels / promotion*
	Works total					*£1,322,250*	*£2,111,500*	
	Design & Preparation	*10%*				*£132,225*	*£211,150*	
	Contractors Prelims	*15%*				*£198,337*	*£316,725*	
	Contractors Profit	*15%*				*£198,337*	*£316,725*	
	Optimism Bias	*40%*				*£528,900*	*£448,540*	
	Traffic Management	*10%*				*£132,225*	*£211,150*	
	Inflation	*5%*				*£66,112*	*£105,575*	
	VAT	*20%*				*£264,450*	*£422,300*	
	Grand total					*£2,842,836*	*£4,143,665*	

Fig 104 LTN 1/20 compliant network in Wellingborough

New LTN 1:20 compliant network Rushden

Item	Item description	Unit	Low cost per unit	High cost per unit	Quantity	Low total cost	High total cost	Notes
1	**Modification of Northampton Road to enable 3m wide shared footway**	**l/m**	**£500**	**£1500**	**520m**	**£260,000**	**£780,000**	Road layout could be re-configured to 1 way vehicle working IF National Highways reconfigure Ditchford Road /A45 junction
2	**Modifications to Northampton Road / Wellingborough Road roundabout**	**item**	**£150,000**	**£250,000**	**1**	**£250,000**	**£250,000**	
3	**Modifications to Wellingborough Road to create link to East Northants Greenway link ton Rushden Town Centre**	**l/m**	£1000	£1500	700	£700,000	£1,050,000	Mix of single and bi directional cycle track, serves adjacent industrial estate as well as key link to greenway.
	Subtotal				*1220m*	*£1,210,000*	*£2,080,000*	
	Ancillary Items	*2.5%*				*£30,250*	*£52,000*	*Benches / signing / information panels / promotion*
	Works total					*£1,240,250*	*£2,132,000*	
	Design & Preparation	*10%*				*£60,500*	*£104,000*	
	Contractors Prelims	*15%*				*£90,750*	*£156,000*	
	Contractors Profit	*15%*				*£90,750*	*£156,000*	
	Optimism Bias	*40%*				*£242,000*	*£416,000*	
	Traffic Management	*10%*				*£60,500*	*£104,000*	
	Inflation	*5%*				*£20,250*	*£52,000*	
	VAT	*20%*				*£121,000*	*£208,000*	
	Grand total					*£1,926,000*	*£3,328,000*	

Fig 105 LTN 1/20 compliant network in

New LTN 1:20 compliant link Prologis Park / Claudius Way

Item	Item description	Unit	Low cost per unit	High cost per unit	Quantity	Low total cost	High total cost	Notes
1	**Vegetation Clearance**	**l/m**	**£50**	**£100**	**800m**	**£40,000**	**£80,000**	Road layout could be re-configured to 1 way vehicle working IF National Highways reconfigure Ditchford Road /A45 junction
2	**New two way segregated cycle track to North side Claudius Way**	**l/m**	**£1000**	**£1500**	**520m**	**£520,000**	**£780,000**	
3	**New two way cycle track across area of open space linking to Chester House Estate access**	**l/m**	£500	£1000	280m	£140,000	£280,000	This section may fall within area requiring Scheduled Ancient Monument consent.
4	**New area of cycle parking at Chester House Estate car park**	**Item**			1	£20,000	£50,000	
5	**Utilities diversions (electric for street lighting)**	**Item**			1	£100,000	£200,000	
5	**New zebra crossing on Claudius Way**	**Item**			1	£35,000	£50,000	
	Subtotal				*800m*	*£855,000*	*£1,440,000*	
	Ancillary Items	*2.5%*				*£21,375*	*£36,000*	*Benches / signing / information panels / promotion*
	Works total					*£876,375*	*£1,476,000*	
	Design & Preparation	*10%*				*£87,637*	*£147,600*	
	Contractors Prelims	*15%*				*£131,456*	*£221,400*	
	Contractors Profit	*15%*				*£131,456*	*£221,400*	
	Optimism Bias	*40%*				*£350,550*	*£590,400*	
	Traffic Management	*10%*				*£87,637*	*£147,600*	
	Inflation	*5%*				*£43,818*	*£73,800*	
	VAT	*20%*				*£175,275*	*£295,200*	
	Grand total					*£1,864,204*	*£3,173,400*	

Fig 106 LTN 1/20 compliant link along Claudius Way

13. Business case and policy match

There are many local benefits to the delivery of the greenway and this single project should be regarded as being a piece in a much wider jigsaw of the efforts that North Northamptonshire Council are making to meet their strategic objectives. (for more detailed information regarding the potential benefits of the proposed greenway please see the supporting information for this section).

Policy Match – North Northamptonshire Council strategic objectives are in agreement with those published by Department for Transport in various strategy documents (Creating Growth, Cutting Carbon – Making Sustainable Transport Happen (2011); Cycling and Walking Investment Strategy (2017); Gear Change: A bold vision for cycling and walking (2020); and Decarbonsining transport: a better, greener Britain (2021)) and can be summarised in the single sentence, *"…make cycling and walking the natural choices for shorter journeys, or parts of a longer journey."*

In the Northamptonshire Transportation Plan: Fit for Purpose (2013), and its daughter documents, there are 10 strategic policies, and 7 walking and cycling policies, that the proposed greenway aligns with. These broadly fall under the five categories of: Improving connectivity between residents and businesses; boosting leisure and tourism through connection to the green network; reducing CO_2 and air pollution emissions through reducing the number of private vehicle journeys; improving safety for walkers and cyclists through building off-road green corridors; and increasing economic development opportunities.

Improving connectivity between residents and businesses – evidence shows that inefficient public transport and transport poverty serve as barriers between people and both leisure activities and employment opportunities. For welfare and economic reasons, it is crucial that local authorities facilitate removing these barriers for their residents.

For many, active travel is the most reliable and affordable way they can travel to their destination. However, often local infrastructure provision could do more to support these kinds of journeys. The proposed greenway connects residential areas of Wellingborough and Rushden to several employment opportunity areas such: the Prologis industrial park; Sanders lodge industrial estate; and Isebrook hospital. It also connects Wellingborough train station to the green network and Rushden Lakes shopping centre which will make leisure and shopping journeys in the area easier to make via walking or cycling.

Boosting leisure and tourism through connection to the green network – people who travel via walking and cycling have different spending habits to those that drive or use public transport. Shops and visitor attractions, such as Chester House Estate, that are on walking and cycling networks stand to gain a lot from increased footfall, and consequently increased expenditure.

Using Sustrans' Leisure Walking and Cycling Expenditure Model (LW/CEM) tools it was estimated that there could be an annual recreational expenditure of between £900,000-£1,800,000 generated due to the increased number of walking and cycling leisure trips associated with the development of the greenway.

Reducing CO_2 and air pollution emissions through reducing the number of private vehicle journeys – private vehicle journeys generate CO_2 and air pollution emissions at tailpipe, whereas walking and cycling journeys do not. The provision of high-quality active travel infrastructure, like the greenway, will encourage modal shift and reduce the number of private vehicle journeys. This is especially true on segments of the greenway that might currently be used for commuter journeys such as along Claudius Way, Ditchford Road to the A45, and along Irthlingborough Road to Wellingborough station and Isebrook Hospital.

The provision of a route along the green network, as is the case for the segment between the railway line upgrade and Ditchford Road through the Nene flood plain, gives people the opportunity to reduce their exposure to poor air quality by making journeys further away from busy roads.

Improving safety for walkers and cyclists through building off-road green corridors – most walking and cycling casualties on highways are due to collisions with cars, heavy goods vehicles, light goods vehicles, and buses. Reducing the distance that walkers and cyclists travel on networks that are shared with motor vehicles could well reduce the number of walking and cycling causalities per unit distance travel.

More importantly, dedicated active travel removes barriers that prevent people from walking and cycling. For many people the biggest barrier to active travel is the fear that roads are not safe. It is no surprise then that one of the most effective interventions local authorities can make to encourage people to walk or cycle is to provide dedicated infrastructure. Traffic-free shared used paths and footways, and segregated cycle paths, proposed in this greenway are good examples of effective interventions.

Increasing economic development opportunities – beyond connecting transport hubs and residential areas to employment opportunities and leisure attractions there are several economic benefits that can be obtained through the provision of active travel infrastructure.

Evidence suggests that employees who commute via cycle report fewer days off sick and are more productive at work. In reducing the number of private vehicles on the road network via modal shift, there is the potential to reduce congestion. Congestion becomes even less of a concern for anyone who chooses to stop travelling via private vehicle altogether an instead walks or cycles.

Building active travel infrastructure and connecting business and leisure attractions to walking and cycling networks has the potential to create jobs. In a Sustrans job creation report it was calculated that *"11 jobs are created for every £1 million in sustainable transport infrastructure, and 1.3 jobs are created for every km of route"*.

Economic Appraisal – the Department for Transport Active Mode Appraisal Toolkit (AMAT) has identified that the Irthingborough Road to Wellingborough station and Isebrook Hospital segment, Railway line to Claudius way and Ditchford Road to A45 segment provide

the lowest Benefit Cost Ratios (BCR). However, these segments of the entire greenway cannot be considered in isolation as they are a crucial component in connecting residential areas and local transport hub to the wider green network.

The Railway line upgrade between Irthingborough Road and the River Nene embankment and a BCR of 2.00 with the most conservative post-intervention usage estimate. In the most optimistic scenario this segment along with the stretch between the Nene embankment and Ditchford Road had BCRs of 3.42 and 3.53 respectively.

14. Construction and Maintenance

Enabling construction of a long linear route can present its own challenges, but if the route is also ecologically sensitive, or landowners unwilling to allow access over and above that needed for path development and immediate working space, then it can become a complex and complicated process of logistic.

This section therefore looks at where and how specific elements of the scheme can be developed / delivered and the process (from funding sourcing to route opening) can be split into phases as indicated on the mapping below.

Phase 1A and 1B: Irthlingborough Road to Chester House

There are some, but not unsurmountable, ecological, and engineering challenges to delivering both phases but delivery of these links will enable pedestrian and cycle connectivity between the Chester House estate and the edge of Wellingborough. It would also support the development of walking and cycling to Prologis Park employment and connect with the existing River Nene path.

Phasing to deliver these infrastructure improvements could be pursued as a “stand alone” element whilst more detailed conversations involving numerous external parties are continued.

The conversion of the railway alignment into greenway would constitute Phase 1A and the improved link along Claudius Way as Phase 1B.

Planning consent would be required, and depending upon the status of the highway and verges along Claudius Way additional consent from the Prologis may be necessary.

Of concern would be the timing for the development of the link road serving Stanton Cross, as this cuts across the railway alignment.

This would deliver Historic England’s preferred means of access for non motorised users to the Chester House Estate.

Phase 1C: Improved infrastructure Wellingborough

To some extent the works indicated within the public highway within Wellingborough could be delivered either as part of “Phase **1” -** if funding applications become available, or as a separate phasing within the project, in which case they could sit anywhere within the timeframe – even running parallel to the development of the riverside path.

There is significant road space re-allocation required to make links to the railway station and hospitals compliant with LTN1/20 – however the development of the new link road to serve Stanton Cross also provides the opportunity to re-workspace on these roads as traffic flows – especially larger HGV traffic – is removed.

There is momentum behind delivery of high-quality walking and cycling infrastructure – and funding available to support implementation, and so perhaps the works required are ones that should be progressed sooner.

There is value in this approach, they would link to an existing and upgraded off road route that connects to employment sites, and by extending the reach of the scheme into the wider urban area then the potential for residents to access Chester House is also increased.

Phase 2: Riverside Path to railway viaduct

The delivery of the main link across the most historic and ecologically sensitive section of the route will need planning consents and the various approvals / consents from the Environment Agency Natural England and Historic England.

From experience, Network Rail can be the slowest to respond, their focus is on ensuring that live rail lines remain operational and safe and not on how new paths and structures need to fit around them. Stopping this phase short of the viaduct creates an “out and back” link that the public could enjoy, Historic England have advised that they would support the inclusion of some cycle parking within the footprint of the replacement River Nene bridge, which would allow path users to connect with Chester House albeit on foot only.

There are significant ecological concerns and survey data to be collected and licences sought. Planning consent will be required for the path and for the replacement structure across the River Ise, and although the phase sits outside of the area requiring Scheduled Ancient Monument consent the support of Historic England will be essential.

Phase 3: New River Nene bridge

The delivery of a new bridge across the River Nene to the Northeast side of the existing railway viaduct would complete the East-West corridor and providing that the Rushden Lakes link is built then there is a suitable “origin and destination” at each end of the route.

The bridge alignment, levels and design will need careful consideration and there are several challenges to be overcome which will need an element of pre-planning and even specific timing to undertake.

The presence of the High-Pressure gas main in the area where the bridge is to sit may complicate foundation design / landing points and even how the river cliff is re-worked to create an acceptable.

Discussions to establish the impact, and timing for any protection / diversion requirements can be factored in with the main’s owners, Cadent,

Discussions to establish how the bridge is to land, especially on the northern side of the River Nene, without impacting extensively on floodplain and ecologically sensitive land can be factored in with the various overseeing parties.

All discussions should be undertaken whilst other phases of the scheme are taken through construction / tender phases.

Network Rail will perhaps be the more challenging organization to deal with. They will require sight of, but may not be unduly concerned with, a path at ground level passing under one of the railway viaduct arches – but

they will still need to be a consultee to any planning application.

They will though be concerned about how a new structure is constructed in the shadow of a significant piece of railway estate, with live electrified railway lines running directly above a works area.

Phase 4: Improved infrastructure Rushden

In a similar vein to delivering a bridge across the River Nene, overcoming the A45 may require a “split the route” approach. The Rushden Lakes access includes an element of a new shared footway to be constructed to tie into the current A45 / Ditchford Road bridge.

This bridge, whilst it has footway provision on both sides, is a poo space for pedestrian and cycle traffic to cross. The footway is below minimum width for it to be regarded as a shared option, and the road space used by HGV traffic makes it unsuitable for on road cycling.

New infrastructure between the A45 and Rushden would therefore create a similar situation to the River Nene crossing, whereby National Highways become the eventual barrier to delivering the continuous, high-quality link.

As with links into Wellingborough, works within Rushden can be developed and delivered wither as a separate phase, or whilst other aspects of the overall corridor are also on site. There will be a significant reallocation of road space necessary to achieve an LTN1:20 compliant scheme.

Phase 5: A45 road crossing

The A45 will remain a barrier for walking and cycling if the existing bridge remains the only viable option for people to utilize.

A new pedestrian and cycle structure parallel to the existing road bridge is viable, but not necessarily on National Highways radar to fund or deliver and therefore because this piece is not on any “long list” of current of future deliverable projects having it as the later link in the overall project currently makes sense.

National Highways are fully committed to the overall scheme – but this is being badged as Rushden Lakes to Wellingborough embankment – not Rushden itself.

By raising the profile and extent of the scheme now and placing a “new structure” or “additional access / egress ramps” onto the long list of National Highways now will enable internal and external conversations to be had.

As with all other phases discussions / designs and contracts can be run in parallel with other phases of the overall scheme, but ideally this link would be completed to enable the new link into Rushden Lakes to be maximized. The access works for the retail development include a re-configuration of the current junction alignment and therefore provision of a new bridge, or a new junction entirely should be dovetailed to limit the wider impact that construction works has.

The thought process behind new slip roads relates to the ability to re-configure Northampton Road into a high-quality walking and cycling link. Removal of traffic lanes becomes more viable when HGV traffic can use a junction at each end of the town to access / exit the trunk road. As it stands any “one way working” on Northampton Road ensures that those accessing / servicing the industrial estates face lengthy detours to undertake U turns at suitable A45 junctions.

Phase 6: Ditchford Lane to River Nene

Delivering the link between Ditchford Lane and the River Nene as the final phase will allow funding to be better deployed to ensure the deliverability of the whole scheme. Structurally the Knutson Brook bridge is OK with minimal works, and the current surface quality, although not sealed, would support use as a greenway until the other elements of the wider scheme are delivered.

Delivery of this section in parallel with the River Nene bridge is also viable as a total project. This may enable connectivity between Rushden Lakes and Wellingborough, with access to Rushden town made via the existing provision within the retail complex.

Weight and Height Limits

There are no weight or height limits within the immediate road network that may impact on access for construction purposes.

Ditchford Road bridge, although traffic signal controlled and within a 40/30 mph transition, is not indicated as having a weight restriction.

Any construction traffic using this route would need to check in advance that the route is suitable.

Access to the railway embankment from Irthlingborough Road may require vehicles to negotiate the “Embankment / Irthlingborough Road” roundabout – which is tight, road space along this section of Irthlingborough Road is also tight and may not suit wide or overhanging loads.

Construction Compounds

Compound locations, materials stores and access points will need to be given careful consideration. The environmentally sensitive nature of the river valley will limit the opportunities available, and the risk of flooding will need to be factored into the construction planning.

Smaller construction phases, more contained site set ups or reconsidering materials used may need to be factored into the final design / development of the whole greenway.

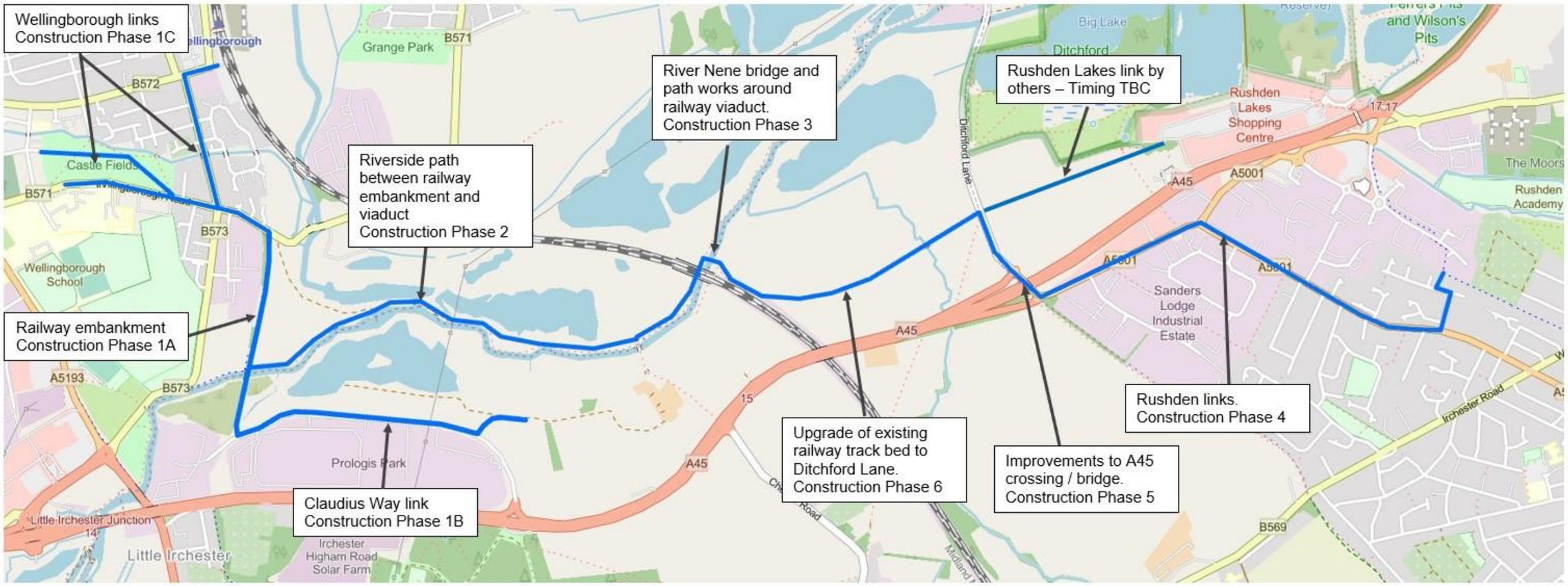

Fig 107 Construction Phasing

15. CDM and Design Risk

Construction Design Management (CDM) forms part of the Health and Safety on construction sites and starts much earlier in the process than people realise.

Under CDM 2015 regulations the AAGP are currently acting in the Client role, and as such they have obligations to fulfill.

These are highlighted in CDM documentation under Regulation 4 and are listed below for clarity.

PART 2 Client duties

(1) *A client must make suitable arrangements for managing a project, including the allocation of sufficient time and other resources.*

(2) *Arrangements are suitable if they ensure that—*

(a) *the construction work can be carried out, so far as is reasonably practicable, without risks to the health or safety of any person affected by the project; and*

(b) *the facilities required by Schedule 2 are provided in respect of any person carrying out construction work.*

(3) *A client must ensure that these arrangements are maintained and reviewed throughout the project.*

(4) *A client must provide pre-construction information as soon as is practicable to every designer and contractor appointed, or being considered for appointment, to the project.*

(5) A client must ensure that—

(a) before the construction phase begins, a construction phase plan is drawn up by the contractor if there is only one contractor, or by the principal contractor; and

(b) the principal designer prepares a health and safety file for the project, which— (i) complies with the requirements of regulation 12(5);

(ii) is revised from time to time as appropriate to incorporate any relevant new information; and

(iii) is kept available for inspection by any person who may need it to comply with the relevant legal requirements.

(6) A client must take reasonable steps to ensure that—
(a) the principal designer complies with any other principal designer duties in regulations 11 and 12; and

(b) the principal contractor complies with any other principal contractor duties in regulations 12 to 14;

(7) If a client disposes of the client's interest in the structure, the client complies with the duty in paragraph (5)(b)(iii) by providing the health and safety file to the person who acquires the client's interest in the structure and ensuring that that person is aware of the nature and purpose of the file.

(8) Where there is more than one client in relation to a project—

(a) one or more of the clients may agree in writing to be treated for the purposes of these Regulations as the only client or clients; and

(b) except for the duties specified in sub-paragraph (c) only the client or clients agreed in paragraph (a) are subject to the duties owed by a client under these Regulations;

(c) the duties in the following provisions are owed by all clients— (i) regulation 8(4); and
(ii) paragraph (4) and regulation 8(6) to the extent that those duties relate to information in the possession of the client.

This project is currently set to develop a feasibility study, and therefore many of the requirements of Regulation 4 may not necessarily apply in full at this stage.