NCN 66 Heslington (York) to Elvington

Feasibility Design Report

08 June 2022

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This version of the R66 Heslington-Elvington Feasibility Study is subject to control under General Data Protection Regulation (GDPR). All the redactions in this report have been made to comply with GDPR.

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Executive Summary

Sustrans received funding from the Department for Transport (DfT) on behalf of City of York Council to update the 2011 feasibility report by investigating the feasibility of a walking and cycling link between Heslington (York) and Elvington village. The aim was to find safe and accessible alternative for active travel to the busy B1228 Elvington Lane. This study forms part of a package of works funded by the DfT to make the National Cycle Network safer and more accessible for everyone.

The study assesses potential route options, building on the 2011 report and routes identified in York's Local Plan. Informed by Sustrans' design principles and national design guidance, it systematically assesses route options between Heslington and Elvington which are accessible to all users. It identifies two route options, one linking into the proposed housing development at Elvington Airfield which presents the longer-term ideal alignment. The second option links to the existing forest track at Wheldrake Wood and presents a shorter-term solution with a possible link to Wheldrake village. Due to the uncertainty regarding the proposed housing development, the Wheldrake Wood alignment was chosen as the preferred route with two alignment options between Wheldrake Lane and Elvington Main Street.

The proposed design interventions focus on accessibility and safety for all users and are in line with latest design guidance. Mixed traffic is proposed along existing sections of highway, with minor interventions proposed to increase user safety. For the new sections of the route, a 3m wide shared-use path is proposed with an adjacent 2m wide trotting strip for equestrians. New forest tracks are proposed through the woodland sections. It is anticipated that the design compromises along certain sections of the route could create accessibility issues for some users.

The feasibility of the route is highly dependent on landowner support, with two sections of the route currently not supported by the owners. Further discussion with these landowners has to be sought to make the route feasible. Ecological constraints were identified along the section through Langwith Great Wood and further ecological assessments and surveys are required to determine the impact of the alignment and to identify mitigation measures. Targeted engagement with local interest groups and parish councils found support for a new route, however, some concerns were identified regarding the alignment's impact on landowners and ecology which need to be addressed at further stages.

A business case analysis using the DfT's Active Mode Appraisal Toolkit is provided which highlights that the scheme with either alignment option provides high value for money with a

Benefit-Cost Ratio of 4.21 and 4.22 respectively, using high level cost estimates and current and projected user numbers.

This study lays the groundwork for the delivery of a scheme that improves safety and accessibility for active travel modes between Heslington and Elvington. It identifies the following steps as essential in delivering the scheme: resolution of the scheme's interaction with the Heslington to Wheldrake scheme; resolution of the scheme's interaction with the proposed housing development; negotiation with landowners; completion of preliminary ecological assessment and species surveys; completion of topographical, utility and traffic surveys; and identification of funding and delivery methods.

1. Introduction

1.1. Study Brief

This project forms part of Tranche 4 funding provided by the Department for Transport (DfT) for National Cycle Network (NCN) programmes. The two strategic priorities of the Tranche 4 funding are to make the NCN safer for everyone, and to make the NCN more accessible for everyone. The link from Heslington to Elvington was highlighted as extremely unsafe for walking and cycling and as a result, the present feasibility study was put forward for DfT funding.

Reasoning behind the study is as follows:

- The B-road route between Elvington and Heslington/York connection is considered unsafe for walkers and cyclists.
- This study builds on earlier feasibility work by Sustrans in 2011.
- The study represents a significant step towards a deliverable scheme for future funding.
- The study complements the Active Travel Fund work City of York Council are working on to develop a route between Heslington and Wheldrake, currently scheduled for delivery in 2023.

The objective of this study is to update the findings of the Sustrans 2011 report on the feasibility of creating a new NCN quality standard walking and cycling route between Heslington (York) and Elvington village (B1228), and to produce concept designs and an estimate of costs for a preferred route option. This study describes focused engagement with landowners and other key stakeholders, and assesses ecological constraints and required mitigation for any proposed new route.

1.2. Report Structure

Chapter 2 explores the context of the study, discussing relevant policies and providing an analysis of opportunities and constraints in the study area. **Chapter 3** describes the process of the route options appraisal with **Chapter 4** detailing the design methodology, design narrative, and scheme costs for the preferred routes.

Chapter 5 presents the views of landowners affected by the proposals. **Chapters 6** and **7** explore the potential impacts of the interventions, focusing first on ecology and then on engagement with parish councils and local user groups.

Chapter 8 outlines a business-case (AMAT). Finally, **Chapter 9** discusses the next steps, suggesting where future work, engagement or design is needed to progress this route beyond the outcome of this report.

2. Strategic Context

2.1. Review of Policies and Guidance

2.1.1. National policies and guidance

National Planning Policy Framework

Planning policy in England is built on the National Planning Policy Framework (NPPF) which outlines general policy areas which local planning authorities can elaborate on and refine in their own policy documents. The NPPF was updated in 2021 to strengthen its stance on sustainable development and climate objectives. Sustainability and reduction in emissions have strong links to active travel, and the NPPF reflects this, advising local authorities to introduce policies to encourage a shift away from private vehicle use and towards more sustainable transport modes.

Additionally, and specifically, the NPPF 2021 recommends that planning policies should

- ‘exploit any opportunities to make a location more sustainable (for example by improving the scope for access on foot, by cycling or by public transport)’ (par. 85) and
- ‘provide for attractive and well-designed walking and cycling networks with supporting facilities such as secure cycle parking (drawing on Local Cycling and Walking Infrastructure Plans);’ (par.106 d).

Gear Change

In 2020, four months after the United Kingdom had been forced to change their way of life due to the coronavirus pandemic, the Department for Transport published ‘Gear Change’, a visionary document outlining the government’s objectives to bring walking and cycling to the fore in the urban mobility hierarchy, making walking and cycling the natural first choice for many journeys. A funding package was announced to support local and combined authorities to develop their walking and cycling networks and upgrade infrastructure across the country. A technical note, LTN1/20, was sent to highway authorities to ensure all new developments meet modern safety standards for active travel.

With this publication the government recognises the vital importance of the National Cycle Network in enabling everyone to walk and cycle safely and easily by committing to ‘significantly increasing funding’ for the Network across England.

One year on, the government produced a follow-up report, reflecting on progress since Gear Change was published. The uptake in cycling since 2019 is seen clearly in cycle sales figures, which showed a 45% increase in 2020, totalling over £1bn spent on bikes.

Active Travel England (ATE), a long-promised government department to oversee active travel schemes across the whole country, has just appointed its first members of staff. ATE uses LTN1/20 as its measure of whether schemes deserve to be funded, and may decline to provide funding to local authorities if designs fall below these standards.

2.1.2. Local policies and guidance

Development Control Local Plan (2005)

Policy T2b sets out the standards for the Council's proposed pedestrian / cycle networks, outlined in the Proposals Map. The map shows indicative walking and cycling connections from Heslington and Fulford to Elvington via Gipsey Corner, Elvington Airfield and Wheldrake Wood. All relevant indicative routes are included in the route options appraisal of this study.

Draft Local Plan (2018)

Policy T5 in the Draft Local Plan supports the delivery of general and specific schemes set out in the Local Transport Plan (LTP) and subsequent investment programmes to provide a comprehensive walking and cycling network and to improve the environment for active travel. The Plan also supports proposals that improve access to and around new development, particularly strategic sites, and proposals that improve other walking and cycling routes which are not currently identified as strategic network links nor included in the Proposals Map.

Local Transport Plan 2011-2031

The vision of the Local Transport Plan (LTP) is to create a transport system that 'has people walking, cycling and using public transport more', which is underpinned by five strategic themes to help reduce car dependency. These are

- Theme 1 – Provide Quality Alternatives
- Theme 2 – Provide Strategic Links
- Theme 3 – Implement and Support Behavioural Change
- Theme 4 – Tackle Transport Emissions
- Theme 5 – Improve Public Streets and Spaces

This project helps to contribute to a number of key aims and objectives set out in the LTP. It helps to achieve the objectives Q3)a) to complete the urban cycle network and Q3)c) a safe attractive urban pedestrian network which contribute to the aim of having a comprehensive cycling and pedestrian network under Theme 1.

The new walking and cycling route supports the objective S1)d) Expanding the cycling and pedestrian network beyond the urban core which contributes to the aim of ensuring the maintenance and selective improvement of York's strategic networks to support the longer-distance movement of people, goods and information under Theme 2. A key outcome of this is the delivery of new cycling and walking links between residential and employment areas in both urban and rural locations.

The study seeks to provide an attractive, safe and accessible walking and cycling link which connects to key destinations in Heslington and Elvington to encourage more car-free journeys. Its delivery contributes to the Theme 5 aim of enhancing the character of public spaces, streets and corridors by working towards the following objectives: P1)b) more accessible streets and key destinations; P1)c) safer streets; and P1)d) new development that is more sustainable. Furthermore, it also contributes to the aim of reducing vehicle dominance and improving the environment (for walking and cycling) in residential areas by meeting the objectives P3)a) improving access to villages and P3)b) improving the environment for walking and cycling as it proposes a new link to Elvington which currently does not have a safe and accessible active travel connection to Heslington.

2.2. Study Area

This section presents an analysis of the study area, highlighting opportunities and constraints.

2.2.1. Key locations and trip attractors

Elvington

Elvington village is situated approximately 5 miles south-east from Heslington and 6.5 miles from the centre of York. 1,239 residents were counted at the 2011 Census and the village holds important employment sites including the Elvington industrial estate and business park as well as key attractions such as the Yorkshire Air Museum, Elvington Airfield and York Maze. York Maze is a seasonal attraction with up to 3000 visitors a day in summer. Elvington Airfield is an operational airfield open to private air travel. The site is also used for events such as automotive sports, driving experiences and media hire, with an average of 2-3 events per week.

Heslington

Heslington village is situated approximately 1.6 miles south-east from the centre of York and is a key destination for jobs, education and local services with the University of York, York Sport Village, York Science Park as well as several primary and secondary schools located here. Most children from Elvington go to secondary school in Heslington.

Designated sites

The 2018 Draft Local Plan identifies two strategic development sites in the area which present opportunities for the route to link into (Figure 1). The site ST15 is located at the Elvington Airfield and encompasses the middle section of the airfield and the fields to the north, bordering on the public footpath off Langwith Stray to Gipsey Corner. It is earmarked for a garden village development of approximately 3,339 residential units. The site ST26 located off Brinkworth Rush within the Elvington business park site is designated for 25,000 square metres of employment floor space for uses including industrial; light industrial; research and development; and storage and distribution. Planning permission was received on 11 July 2019 for the development of one land parcel within the allocated site for the erection of a two-storey mixed-use building with access and associated parking.

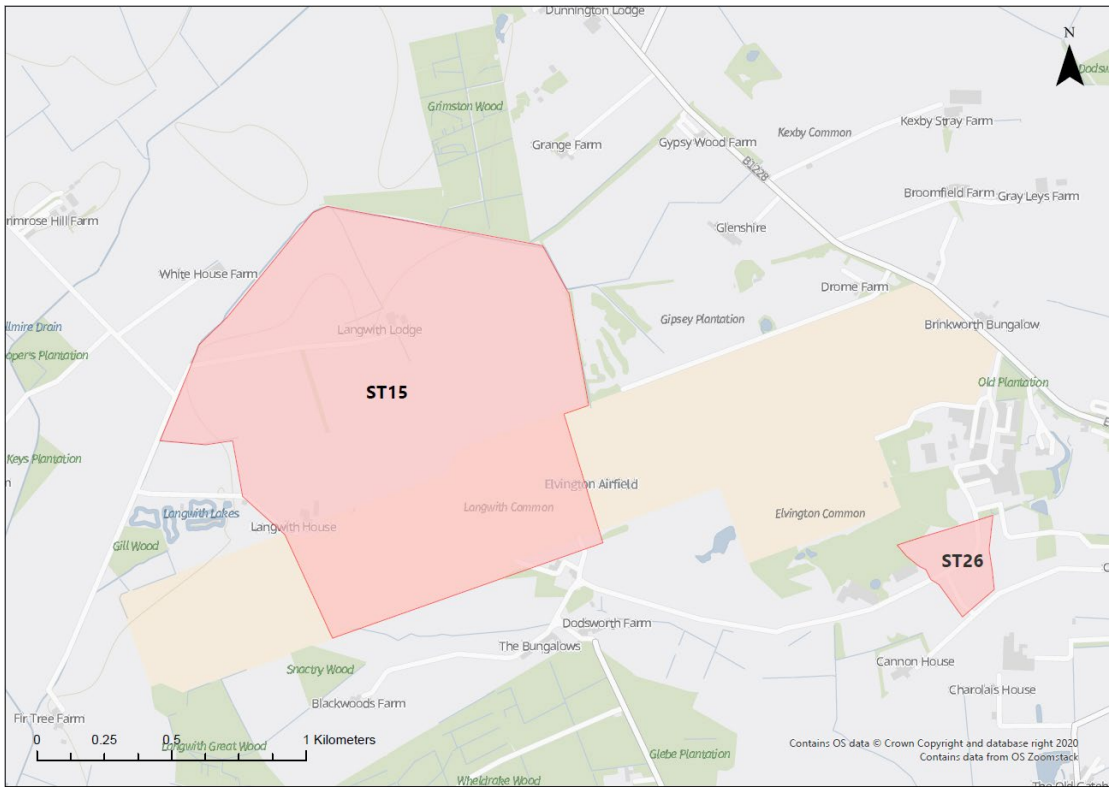


Figure 1: Designated sites earmarked in York's Local Plan, Sustrans 2022

2.2.2. Network opportunities and constraints

Existing connections between Heslington and Elvington

The only existing surfaced, continuous routes from Elvington to Heslington are either along the B1228 or the A19 via Wheldrake (Figure 2). These roads are currently not conducive to cycling, especially for less experienced cyclists or groups with children, with national speed limits and heavy traffic (HGVs, LGVs). The B1228 Elvington Lane via Elvington is frequently used by commercial traffic as a shortcut to the M62, leading to high traffic flows at peak times in the morning and afternoon. According to York Council's traffic count data from 2019 indicating annual average traffic flows, HGVs and LGVs combined made up 19% of all traffic in both directions along Elvington Lane, counted at the location of York Maze. Similarly, traffic counts for Elvington Main Street highlight a 17% share of all traffic, evidencing the heavy traffic experienced in the village.

The area between Heslington and Elvington contains several public footpaths and bridleways but currently does not have a through connection linking the two villages, with Elvington Airfield serving as a severance point (Figure 2).

Wider network

Heslington provides local and long-distance active travel links via the York Cycle Network and the NCN Routes 65 and 66.

As part of the Paths for Everyone objectives, and by 2040, Sustrans has an objective to clarify and rationalise the wayfinding and numbering of the National Cycle Network. Currently it is anticipated that the route addressed by this study may become NCN 66.

Proposed links

As part of City of York Council's Active Travel Programme which supports the implementation of active travel schemes by 2023, the Council is proposing a walking and cycling link between Heslington and Wheldrake. The aim is to progress the scheme from feasibility to delivery if supported. The scheme is described as a traffic-free cycle route, which will benefit commuters between the village and York city centre, including school children travelling to school in Fulford. This study aims to create a complementary route to the Heslington to Wheldrake route to facilitate travel between the three villages and seeks to lay the foundation for assessing the feasibility of different route options to Heslington.

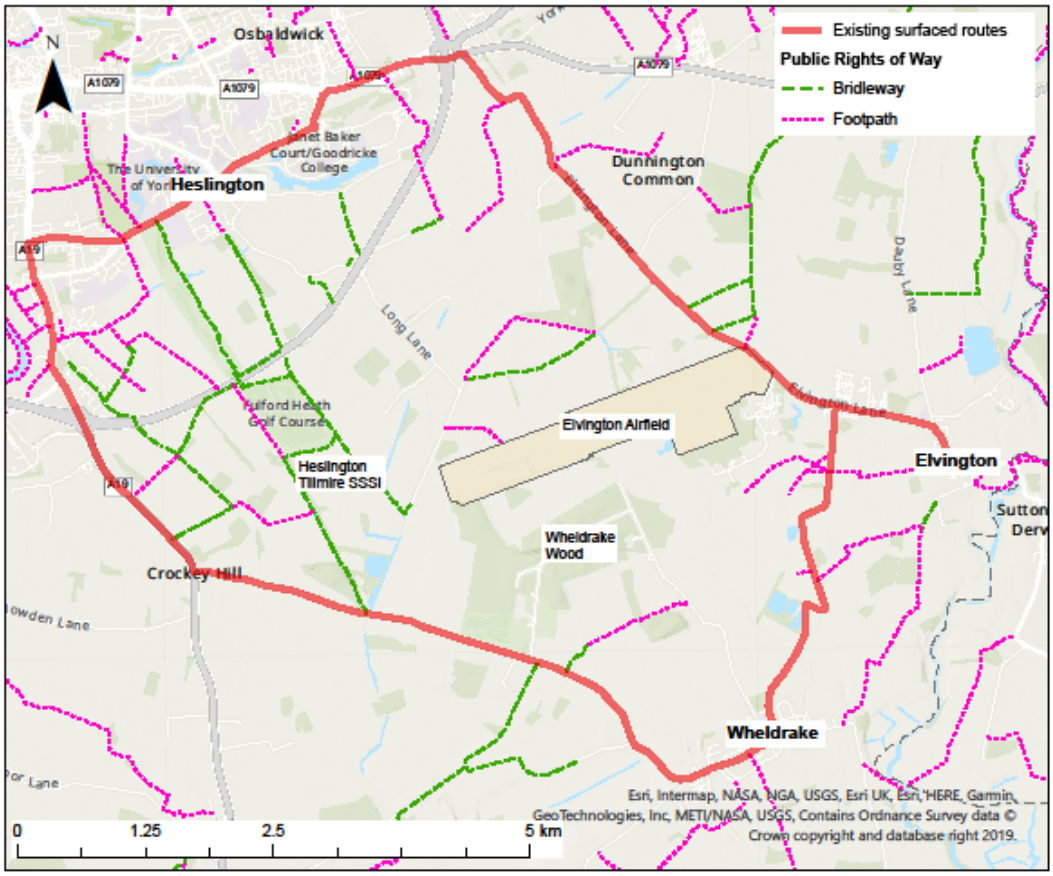


Figure 2: Map showing existing connections between Heslington and Elvington, Sustrans 2022

2.2.3. Ecological constraints

The study area is situated within York's Green Belt and is characterised by open land, agricultural fields, hedgerows, and woodland. Heslington Tillmire, a Site of Special Scientific Interest (SSSI), is located south of Heslington and to the west of Elvington. The site presents an important habitat for local wildlife and protected species can be found there. The area also contains several small ponds and watercourses with the presence of Great Crested Newts recorded in the area.

Wheldrake Wood and Langwith Great Wood are both conifer plantations for commercial use. They also contain areas of broadleaved trees, particularly along the northern edge of Wheldrake Wood and along the southwestern boundary of Langwith Great Wood which are of moderate ecological value and serve as habitat for wildlife. Langwith Great Wood is also classified as a Plantation on Ancient Woodland making its soil ecologically valuable.

Route proposals should not negatively affect these areas of ecological value and proposals in proximity to them will be subject to surveys, ecological assessments and additional planning

requirements. If it is possible to avoid these constraints, then it will typically be required to do so.

2.3. Previous Work

2.3.1. Sustrans' 2011 feasibility report

The 2011 report investigated the feasibility of linking the villages of Elvington and Wheldrake to Heslington with potential alignments both north and south of the airfield. The route option passing north of the airfield followed an alignment via Elvington Lane along the northern edge of the airfield, connecting to Langwith Stray via the public bridleway at Gipsey Corner (Figure 3). This was identified to be the most direct alignment for an Elvington to Heslington connection. It was proposed to place the route within the airfield boundary parallel to Elvington Lane as the assessment concluded that the verges on Elvington Lane were too narrow for the provision of adequate walking and cycling infrastructure.

The alignment south of the airfield proposed a link from Elvington via the industrial estate and Wheldrake Wood to Heslington, creating a route which would connect both Elvington and Wheldrake village to Heslington. The proposed alignment followed Elvington Lane, Halifax Way and Brinkworth Rush before creating a new link to Broad Highway through Glebe Plantation. The route from Wheldrake followed Broad Highway to join up with the Elvington link at Glebe Plantation. From here, a single route was proposed for both villages to connect them to Heslington. The alignment followed the existing forest road through Wheldrake Wood, past Langwith Great Wood to join Langwith Stray west of the airfield (Figure 3). Both the northern and southern alignment took the route along Common Lane and Long Lane into Heslington.

Landowner engagement in the 2011 study highlighted differing views among landowners, with those opposing a new route citing safety and privacy concerns. The report concluded that the challenge of achieving a high-quality route between Elvington, Wheldrake and Heslington relied on the goodwill and cooperation of landowners.

The present study builds on the previous work and assesses potential alignments from Elvington to Heslington against new policy and design guidance. It also seeks to provide an up-to-date assessment of opportunities and constraints in the area to determine the feasibility of an alignment. The previous report includes limited information on the appraisal of route options so this report aims to fill the gap by providing a comprehensive assessment of potential route options to evidence the process of determining the final suggested alignment. Furthermore, the present study has an extended scope compared to the 2011 report,

proposing to provide a direct link into the centre of Elvington, serving trip attractors along Elvington Lane.

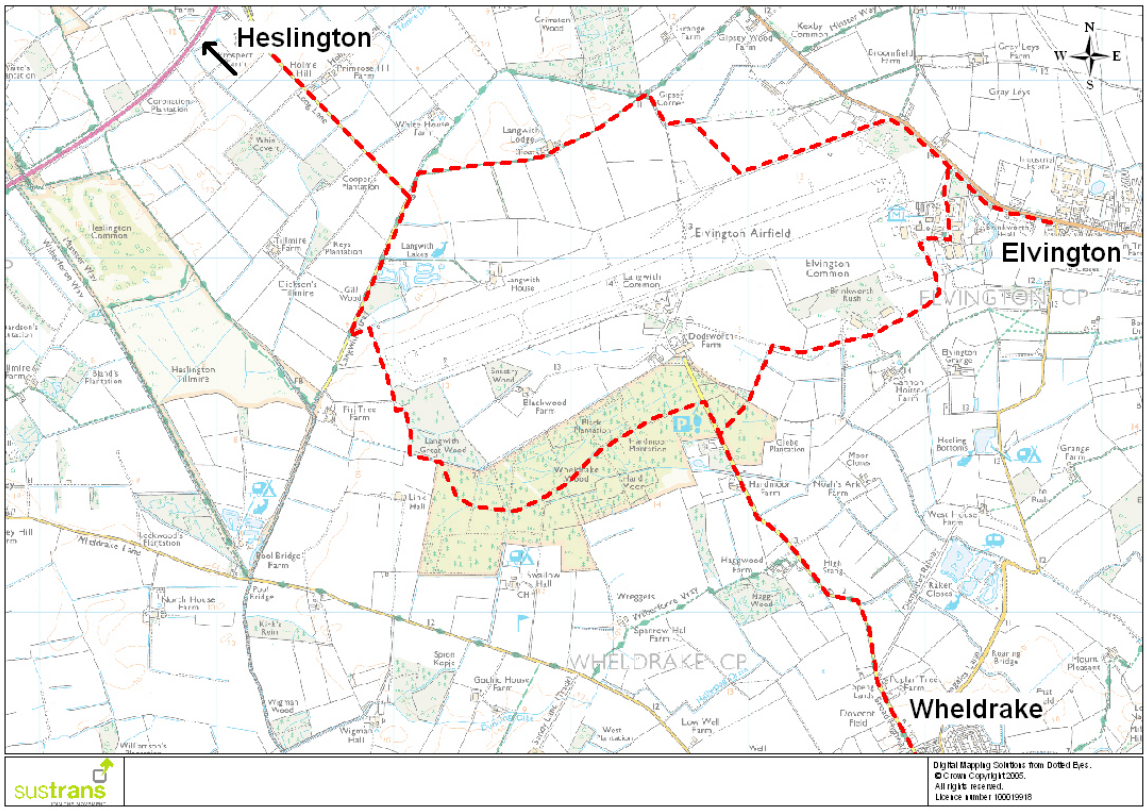


Figure 3: Route options map from 2011 feasibility report, Sustrans 2011

2.4. Study Objectives

- Conduct a site analysis to identify opportunities, constraints, ecological concerns and delivery risks.
- Identify route options and assess their:
    - feasibility against user experience;
    - strategic potential;
    - impact on the natural environment;
    - impact on residents and stakeholders along the route;
    - possible delivery risks.
- Engage with landowners, Parish Councillors and user groups to determine the feasibility of the route options.

— Recommend 1-2 preferred alignments which create an accessible, attractive, safe, direct and comfortable link to Elvington and which complement a Wheldrake to Heslington route.

— Outline next steps.

3. Route Options Appraisal

This chapter outlines the process of the route options appraisal (ROA) which was undertaken to determine a preferred route alignment. The chapter is divided into three sections, each describing the stages from an initial ROA to the final alignments approved by City of York Council (CYC).

3.1. Criteria for Route Options Appraisal

Route options were assessed against the 5 criteria shown in Table 1 which are based on national design guidance and NCN design principles but also consider other metrics such as site constraints and delivery risks. These criteria were selected to provide a comprehensive assessment of the feasibility of each alignment section.

Table 1: Route options assessment criteria

Criteria	Description
User experience	Routes are assessed on the likely overall experience of future users with consideration to safety, directness, attractiveness, comfort, coherence, and macro-scale challenges e.g., topography.
Strategic potential	Routes are assessed on their potential to meet local strategic objectives, such as connectivity to local destinations, existing active travel networks, known demand for provision etc.
Impact on the natural environment	Routes are assessed based on the impact of potential routes on the physical environment during and after construction. Impact can be positive or negative. Consideration should be given as to whether impact is temporary or permanent.
Impact on residents and stakeholders along route	Routes are assessed based on the impact of potential routes on local stakeholders during and after construction. Impact can be positive or negative. Consideration should be given as to whether impact is temporary or permanent.
Possible delivery risks	Routes are assessed based on the potential risks to delivery not covered elsewhere. These could include large numbers of different landowners, the presence of stakeholders known to be against the option, significant ecological risks, the need for structures (e.g. bridges/underpasses).

3.2. Initial Route Options Assessment

In the first stage of the ROA, potential alignments were identified based on:

- routes featured in the 2011 feasibility report (see Appendix A);
- desktop appraisal of the study area considering existing links, trip attractors, ecologically sensitive areas, and site constraints;
- site survey of the study area.

59 possible segments were identified that could potentially be combined to form a route and these were assessed against the criteria set out in section 3.1, scoring each metric from 0-5 (Table 2), with a maximum total score of 25. The complete assessment can be found in Appendix B.

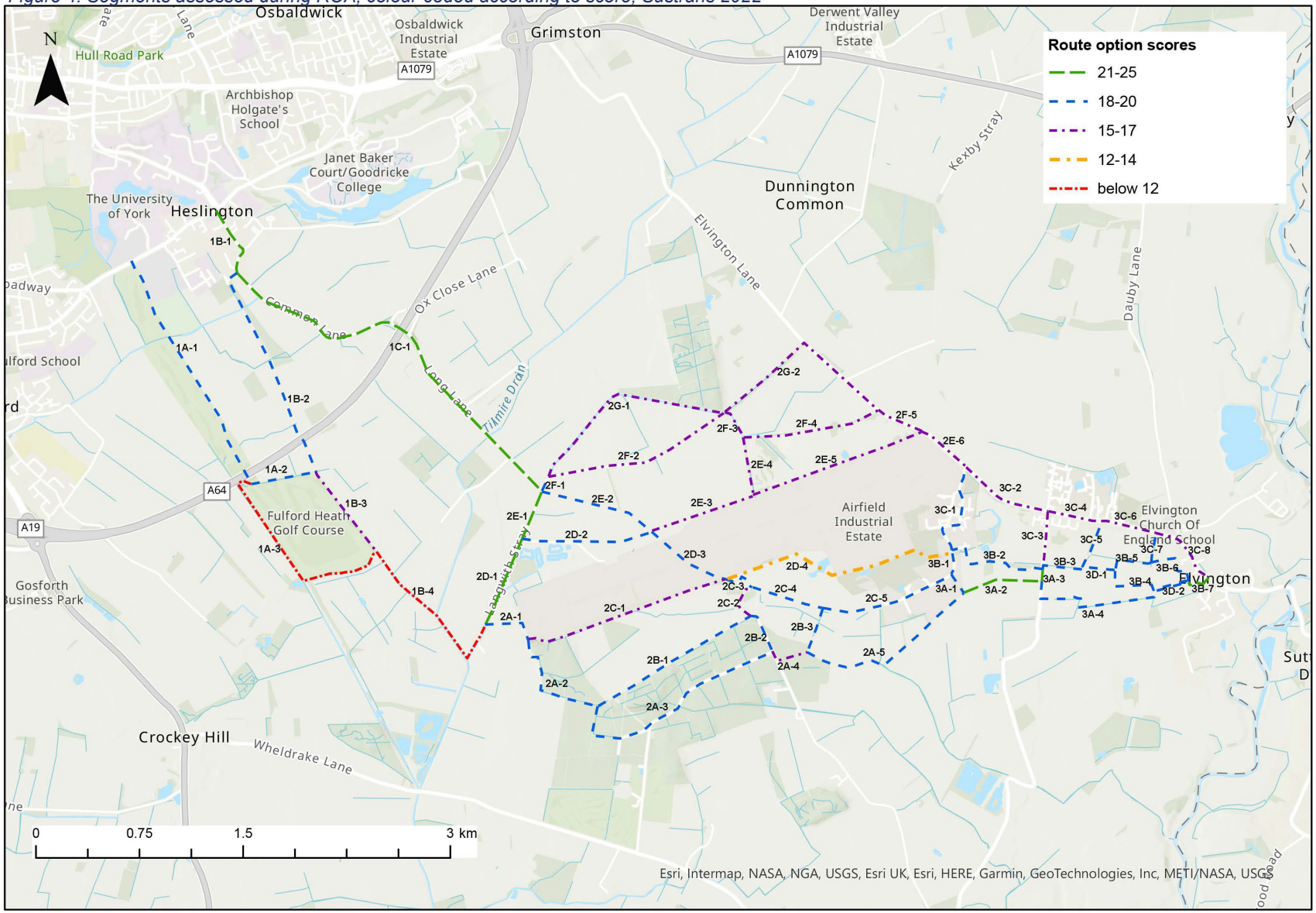
Table 2: ROA scoring

Critical	Very Poor	Poor	Average	Good	Very good
0	1	2	3	4	5
If a section scores critical for any measure, it shall be discounted, and no further criteria need be assessed.					

Alignment sections through Heslington Tillmire SSSI were not taken to the next stage of ROA owing to key ecological concerns raised by the project ecologist, and associated delivery risks with regards to obtaining planning permission, highlighting these alignments as 'critical'. Any sections which scored 14 points or below were also not taken forward.

The 59 assessed segments and their scores are shown in Figure 4.

Figure 4: Segments assessed during ROA, colour-coded according to score, Sustrans 2022



3.2.1. Preferred routes

Two preferred route alignments emerged, incorporating sections with scores 18 or higher which could be connected by short sections scoring 15-17 points. These follow quiet ways and traffic-free sections in line with the NCN design principles, avoiding the heavily trafficked and highly constrained B1228 Elvington Lane. Two alternative alignment options were also included in this initial proposal.

Section 1: Heslington Main St – Long Lane

This section connects Heslington Main Street to Langwith Stray via the farm road Common Lane and Long Lane using the existing A64 bridge, following adopted highway. Links to the university and the local cycle network and the wider NCN are proposed (Figure 5).

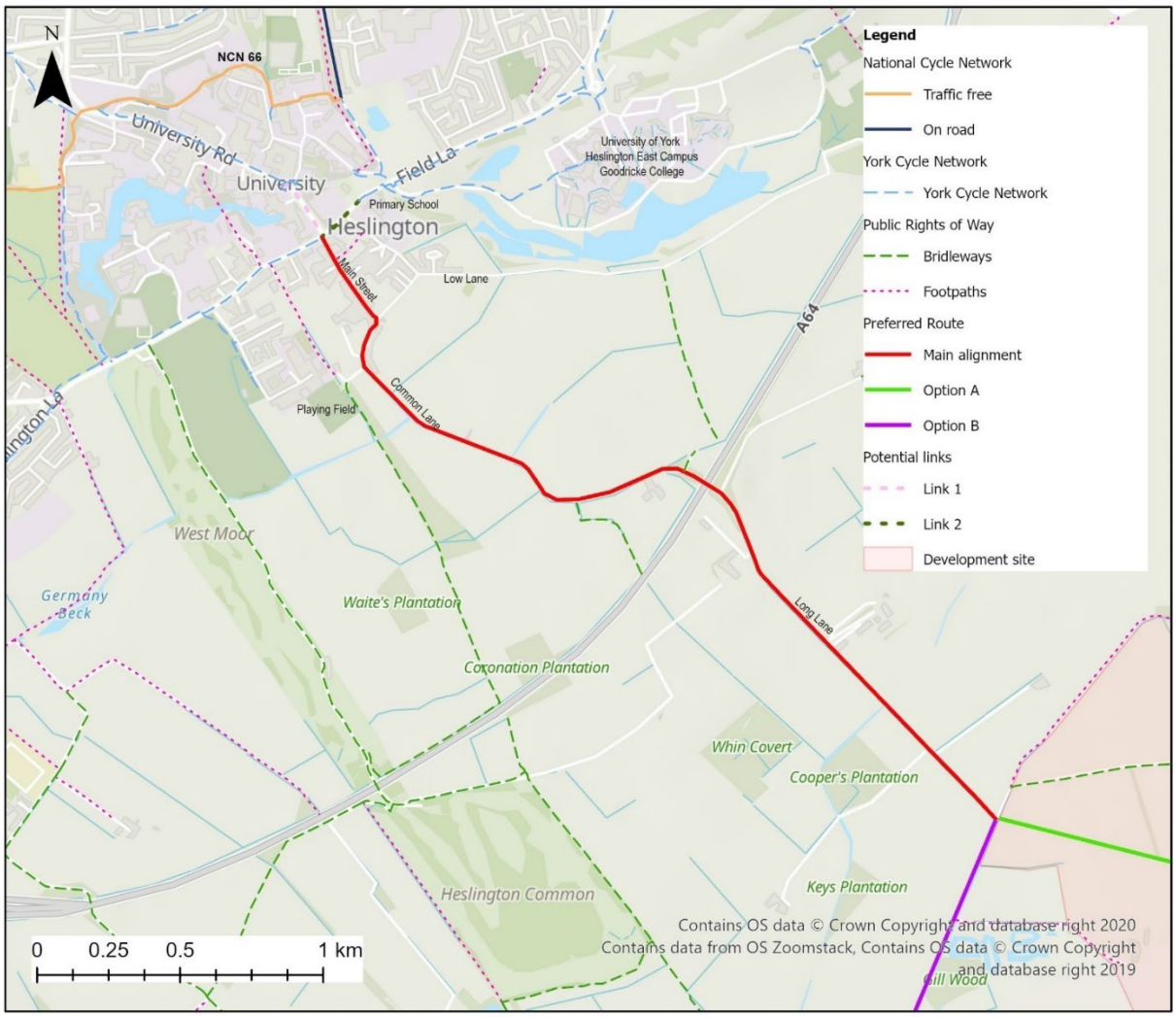


Figure 5: Preferred routes - Section 1, Sustrans 2022

Section 2: Long Lane – Brinkworth Rush

The main alignment continues along an existing farm track leading from Dodsworth Farm via Brinkworth Rush to the industrial estate. It was chosen as the preferred alignment over the parallel route along the access road to Cannon House farm to maximise the use of existing infrastructure and to minimise impact on landowners and stakeholders by creating a new route (Figure 6).

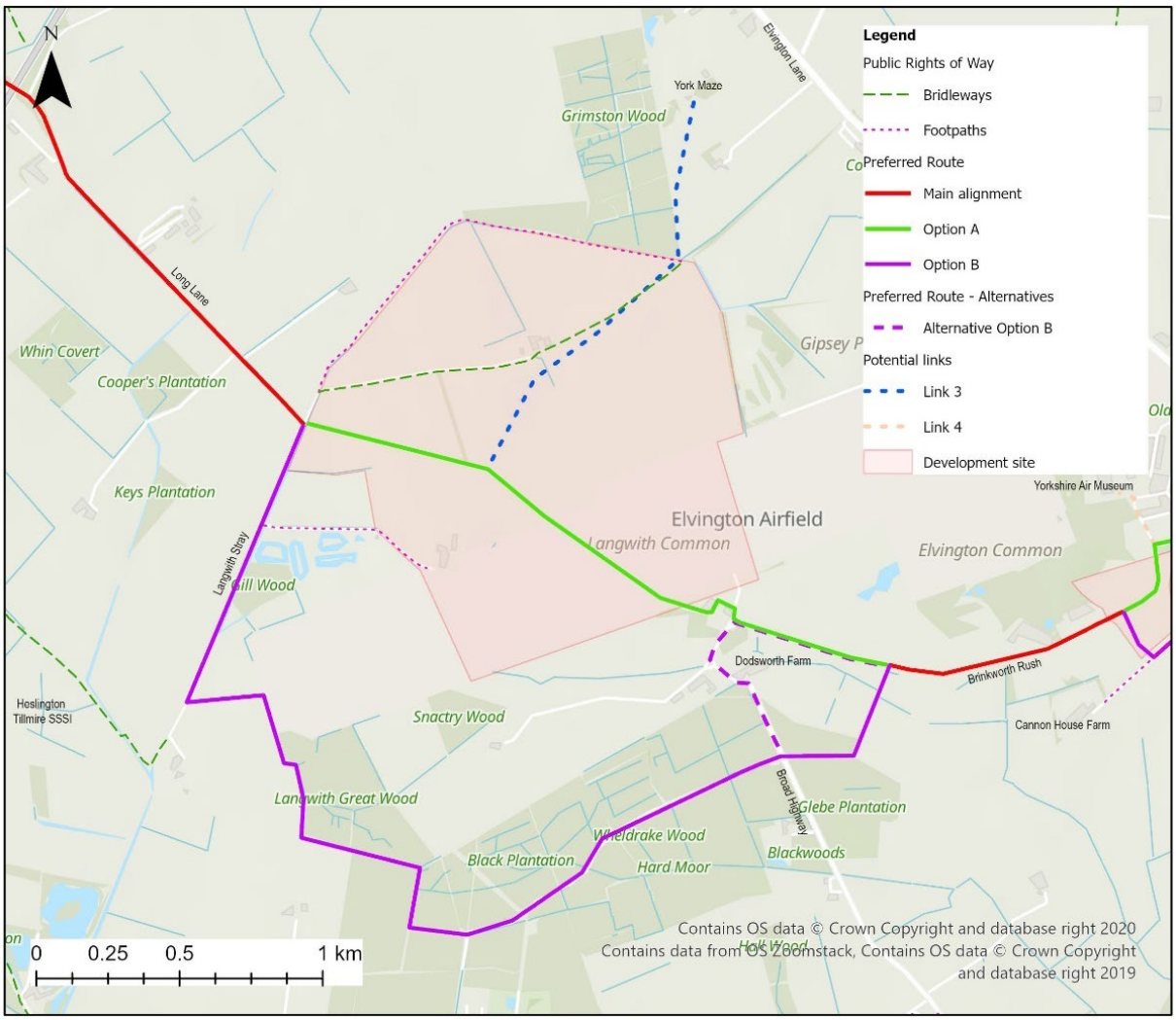


Figure 6: Preferred routes - Section 2, Sustrans 2022

Option A

This alignment is preferred as it is more direct than Option B and could potentially route through the proposed new garden village at Elvington Airfield. Detailed proposals and timescales for delivery of the proposed development are not yet in the public domain, presenting a risk to route delivery. An alignment across the proposed housing development was selected based on directness, and the lesser impact of a route through the proposed development than via Langwith Fishing Lakes and Langwith House. A route across the proposed development also provides a potential link to the York Maze visitor attraction. This

alignment continues southeast along a farm track past Dodsworth Farm before joining Brinkworth Rush.

Option B

This alignment is less direct than Option A, but could be delivered in the shorter term. Considering the timescales for the Heslington to Wheldrake scheme with the aim to deliver a route by 2023, this section of the alignment would also be suitable for the Wheldrake link. The alignment follows the farm road Langwith Stray and then connects via a new section of route along the western edge of the airfield and Langwith Great Wood to Wheldrake Wood before joining the existing forest road through the centre of Wheldrake Wood. The alignment then intersects with Broad Highway which provides a direct link into Wheldrake village, providing the potential for a single alignment for the schemes Heslington to Elvington and Heslington to Wheldrake. It then continues to Brinkworth Rush via a new traffic-free path through Glebe Plantation and field edges. Alternative Option B which follows the access roads to Dodsworth Farm to Brinkworth Rush was not chosen as the preferred alignment to minimise the impact on residents and landowners.

Section 3: Brinkworth Rush – Elvington Main St

The last section of the main alignment connects the Public Rights of Way off Beck Close via the quiet roads Beck Close and Beckside to Elvington Main Street (Figure 7).

Option A

The eastern section of the alignment follows Brinkworth Rush and Hunter Drive east before turning onto an existing former military track. It then crosses Wheldrake Lane to follow the northern field edge, avoiding existing hedgerows. This section provides potential links to Elvington Industrial Estate, the sports and play area, the primary school, and the medical practice on Elvington Lane. An alternative alignment provides a shorter connection from the Sewage Works to Beck Close.

Option B

The eastern section connects to an existing Public Right of Way via a gravel track off Brinkworth Rush. It then connects to the public footpath into Elvington via a short section along Wheldrake Lane. To avoid ecological impact, the route follows the existing track north of the footpath before joining the footpath into Elvington.

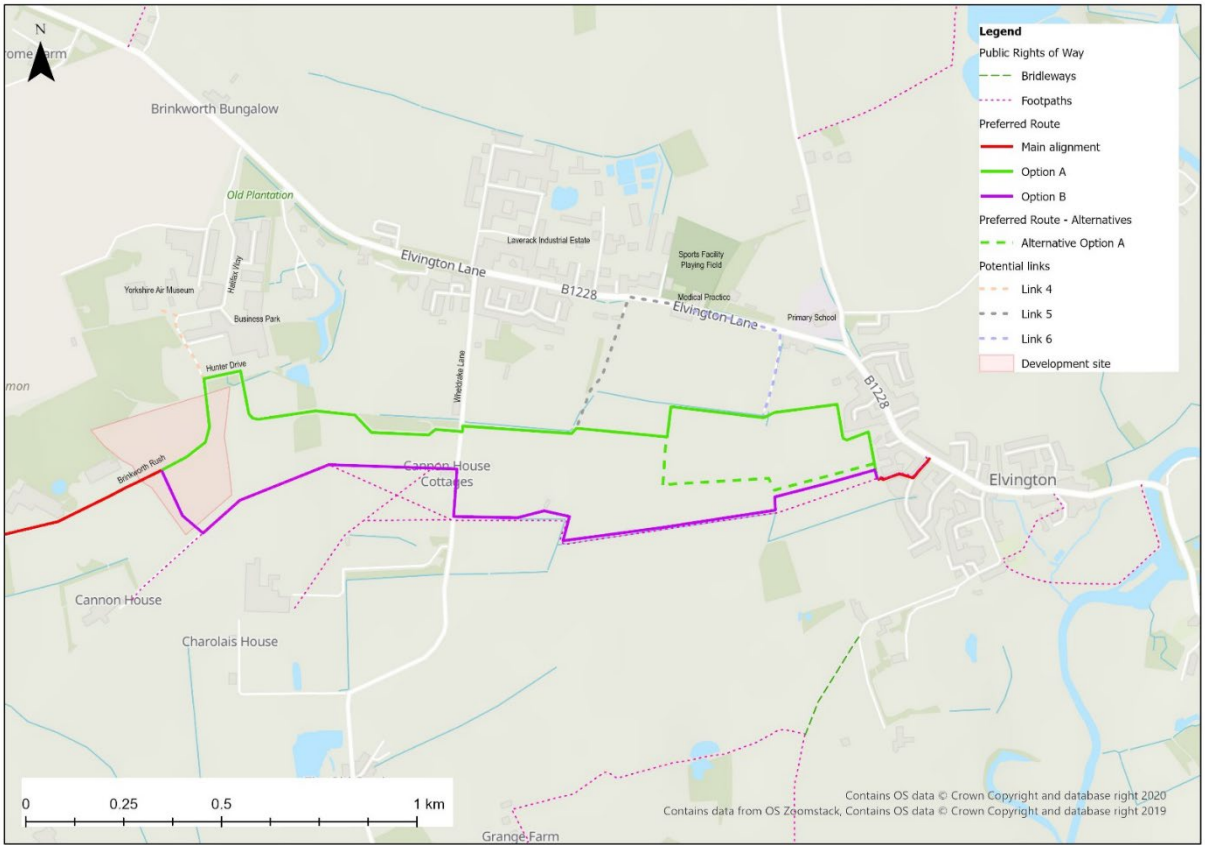


Figure 7: Preferred routes - Section 3, Sustrans 2022

A full description of the preferred routes can be found in Table 3 (overleaf).

Table 3: Description of preferred alignments

Alignment reference	Description of Strengths / Opportunities	Description of Weaknesses / Threats	User experience	Strategic potential	Impact on natural environment	Impact on residents/ stakeholders	Possible delivery risks	Overall score	Comments
1B-1 Hesl. roundabout -> Main Street -> Common Lane	Quiet road, no construction required; good links into York, Heslington, local trip attractors; local cycle network	No direct link into University / existing NCN	3	5	5	5	5	23	Preferred route
1C-1 Common Lane -> Long Lane	Quiet road; little construction required; attractive, direct; existing A64 bridge; link to local attractions / services, to housing development, existing PROW	Speed limit or construction of segregated infrastructure required.	4	5	4	4	4	21	Preferred route
2E-2 Long Lane -> northern edge of Elv. Airfield	Direct; good links to services in Hesl.; future housing development	Dependent on housing development	4	5	3	3	3	18	Preferred route - Option A
2D-3 Elv. Airfield	Direct; good links to Hesl., future housing development	Dependent on housing development	4	5	3	3	3	18	Preferred route - Option A
2C-3 edge of Elv. Airfield -> Dodsworth Farm access road	Quiet road; use of existing infrastructure; no ecological impact expected; links Elv. to Whel., links to employment sites	Dependent on landowner feedback; impact on privacy; resurfacing may be required.	4	5	4	2	3	18	Preferred route - Option A
2C-4 eastbound access road to Dodsworth Farm	Quiet road; use of existing infrastructure; direct; link to employment sites; link to Whel.	Dependent on landowner feedback; potential ecological impact	5	5	3	3	3	19	Preferred route - Option A
2A-1 Langwith Stray - edge of Elv. Airfield - NW corner of Langwith Great Wood (LGW)	Traffic-free; attractive environment; links to existing PROW network;	Construction required; dependent on landowner feedback; potential ecological impact; potential conflict with land use	4	5	3	3	3	18	Preferred route - Option B
2E-1 Long Lane -> Langwith Stray	Quiet way; existing infrastructure; attractive; links to services; link to future housing development	Resurfacing / widening may be required	5	5	4	4	4	22	Preferred route - Option B
2D-1 Langwith Stray	Quiet way; existing infrastructure; attractive; links to existing PROW	Resurfacing / widening may be required	5	5	4	4	4	22	Preferred route - Option B
2A-2 western and southern edge of LGW	Traffic-free; attractive environment	Construction required; dependent on landowner feedback; ecological impact	5	5	3	3	3	19	Preferred route - Option B

Alignment reference	Description of Strengths / Opportunities	Description of Weaknesses / Threats	User experience	Strategic potential	Impact on natural environment	Impact on residents/ stakeholders	Possible delivery risks	Overall score	Comments
2A-3 Dry track -> forest road	Traffic-free; attractive environment; links into Wheldrake.	Dependent on landowner feedback; not usable at all times due to weather + forestry operations; ecological impact.	4	5	3	3	4	19	Preferred route - Option B
2A-4 Broad Highway -> Glebe Plantation	Traffic-free; attractive and direct; links to employment sites; links to Whel.	Dependent on landowner feedback; ecological impact; not usable at all times due to weather + forestry operations.	4	5	2	3	3	17	Preferred route - Option B
2B-3 Glebe Plantation -> Dodsworth Farm access road	Traffic-free; direct and attractive; links to Whel., employment sites; preferred alignment by landowner in 2011 study.	Potential ecological impact; dependent on landowner feedback	4	5	3	4	4	20	Preferred route - Option B
2B-2 Broad Highway	Quiet way; use of existing infrastructure; link to Wheldrake	Dependent on landowner feedback; potential impact on stakeholders	4	4	4	4	4	20	Preferred route - Option B - Alternative
2C-2 Broad Highway -> Dodsworth Farm access road	Quiet road; use of existing infrastructure; link to future housing development.	Dependent on landowner feedback; impact on privacy; resurfacing required.	4	4	4	2	3	17	Preferred route - Option B - Alternative
2C-5 Dodsworth Farm access road -> Brinkworth Rush	Quiet road; existing infrastructure; direct; links to Elvington via business park and industrial estate	Volume and type of traffic on road requires construction of segregated infrastructure	3	5	4	3	4	19	Preferred route
3B-1 Brinkworth Rush -> Hunter Dr	Quiet way; use of existing infrastructure; link to employment sites and Elvington	Volume and type of traffic on road requires construction of segregated infrastructure	3	4	4	4	4	19	Preferred route - Option A
3B-2 Hunter Dr -> military track -> Wheldrake Lane	Quiet way; use of existing infrastructure; link to employment sites and Elvington	Indirect; volume and type of traffic segregated infrastructure; vegetation clearing required; dependent on landowner impact	4	4	4	3	3	18	Preferred route - Option A

Alignment reference	Description of Strengths / Opportunities	Description of Weaknesses / Threats	User experience	Strategic potential	Impact on natural environment	Impact on residents/ stakeholders	Possible delivery risks	Overall score	Comments
3B-3 Wheldrake Lane -> northern field edge towards Elvington	Traffic-free; direct and attractive; potential link to sports and play area, industrial estate	Dependent on landowner feedback; potential ecological impact; construction required	5	5	3	3	3	19	Preferred route - Option A
3D-1 northern field edge towards Elvington	**Traffic-free; direct and attractive; potential link to sports and play area, industrial estate**	**Dependent on landowner feedback; potential ecological impact; construction required**	**5**	**5**	**3**	**3**	**3**	**19**	**Preferred route - Option A**
3B-5 field edge -> Smelly Lane (Sewage Works)	Traffic-free; direct, attractive; link to medical practice, school and other services on Elvington Lane	Dependent on landowner feedback; potential ecological impact; construction required	5	5	3	3	3	19	Preferred route - Option A
3B-6 northern and eastern field edge to Elvington -> Beck Cl	Traffic-free; direct and attractive; potential link to medical practice, church and other services on Elvington Lane	Dependent on landowner feedback; potential ecological impact; construction required	5	5	3	3	3	19	Preferred route - Option A
3B-4 northern field edge -> across field -> Beck Cl	Traffic-free; direct and attractive	Dependent on landowner feedback; potential ecological impact; construction required	5	4	3	3	3	18	Preferred route - Option A - Alternative
3A-1 Brinkworth Rush -> dirt track to Cannon House Cottages	Quiet way; use of existing infrastructure; links into business park and industrial estate; links into Elvington	Resurfacing required; dependent on landowner feedback	4	5	4	3	3	19	Preferred route - Option B
3A-2 Cannon House Cottages access road -> Wheldrake Lane	Quiet way; partial use of existing public footpath; use of existing infrastructure; potential link into business park and industrial estate; links into Elvington	Resurfacing required; dependent on landowner feedback	5	5	4	3	4	21	Preferred route - Option B
3A-4 Wheldrake Lane -> dirt track -> public footpath	Traffic-free; use of existing public footpath; use of existing track; link to employment sites; attractive link into Elvington	Dependent on landowner feedback; potential ecological impact; construction required	5	5	3	3	3	19	Preferred route - Option B

Alignment reference	Description of Strengths / Opportunities	Description of Weaknesses / Threats	User experience	Strategic potential	Impact on natural environment	Impact on residents/ stakeholders	Possible delivery risks	Overall score	Comments
3D-2 northern field edge parallel to footpath -> Beck Close	Traffic-free; partial use of existing public footpath; potential link to employment sites; attractive link into Elvington	Dependent on landowner feedback; potential ecological impact; construction required	5	5	3	3	3	19	Preferred route - Option B
3B-7 Beck Cl -> Beckside -> Main Street	Quiet way; use of existing public footpath; direct; links into centre of Elvington; pub and local shop	Minor ecological impact on hedge	4	5	4	4	5	22	Preferred route

3.3. Revision of Preferred Alignments following Engagement

3.3.1. Landowner engagement

The two preferred route alignments were discussed with landowners affected by the proposals to determine the feasibility of the preferred alignments and to identify potential alternative alignments. Alternative alignments to those shown in Figures 5 to 7 were also discussed during these meetings, including some which had already been assessed during the initial stage of the ROA but some new routes emerged as well. These routes were assessed considering known site constraints and ROA criteria and those that were indirect or had major constraints were not taken to the next stage.

3.3.2. City of York Council

The preferred alignments were presented to City of York Council and were reviewed according to potential ecological impact. It was agreed with City of York Council that Option B via Wheldrake Wood would present a shorter-term route along section 2 whereas Option A through the housing development would present a long-term alignment for when the development will be built. It was agreed to focus on design solutions for Option B in section 2 and on Options A and B in section 3.

3.3.3. Revised alignments

The revised route alignments that emerged are shown in Figure 8 and are reflective of the feedback received from landowners and CYC. While most sections along these routes have the support of landowners, the sections across two land parcels, one to the west of Wheldrake Wood and one to the east of Wheldrake Lane, are currently not supported by the owners. However, after considering all the information from the two ROA stages, the presented routes emerged as the two preferred alignments.

The western section of Option B was adjusted to minimise the impact of new infrastructure on forestry and agricultural operations and to alleviate concerns relating to safety and privacy. The alignment was rerouted along the access road to Cannon House Farm to avoid conflict with traffic on Brinkworth Rush and to provide a safer and quieter route away from industrial sites. The dashed blue lines represent possible future additional beneficial links, dependent on site constraints and landowner feedback.

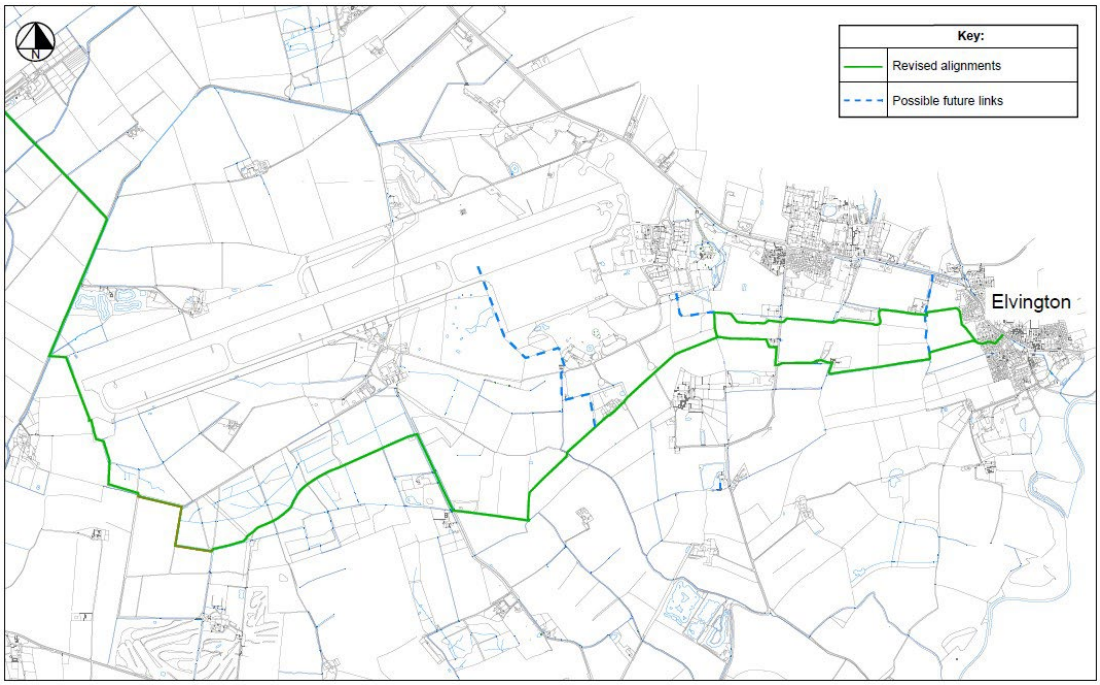


Figure 8: Revised alignments based on engagement, Sustrans 2022

4. Preferred Route

This chapter presents a concept design for the preferred Heslington to Elvington alignment. Information presented in this section should be read alongside the General Arrangement (GA) and cross section drawings presented in Appendix C. The alignment has been developed taking into account the design methodology presented in section 4.1, stakeholder feedback, and current design standards and guidance. In some sections of the route, a final alignment has not been possible to determine. Where this is the case, the general arrangement drawings show concept designs for possible options, to be finalised at a later date upon further engagement with landowners.

Under the Construction (Design and Management) regulations 2015 (CDM 2015) the recommendations provided are considered design advice. In accordance with the requirements of CDM 2015, a Designers Risk Register is included in Appendix D.

4.1. Design Methodology

4.1.1. Site information

The designs presented in this section have been developed based on Ordnance Survey (OS) mapping. Three separate site visits, in July, September and October 2021 have enabled the project team to assess the site under a variety of weather conditions. Site visits included staff from Sustrans, members of City of York Council, and selected landowners.

4.1.2. Applicable design standards and guidance

Since the original study completed in 2011, design standards for cycling and walking infrastructure have been significantly overhauled. The Heslington route recommendations have been developed in accordance with *Cycle Infrastructure Design: Local Transport Note 1/20*[1], hereafter referred to as **LTN1/20**. For the traffic-free section specifically, designs have also been informed by Sustrans' *Traffic-free Routes Design Guide*[2], hereafter referred to as **Sustrans' guidance**.

These guidance documents set out key principles for design, construction, maintenance and use of cycling and walking infrastructure, to ensure that new infrastructure is inclusive for all users. While there are sections of existing National Cycle Network (NCN) within York that do

[1] Cycle Infrastructure Design: Local Transport Note 1/20, DfT, 2020
[2] Traffic-free Routes Design Guide, Sustrans, 2022

not meet current standards, we consider it appropriate to apply these guidance documents to any new infrastructure, in order to ensure that the standard of provision across the region is continually improving.

4.2. Design Philosophy

4.2.1. Core design principles

LTN1/20 design principles represent the "*core requirements for people wishing to travel by cycle or on foot*" and apply to all sections of the proposed route. Sustrans' guidance is specifically concerned with traffic-free routes. The five key principles for a high-quality user experience are common to both sets of guidance:

- **Coherent** –simple to navigate, enable users to reach their destination easily, and have obvious connections between successive sections.
- **Direct** –provide the shortest and fastest way of travelling from place to place and enable momentum to be maintained, thus minimising the effort required to cycle.
- **Safe** – infrastructure should not only be safe but should be perceived to be safe. Safety also includes the personal security of users.
- **Comfortable** – have a good quality, well-maintained surface, with enough room to allow users to pass without conflict.
- **Attractive** – provide a sensory experience in addition to mobility. Routes with space to stop and rest, and within a natural environment are likely to be attractive to users.

In addition, Sustrans' guidance presents specific core design principles for traffic-free routes. A route should:

- Be traffic free
- Be accessible to all legitimate users
- Be wide enough to accommodate all users, considering future and predicted usage levels
- Minimise maintenance requirements
- Be clearly and consistently signed
- Enable all users to cross roads safely
- Be attractive and interesting places to be

— Have a smooth surface that is well-drained

— Feel like a safe place to be

The route assessment and designs presented in this report have been developed in accordance with LTN1/20 and Sustrans' guidance. Design decisions are explained in the context of the principles summarised above.

4.2.2. Type and width of provision

LTN1/20 covers provision of cycling and walking infrastructure alongside highways, and away from highways on traffic-free routes. In both cases, there is considerable discussion about the need for suitable width of provision, to avoid conflict between users on and alongside the routes. For routes in and alongside highways, minimum suggested widths are correlated with traffic volume and composition to ensure user safety. For traffic-free routes, minimum recommended widths are suggested to minimise conflict between user-groups.

Traffic-free infrastructure is attractive to a wide range of users, including pedestrians, cyclists, horse riders and people using other non-motorised vehicles e.g., wheelchairs, scooters etc. Insufficient path widths can increase potential conflict between these user groups and decrease the level of comfort experienced by users. Separation increases the perception of safety and reduces the likelihood of conflict occurring.

However, as described in Sustrans' guidance, paths with no separation can also function well with minimal conflict, dependent on sufficient width being provided for expected levels of use. Sustrans guidance recommends that each situation be considered on a case-by-case basis. Table 4 summarises the advantages and disadvantages of shared and separated route provision based on Sustrans' guidance.

Table 4: Comparison of the advantages and disadvantages of separated versus shared-use paths

	Advantages	Disadvantages
Separated path	People on cycles able to maintain speed	Territorial behaviour and increased conflict when users are in the 'wrong' space
	Less intimidating for vulnerable and/or visually impaired users	Increased width of path required to maintain an acceptable facility for all users
	Reduces perception of user conflict	Can be ambiguous as to user entitlement
	Useful where there are people congregating at an attraction	
Shared use path	Flexibility during periods when mix of users may vary	High volumes of walkers may hinder people on cycles
	Less complex to construct and easier to maintain	High volume of people on cycles may intimidate walkers
	Encourages greater interaction between users	Less appealing to visually impaired users who may find sharing space with faster moving users to be intimidating
	Easier to accommodate cross movements	

Sustrans' guidance recommends a desirable minimum of 3m width for shared use (excluding verges). Away from the highway, or where there is insufficient width or budget, LTN1/20 permits the use of a shared path but recommends that their use only be considered where pedestrian numbers are lower than 300 per hour. If a shared use path is proposed, LTN1/20 recommends minimum widths as shown in Table 5 below.

Table 5: Recommended path widths (reproduced from Table 6-3, LTN1/20)

Cycle flow during peak hour[1]	Recommended minimum width of shared use path
< 300	3m
> 300	4.5m

[1]On shared use routes carrying up to 300 pedestrians per hour

Based on cycle counter data on Windmill Lane and Retreat Lane, it is considered highly unlikely that peak hour flows will exceed 300 cycles. Therefore, it is considered that 3m shared paths are suitable to accommodate anticipated cycle and pedestrian use. A further 2m trotting strip is suggested where new paths are in open fields with space to accommodate a wider track. This reflects the likelihood that cycle and equestrian use may both be present along the corridor.

Much of the alignment makes use of existing tracks and highways with widths varying from 2m to 5m. Treatment of these sections has considered not only geometry, but also the wider effects of varying existing provision, e.g., on user behaviour, environmental character, and drainage. In some cases, this means that a minimum 3m width has not been recommended. Where this is the case, reasons for maintaining a narrower corridor are clearly explained.

4.2.3. Quietways

In 2006, the DfT introduced regulations to enable local authorities to designate quiet rural roads as Quiet Lanes[3]. Quiet Lanes are minor rural roads appropriate for shared use by walkers, cyclists, horse riders and other vehicles. Sustrans' Quietways are based on the principle of Quiet Lanes. Quietways are stretches of the National Cycle Network (NCN) that: carry low volumes of vehicle traffic; include traffic signs and road markings to highlight the speed limit, and alert motorists to the likely presence of non-motor-based users in the road; and have good visibility to enable users to see each other.

LTN1/20 guidance states that designation of a street as a Quiet Lane may be "appropriate on rural lanes where actual speeds are under 40mph, and motor traffic volumes are less than 1,000 per day" (7.5.3). It is important to note that the package of measures used to create

[3] The Quiet Lanes and Home Zones (England) Regulations 2006

any particular Quietway will be dependent on individual circumstances, and no two quiet ways will be the same.

4.3. Design Narrative

The preferred route between Heslington and Elvington passes through a varying environment, from adopted highway, to forest and farm tracks, and green fields. The route emerges in Elvington through a quiet residential street, to join Elvington Lane near the heart of the village. Figure 9 to Figure 11 illustrate the various environments through which the new path will pass.

Figure 9: Langwith Stray – a narrow carriageway bounded by drainage ditches and high hedges, Sustrans 2022

Figure 10: Left – existing forest track through Wheldrake Woods; right – line of possible new forest track in private woodland, Sustrans 2022

Figure 11: Left – typical farm track; right – arable fields with Elvington in the background, Sustrans 2022

4.3.1. Suggested path design

General arrangement drawings 13252-N-DR-02-0001 to 0017 show the suggested provision along the length of the Heslington to Elvington alignment. Further details and the design rationale for the presented solutions are provided below. A design decision log is provided in Appendix E.

Heslington Main Street to Low Lane (13252-N-DR-02-0001)

Main Street Heslington is a 20mph village street with residences, two pubs and a small number of village shops along its length. Parking along the street is relatively extensive, with both designated parking spaces for the village amenities, and informal on-street parking present. The carriageway width along Main Street varies significantly from approximately 7m at its narrowest point, to over 18m in others.

Traffic flow along Main Street is assumed to be below 2000 vehicles per day. With a speed limit of 20mph, this meets the threshold for cycling in mixed traffic to be suitable for most people in its current state (Figure 4.1, LTN1/20). However, it is suggested that improvements be made along Main Street to further support cycling in mixed traffic.

The greatest risk to cycle and pedestrian users on Main Street currently is likely to be the movements of vehicles in and out of parking spaces, particularly where these are perpendicular to the carriageway and require reversing manoeuvres. Coupled with significant changes in width along the carriageway, some cycle users may currently find the street difficult to interpret and may struggle to choose an appropriate road position. A range of possible measures to improve the ‘readability’ of the street are listed overleaf.

— Cycle symbols to indicate primary riding position: a light-touch measure that may improve the confidence of users to adopt a safer central-carriageway position away from parked cars. The presence of cyclists in a central position within the traffic lane will also discourage motorized vehicles from poor overtaking behaviour that could serve to intimidate cyclists, particularly in narrower sections of road.

— Removal of the carriageway centre line: there is some evidence that removal of the centreline can reduce traffic speeds and reinforce a sense of 'place' rather than movement. Removal of the centre lines would likely be a measure taken in conjunction with others.

— Narrowing carriageway through protected on-street parking: where parking bays are currently painted, build outs could be provided to permanently narrow the carriageway and create a horizontal alignment that further slows traffic along the street. The presence of build outs will encourage cycle users to remain in the primary position even when parking levels are low, and provides an opportunity to introduce additional uncontrolled crossings to support pedestrian movements across the road.

— A survey to fully understand the traffic volumes and typical movements along Main Street would be advisable, to determine an appropriate level of intervention (if any).

In this study, cost estimates for Main Street are based on the provision of light touch measures only.

Main Street/Low Lane mini roundabout (13252-N-DR-02-0002)

Roundabouts and mini roundabouts are a major source of risk to cycle users in mixed traffic. The Low Lane/Main Street junction will be located on the main link between Common Lane and the start of the route to Elvington. It is therefore suggested that the mini roundabout at Low Lane is reconfigured to improve safety for cycle users travelling along Main Street. Reconfiguring the junction to provide priority to those travelling north-south will improve the safety of cycle users by eliminating the need to navigate the roundabout.

It is also recommended that Low Lane is converted to a one-way street (with traffic able to travel northeast) between Lloyd Close and the private driveway access 90 metres southwest of Lloyd Close. This will result in the elimination of almost all motor traffic emerging from Low Lane onto Main Street. Maintaining Low Lane access for cycles avoids forcing users travelling west on Field Lane to navigate the Field Lane roundabout and travel down Main Street. For cycle users travelling south-west on Low Lane the tightened kerb radii and central traffic island ensure that they are protected from motor traffic turning into Low Lane as they emerge onto Main Street.

Common Lane, Long Lane and Langwith Stray (13252-N-DR-02-0003 to 0009)

Beyond Main Street, the no-through roads of Common Lane, Long Lane and Langwith Stray continue south past several farms, livery yards, other businesses and Langwith Lakes, before terminating at a small group of farm residences. The roads are currently national speed limit (60pmh for single carriageway) beyond the last settlement in Heslington Village. Carriageway widths are narrow, ranging from 5.5m on the edge of Heslington Village, to 2m south of Langwith Lakes. This leads to domestic and farm vehicles travelling along the lanes occupying most of the carriageway as they do so (Figure 12).

Figure 12: Examples of large and small vehicles filling the carriageway on Long Lane/ Langwith Stray, Sustrans/ Landowner 2022

While carriageway widths are very narrow, levels of general traffic in this area are very low. Periods of higher traffic activity include (but are not limited to) event traffic to and from Langwith Lakes and farming movements e.g., at harvesting. Stakeholders raised concerns about the interactions of vehicles with non-motor-based road users, citing a lack of passing space, current speeds of some vehicles and tight bends with poor visibility.

The adopted highway boundary along this stretch of the route extends to the hedge line on both sides of the carriageway. In theory, this provides up to 12m available width, however, ditches are present within the adopted highway boundary on one or both sides of the road for much of its length. Based on current use and character, it is therefore suggested that new passing places at 150m spacing are provided along Long Lane and Langwith Stray, and where the existing carriageway width falls between 3.2m to 3.9m, it is narrowed to 3.2m to avoid close overtaking. Additionally, it is suggested that the speed limit is reduced to 30mph. Applying a Quietway treatment to the link will alert motor vehicle users to the possibility that pedestrians, cycles and equestrian user may be in the carriageway, and encourage them to alter their driving accordingly, particularly when approaching bends with restricted visibility.

LTN1/20 does not address single-lane roads specifically. However, information on contraflow cycling (section 7.3.5) suggests that for roads with no car parking, widths of 2.6m are acceptable for contraflow cycling, with 3.9m minimum width based on cars passing cycles.

For much of the link, carriageway widths are greater than 2.6m. Provision of passing places will ensure that road widths significantly exceed these minima at regular intervals, allowing safe passing by small and large vehicles alike. For much of the link the roads are straight, allowing good visibility for all users. Between passing places, the narrow carriageway width should ensure that vehicles' speeds remain limited.

Conversely, widening the carriageway along the whole link is likely to lead to increased vehicle speeds. Furthermore, carriageway widening would significantly increase the impermeable coverage along the link, with potential for adverse run-off and drainage impacts, and significant urbanising of the environment.

Langwith Stray to Broad Highway (13252-N-DR-02-0009 to 0012)

Between Langwith Stray and Broad Highway, the route follows a traffic-free alignment through fields and coniferous woodland. It merges to a 3.5m wide shared track through the woods. The narrower path in the woods reflects the more constrained environment compared to open fields and ensures that any new forest path provision is consistent with the existing forest track.

Where the path passes through fields a 3m shared path, with 2m adjacent trotting strip and 1m verges is suggested. The decision to provide a 3m shared path is based on the design philosophy set out in section 4.2.2. With several livery yards in the area, it is considered that equestrian use is likely. Hence a separate trotting strip is recommended where width allows. If sufficient land width is not available, removal of the trotting strip and provision of a flexible resin-bound rubber surface on the shared path may be acceptable.

Through the woods, the path alignment follows a combination of new and existing forest tracks. The existing forest tracks in Wheldrake Woods provide access for forestry vehicles and machinery during periods of woodland management. The tracks comprise a semi-bound limestone surface of widths between 3.2m and 3.5m. Discussions with landowners indicated a reluctance to upgrade this provision to a bound surface, due to the maintenance required before, during and after forestry works.

LTN1/20 recommends that sealed surfaces should normally be provided for new utility cycling routes. However, based on the current position of otherwise supportive landowners, other constraints to utility cycling, and the potential opportunity of providing a more direct sealed route in the long term (see section 4.3.5), it is recommended that initial provision through the woods matches the existing forest specification. Implementation of an enhanced maintenance regime would limit degradation of the track, minimising the disadvantages associated with provision of a semi-bound surface.

Broad Highway (13252-N-DR-02-0012 and 0013)

Broad Highway is similar in character to Langwith Stray and Long Lane, with a narrow carriageway bounded by verges and ditches. As with Langwith Stray and Long Lane, passing places at regular intervals are suggested. The rationale for provision of passing places is as described for Common Lane to Langwith Stray.

Broad Highway to Wheldrake Lane (13252-N-DR-02-0012 to 0016)

Between Broad Highway and Wheldrake Lane the alignment largely follows existing farm tracks. It is recommended that these tracks are resurfaced to provide a bound surface of minimum 3m width. A short stretch of new path is suggested to bypass the farmyard of Cannon House Farm. No adjacent trotting strip is recommended in this area, due to the presence of pre-existing tracks. It may be possible to negotiate informal use of the track verges for equestrian use at a later stage of the design process.

Wheldrake Lane (13252-N-DR-02-0016)

Wheldrake Lane runs north-south between Elvington Lane and Wheldrake, providing a connection between the two villages, and access to the A19 to the west. Vehicle flows of 2,500-3000 were recorded between 2018 and 2020, with <5% HGV. The current speed limit is 60mph at the point where the path would cross. Based on current conditions, LTN1/20 suggest a grade-separate crossing would be required[4]. This is highly unlikely to be provided and would be out of keeping with the surrounding rural environment.

Based on the assessment above, it is recommended that a lower speed limit of 40mph is implemented, and a signal-controlled Pegasus crossing (without separate corral) is provided. This approach is recommended for either of the two possible crossing points shown.

Elvington Fields (13252-N-DR-02-0016 to 0018)

Two possible alignments are shown across the fields between Wheldrake Lane and Elvington. For both alternatives, a 3m shared path, with 2m adjacent trotting strip and 1m verges is suggested. The decision to provide a 3m shared path is based on the design philosophy set out in section 4.2.2. If sufficient land width is not available, removal of the trotting strip and provision of a flexible resin-bound rubber surface on the shared path may be acceptable. At field entrances, provision of a brushed concrete pad will ensure adequate load capacity to support farm vehicles.

[4] Table 10-2: For roads of 60mph or over, only grade-separated crossings are indicated as being suitable for most people.

Ditch crossings

Along the length of the route, numerous ditches and small watercourses are present and require crossing. The exact treatment of these crossings is to be determined at a later design stage. For the purposes of costing, it has been assumed that all but one of these ditches will be culverted, to match the existing treatment visible where crossings are already in place. The one exception is at the location of the southern crossing of Wheldrake Lane, where a wide ditch is crossed by an existing wooden footbridge (Figure 13). In this location, a replacement bridge has been suggested.

Figure 13: Existing footbridge across ditch at southern crossing location, Wheldrake Lane, Sustrans 2022

Cross sections

Four typical cross sections are shown in drawings 13252-N-DR-02-1001 and 1002. These are summarised below:

- Bridleway: in areas of open fields, a 3m wide bound surface with adjacent trotting strip and verges is recommended. Treatments along the edge of the path may vary with landowner and access requirements.
- Shared Use Path: An alternative layout for a shared path without a trotting strip. Use of this section is limited to short, constrained sections at this stage.

— Forest Path: where the path passes through woods, a semi-bound limestone surface is proposed, at widths of between 3.2m and 3.5m, with adjacent 1m verges (minimum).

— Passing place: on existing rural carriageways, provision of 5.5m wide passing places at regular intervals are recommended. The exact horizontal alignment of each passing place will be determined by the presence of ditches at the edge of the carriageway.

4.3.2. Summary of proposed provision

Table 6 (overleaf) summarises the predominant proposed provision along the Heslington to Elvington alignment, grouped by infrastructure type. For each provision type, the relevant key symbol from the GAs is shown to assist with cross-referencing. The table summarises the design and delivery challenges associated with each provision type and provides comment on how the recommendations align with current guidance.

Currently, lighting is proposed only for the section of the scheme located between Elvington and the possible industrial estate link, due to the constraints present within the woodland sections of the route. Based on discussions with stakeholders, lighting within the woodland and immediate surrounding area is likely to be met with resistance and has the potential to create adverse ecological effects. Conversely, between Elvington and the industrial estate, the route passes through open fields, with lower ecological value. Provision of lighting in this section would facilitate year-round utility use between Elvington Village and the industrial estate and increase security for school travel in winter months.

There is a possibility of a more direct utility route through the proposed new development in the future, which would be more suitable for lighting, would provide a continuous sealed surface between Heslington and Elvington and would provide greater security for lone users after dark. While this possibility exists, the pursuit of the provision of lighting through the Woodland alignment may be detrimental to the chances of securing agreement for the route overall.

Extension of lighting provision can be explored in future design stages.

Table 6: Summary of proposed provision, Heslington to Elvington

Provision	Key Symbol	Approximate Location(s)	Nature	Design/Delivery Challenges	Deviations/comments on Guidance
Cycling in mixed traffic environment		Heslington: Main Street, Common Lane, Long Lane, Langwith Stray Elvington: Beck Close	Alterations to street environment to provide safe conditions for cycling in mixed traffic. Alterations may include speed limit reductions, the addition of signs and symbols to indicate cycle and other users in the carriageway, narrowing corner radii, and the provision of passing places PP on narrow carriageways.	Implementation of no-entry on Low Lane may meet with opposition. Known resistance to the use of Common Lane, Long Lane and Langwith Stray from some residents and the Parish Council.	Traffic speeds and volumes unknown. It is assumed that low anticipated volumes meet the conditions defined in LTN1/20 Figure 4.1.
Proposed Greenway (Bridleway)		Langwith Stray to Langwith Great Wood, Wheldrake Road to Elvington	3m asphalt surfaced path, with adjacent 2m trotting strip or compacted sub-base with seeded topsoil layer and 1m verges.	Mix of PRoW status: private land and/or existing footpath. PRoW upgrade/provision orders will be required as appropriate. Where voluntary agreement cannot be secured, path creations orders maybe required.	It is assumed that usage levels will not exceed recommended maximum for 3m shared use path.
Proposed Greenway – Forest Path		Langwith Great Wood, Wheldrake Wood	3.2m – 3.5m semi-bound limestone track with min 1m verges.	Route through working and leisure woods. Resistance to formalization of use by equestrian and cycle users likely. Upgrade from permissive RoW status required.	Surface provision is lower than recommended standard for utility cycling in LTN1/20.
Proposed Greenway – Shared use path		Off Broad Highway, Cannon House farm	2.3m to 3m asphalt surfaced path with 1m verges	Provided at pinch points or to be consistent with existing track provision.	At pinch points, widths are narrower than recommended standard for shared use paths/
Resurfacing		Broad Highway to Wheldrake Lane	Resurfacing existing farm tracks at grade.	Mix of PRoW status: private land and/or existing footpath. PRoW upgrade/provision orders will be required as appropriate.	

4.3.3. Constraints and risks

Table 7 (overleaf) summarises the major constraints present within the Heslington-Elvington corridor. These numbered constraints are labelled on the GA drawings. Risks associated with design, construction and use are included in the designer's risk assessment in Appendix D. Additional constraints may be identified in subsequent design stages.

Table 7: Summary of key constraints

No.	Drawing number	Description	Design assumptions/risk mitigation
1	13252-N-DR-02-0001	Traffic movements	Traffic movements in this area may be more frequent than assumed overall traffic volumes on the street. Further observation of vehicle movements and user behaviour in this area and the wider street is recommended at future design stages, to inform final recommended provision.
2	13252-N-DR-02-0004	Visibility	Visibility at this bend is reduced. Traffic volumes are assumed to be sufficiently low to enable constraint to be addressed with warning signs and markings. Passing place on bend provides wider carriageway for safe navigation of bend.
3	13252-N-DR-02-0005	Future development uncertainty	Concept plans for the possible future development of Elvington Airfield indicate the potential for a new road to connect with Common Lane at approximately this point. Existing recommendations should be reviewed on the confirmation or implementation of this connection. Use of the parallel bridleway could be considered if required.
4	13252-N-DR-02-0007	Future development uncertainty	Concept plans for the possible future development of Elvington Airfield indicate the potential for a new road to connect with Long Lane at approximately this point. Existing recommendations should be reviewed on the confirmation or implementation of this connection.
5	13252-N-DR-02-0007	Visibility	Visibility at this bend is reduced. Traffic volumes are assumed to be sufficiently low to enable constraint to be addressed with warning signs and markings. Vegetation removal and maintenance may be possible to improve sight lines.
6	13252-N-DR-02-0008, 0013	Narrow carriageway	The carriageway width along Langwith Stray and Broad Highway does not meet minimum width requirements of LTN1/20 (see section 4.3.1). It is assumed that traffic flows on Langwith Stray and Broad Highway are sufficiently low that the provision of passing places is adequate to address minimum width requirements at intervals. Widening of the carriageway was considered to introduce a greater risk of increased vehicle speeds. A residual risk remains that passing places will be used as parking spaces, however this would be true of all possible provision in this area. This could be addressed with enforcement.
7	13252-N-DR-02-0009	Route choice	Voluntary agreement for the use of land between Langwith Stray and Great Langwith woods has not been secured. All options explored in this area encountered similar issues. The route indicated is the least intrusive to nearby residents.
		Route choice	Overrun of vehicles from the runway has been raised as a concern. No evidence exists of such an issue having occurred in the past. Given the possible redevelopment of the runway, this risk is considered acceptable at this feasibility stage. Further investigation should be undertaken at later design stages.
8	13252-N-DR-02-0010	Ecological risk – Plantation on Ancient woodland Site (PAWS).	PAWS sites may retain ecological value in the soil, even when replanted. Additional surveys and mitigation are likely to be required for this section of the alignment. Mature trees to the southern edge of the plantation should be avoided.
9	13252-N-DR-02-0011, 0012	Provision	Stakeholder feedback suggests that provision of a bound, sealed surfacing in this area would be met with resistance. A semi-bound surface is proposed. This is a lower standard of provision than would usually be recommended based on guidance provided in LTN1/20.
10	13252-N-DR-02-0013	Pinch point	The existing track between Broad Highway and open fields is approximately 2.3m wide, bounded by private property and a ditch. This section, approximately 225m long, may remain as a pinch point.
11	13252-N-DR-02-0016	Ecological risk – habitat removal	Any disturbance to hedgerows, structures and watercourses will require additional surveys and mitigation measures to be undertaken.
12	13252-N-DR-02-0017	Route choice	Voluntary agreement for the use of land between Elvington and Wheldrake Lane has not been secured.

4.3.4. Access control

Both LTN1/20 and Sustrans' guidance emphasise the importance of ensuring that legitimate users can access traffic-free routes. In addition to the constraints listed above, the provision of a complete connection between Heslington and Elvington raises the possibility of misuse by illegitimate users, e.g., mopeds. This concern has been raised by stakeholders.

The Equality Act 2010 places a duty on local authorities and landowners to ensure that traffic-free paths are accessible to all legitimate users. LTN 1/20 states in section 8.3.1 that 'There should be a general presumption against the use of access controls unless there is a persistent and significant problem of antisocial moped or motorcycle access that cannot be controlled through periodic policing'.

Consultation with the police is required to understand what level of enforcement they would be able to offer to deal with any future occurrences of anti-social behaviour associated with mopeds or motorcycles. The police need to be able to give reassurance that they can tackle anti-social behaviour in order that the communities, local politicians, landowners, and other parties can support the removal and redesign of access control barriers along the Heslington and Elvington corridor.

Access controls such as chicanes or bollards can be used to prevent motor vehicles from accessing the traffic-free paths as shown in Figure 14. Appropriately spaced chicanes can also be used where there is a road safety concern, such as where a traffic-free path meets the highway, to slow users down and make them aware of the highway ahead. Chicanes can also be accompanied by warning signs to alert users of the highway ahead.

It is worth noting that there is no design standard that allows all user access whilst preventing moped or motorcycle access. Ultimately, it will be police enforcement that will deter anti-social behaviour by moped or motorcycle.

Figure 14: Examples of access controls that allow all legitimate use, Sustrans 2022

4.3.5. Effects of proposed development

The suggestions presented in this chapter are based on the existing make-up of the area, and current patterns of land use. However, as discussed in section 2.2.1, a new development of up to 4,000 new homes is proposed on land currently occupied by Elvington Airfield. While the intention to develop this land has been public for a long time, little detail exists regarding either the scheduling of the new development, or the composition of the new town and its associated infrastructure. Sketch images show new roads to the west of the development that either cross or connect with highways included within the proposed Heslington-Elvington alignment. The recommendations for these existing highways do not account for any changes to traffic volumes that may occur once the development is in place. A possible future alternative route avoiding Common Lane and following an existing bridleway is identified on the GAs (13252-N-DR-02-0003 to 0005) should traffic levels on Common Lane increase beyond acceptable limits for cycling in the carriageway.

It is imperative that as a minimum, the recommendations in this report and any resulting infrastructure provision are reviewed at such time as the details of the development and its impacts become clearer. Ideally, future designs associated with the development will not only take account of but enhance the experience of users of the Heslington to Elvington link. Specifically, the impact on active travel users along Main Road, Common Lane, Long Lane, and Langwith Stray should be assessed, and the opportunity to provide a more direct link through the development integrated into future planning conditions for the development. Access roads to the new development should be delivered with cycle and walking infrastructure in place. Figure 15 shows how the Sustrans' route proposal may connect with the future development and its access roads in the future. Figure 15 also illustrates how the

future development access roads may potentially interact with the on-road sections of the current route proposal.

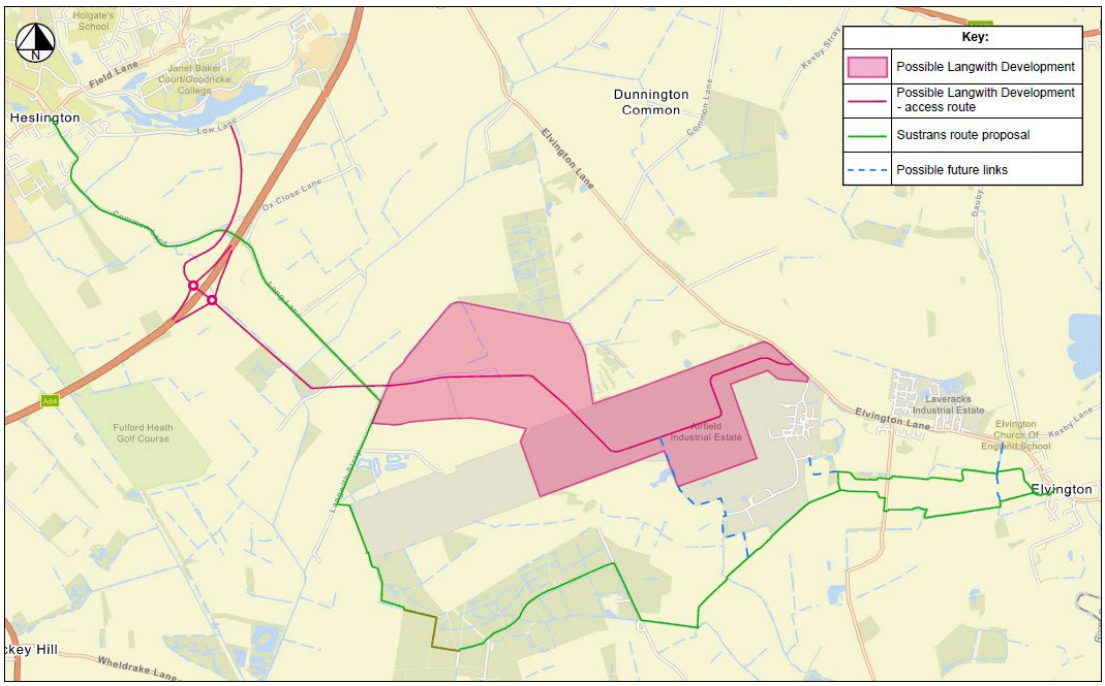


Figure 15: Sustrans route proposal, showing possible future links to any Langwith development and Elvington destinations, Sustrans 2022

4.4. Scheme Costs

Construction cost estimates for the scheme as shown in drawings 13252-N-DR-02-0001 to 0017 have been compiled using the application of rates recorded through the tendering and construction of Sustrans traffic-free projects, information published by the DfT, and publicly available rates from construction firms where applicable. The cost estimate comprises the following elements:

- Construction Cost. Costings have been developed using a combination of unit rates and linear/area-based calculations for engineering measures, as opposed to a calculation of material quantities. For example, construction of a 3m wide traffic-free path has been costed per linear metre of construction. Items such as crossing points have been costed per unit. The breakdown of costs is provided in Appendix F.
- Ecological mitigation costs have been calculated as 8.5% of the overall construction cost without preliminaries. The need for further surveys and a detailed design and management strategy has been indicated in the preliminary ecological appraisal.
- Land and legal costs have been estimated as 10% of the overall construction cost without preliminaries. This would typically account for the negotiation and purchase

of land, and cost estimates for the creation and upgrade of public rights of way. Costs that could be incurred in the event of extraordinary legal challenges (e.g., a public inquiry) have been excluded.

— Contractor Preliminaries have been calculated as 17% of the overall construction cost. This includes costs associated with establishing and managing the site.

— Biodiversity Net Gain (BNG) is estimated to add 20% to the construction cost with preliminaries. This accounts for costs associated with meeting mandatory requirements for Biodiversity Net Gain for all developments requiring planning permission from November 2023 onwards. The percentage has been calculated based on the estimated cost of purchasing BNG units to offset biodiversity loss due to construction.

— Construction contingency is calculated as 10% of the construction cost with preliminaries. This accounts for unexpected costs arising during the construction process.

— Design and development costs are calculated as 8% of the construction cost with preliminaries and contingency.

The total delivery cost is the sum of all the costs listed above and is shown in Table 8 and Table 9. A 44% optimism bias has been applied to the total delivery cost, based on guidance from the DfT Active Mode Appraisal Tool (AMAT). The two option costs represent the total cost for provision of one or other of the alignment possibilities between Elvington and Wheldrake Lane.

Table 8: Estimated delivery costs, Heslington to Elvington, Elvington Fields Northern alignment

Element	Cost	Notes
Construction (without preliminaries)	£ 1,618,673.00	Includes ancillaries: fencing, drainage, signs etc.
Ecology @ 8.5%	£ 137,587.00	
Land & Legal @ 10%	£ 161,867.00	
Construction Preliminaries @ 17%	£ 275,174.00	
Biodiversity Net Gain (New Route) 20%	£ 378,769.00	
Construction contingency @ 10%	£ 189,385.00	
Design & Development @ 8%	£ 166,659.00	
Total Cost (without OB)	£ 2,928,114.00	
Optimism Bias @44%	£ 1,288,370.00	Assumed Stage 1
Total Cost with OB	**£4,216,484.00**	
Path maintenance per year	£ 39,079.00	Calculated as percentage of construction costs without preliminaries. Applied to traffic-free path elements as shown in design schedule.

Table 9: Estimated delivery costs, Heslington to Elvington, Elvington Fields Southern alignment

Element	Cost	Notes
Construction (without preliminaries)	£ 1,663,237.00	Includes ancillaries: fencing, drainage, signs etc.
Ecology @ 8.5%	£ 141,375.00	
Land & Legal @ 10%	£ 166,324.00	
Construction Preliminaries @ 17%	£ 282,750.00	
Biodiversity Net Gain (New Route) 20%	£ 389,197.00	
Construction contingency @ 10%	£ 194,599.00	
Design & Development @ 8%	£ 171,247.00	
Total Cost (without OB)	£ 3,008,729.00	
Optimism Bias @44%	£ 1,323,841.00	Assumed Stage 1
Total Cost with OB	**£4,332,570.00**	
Path maintenance per year	£ 40,699.00	Calculated as percentage of construction costs without preliminaries. Applied to traffic-free path elements as shown in design schedule.

It should be noted that at the time of writing, construction costs are extremely volatile due to a range of global instabilities. While costs have been estimated to try and take account of rapidly changing rates, it is likely that further variance will occur. It is recommended that costs are reviewed at such time as they may be incorporated into a business case for delivery.

5. Land Ownership

This chapter describes the engagement process with landowners and outlines their views. It then assesses its impact on the feasibility of the routes and outlines possible next steps.

Owners of land affected by the proposals were identified using land registry searches and were contacted using publicly available information from the land registry and internet searches for local businesses. Those landowners that did not respond to the initial contact were contacted a second time. Landowners were invited to a meeting, either in person or online, to share their views. More information on affected land parcels and a list of all relevant title references are provided in Appendix G.

5.1. Landowner Views

5.1.1. Access control and levels of use

Concerns raised by landowners regarded privacy, safety, security, biosecurity, impact on agricultural operations, user conflicts, illegitimate use, agricultural theft, lamping and anti-social behaviour. Mitigation measures proposed by Sustrans to alleviate these concerns were the provision of fencing along the route across their land and access gates to move livestock when required. Sustrans highlighted that any physical barrier to deter illegitimate use would have to be designed to meet LTN1/20.

Several landowners also reported an increased use of the nearby woods and local public rights of way during the pandemic, particularly the lockdowns, leading to users trespassing on their land as well as obstructing access to their properties with parked cars. These landowners were worried that a new walking and cycling route would lead to similar levels of use and associated issues. To address this concern, a formalised alignment with fencing was proposed across their land to ensure users remain on the designated path when accessing the area.

5.1.2. Future development in the area

Another concern raised related to the interaction with potential development sites and the route's impact on service provision for these sites. One landowner expressed support for a route as long as it circumvented potential development sites. It was agreed that a potential alignment would consider these sites and follow the boundary of the earmarked land to minimise disruption.

One landowner also highlighted that there was considerable HGV traffic on Brinkworth Rush with the site operating 24/7. They reported that approximately 100 employees currently work on site and work in three shifts, with three busy times. They also acknowledged that there may be an intensification of use due to future industrial and business developments.

Landowners had mixed views regarding the proposed housing development on Elvington Airfield. Some expressed concerns regarding increased traffic and users accessing the area, with potential impact on their land, local nature and wildlife. Most landowners agreed that a route that links into the housing development would be preferable to encourage active travel to and from the site. Landowners affected by a potential link to the housing development were open to discussing an alignment as long as it did not interfere with agricultural operations and their concerns of privacy and security as well as the development potential of their land. The possibility of compensation was discussed to enable the creation of a link.

5.1.3. Path specifications

The owners of Wheldrake Wood and Langwith Great Wood were supportive of a route crossing their land as long as the alignment minimised the creation of new infrastructure and ensured minimal disruption to forestry operations. In order to facilitate their harvesting operations, specifications for path surfacing and width as well as the design of turning places were discussed. It was acknowledged that a route through these woods would have to meet these specifications to be supported by the landowners.

5.1.4. Other concerns

Some landowners also raised concerns relating to sections of the alignment not on their land. These largely overlapped with the comments received by Heslington Parish Council, which are summarised in Chapter 6.1.2. One concern that was raised related to the practical impact of constructing the route on residents' ability to access their land throughout.

5.2. Summary

Landowner engagement highlighted that most sections of the preferred alignments are clearly feasible. In some areas, alternative routes have to be investigated and concessions have to be made regarding directness and user experience (e.g. surface quality). Two sections of the alignment currently do not have the support from landowners, but considering the alternatives, crossing their land still presents the best option and it is recommended for the local authority to continue discussions with these landowners to reach an agreement. In the event that these negotiations do not lead to a voluntary agreement, the local authority has the option to use its statutory powers set out in the Highways Act 1980 to create a route.

Ecology

This chapter outlines the key findings of the ecological assessment and provides recommendations for further ecological surveys and mitigation to minimise the ecological impact of the proposals.

Sustrans commissioned an ecological assessment to review sections of potential traffic-free route options between Heslington and Elvington. The aim of the report was to identify important ecological risks and constraints that are of relevance to the proposals, and to highlight future ecological surveys and mitigation.

The routes of main interest at the time of commissioning were assessed. These are shown in Figure 1 in Appendix H.

5.3. Key Findings

The full report and summary table can be found in Appendix H. Key points identified are:

- Sections of the proposed routes pass through designated sites (Sites of Importance for Nature Conservations) and must comply with local planning policies. Some loss of habitat is anticipated.
- Langwith Great Wood contains mature / veteran oak trees in close proximity to the proposed route. These trees are considered irreplaceable habitat.
- Langwith Great Wood is a Plantation on Ancient Woodland Site. It is recommended that the cycle route does not enter but circumvents the Wood to avoid impacting the site.
- Impact on hedgerows and broadleaved deciduous woodland and trees is likely. This will require further assessment and mitigation.
- Acid grasslands were identified along the route which require further assessment to ascertain their quality and the mitigation required.
- The presence of several protected species was identified. Further surveys and assessments are needed to determine impact and required mitigation.
- Possible loss in nesting habitat and disturbance to ground nesting species due to recreational pressures. Surveys and mitigation for ground nesting species would be required.

— The section along Langwith Stray is within a Flood Zone 2 and 3 and would therefore require a Flood Risk Assessment for planning.

5.4. Recommendations

5.4.1. Preliminary Ecological Appraisal (PEA)

It is recommended that a PEA which encompasses all the proposed works (including access and storage areas) should be prepared at an early stage. This will further refine ecological constraints and opportunities that may be present and outline the further ecology survey works that will be required to support the scheme. This should include a Habitat survey accompanied by a detailed desk study including purchasing ecology data from the Local Environmental Record Centre.

The PEA will identify if further species surveys are required to inform the design of the scheme.

5.4.2. Trees and woodlands

It is recommended that the cycle route does not enter Langwith Great Wood, but circumvents it by remaining in the surrounding arable fields which are of low ecological importance.

Arboricultural Impact Assessments (AIA) should be carried out for Langwith Great Wood and Wheldrake Wood. This should be implemented at an early stage to inform the design and layout of the development. This survey would take into account tree root protection zones and likely changes to site levels.

To safeguard the habitats adjacent to site, adherence to an Arboricultural Method Statement (AMS) and Tree Protection Plan (TPP) will be required, to prevent damage to boundary features and retained trees.

5.4.3. Further assessment

It is recommended that any further assessment specified within the PEA is undertaken. Further assessment (e.g. badger, bats, water vole, otter and GCN surveys etc.) is best undertaken in accordance with the latest published best practice guidance and by suitably qualified, and where necessary licenced ecologists.

The findings of the PEA and further surveys should feed into the scheme design. For example, higher value habitats will be identified or any locations where alterations to the design proposals would significantly reduce potential adverse ecological impacts.

The findings of the PEA and further surveys (where required) should be combined, along with the finalised designs for the scheme into an Ecological Impact Assessment (EcIA) report. An EcIA is suitable for submission as part of any future planning application to LPA. In accordance with industry guidance, this report will evaluate potential effects of the proposals on ecological features. The report will also incorporate detail of measures to avoid, reduce and compensate for ecological impacts.

It is recommended that a Construction Environmental Management Plan (CEMP) is prepared prior to construction (including vegetation clearance) commencing. Typically, a CEMP would incorporate the findings of all ecology survey work completed to date and demonstrate how all legal requirements with respect to ecology will be met, including details of any Wildlife Licences issued by the relevant statutory authority or ecological supervision during construction to be undertaken.

5.4.4. Consultation with City of York Council's planning department and ecologist

An early discussion about the requirement for achieving Biodiversity Net Gain with City of York Council's planning department and ecologist is recommended. This would enable the financial implications of incorporating mitigation and enhancement measures into route delivery to be determined at an early stage. Discussion about the route passing through a SINC and PAWS would also be required, and the level of further survey work established to support designs and comply with planning policies.

5.4.5. Biodiversity Net Gain

The requirement for developments to achieve a Net Biodiversity Gain should be considered throughout the design process. Following the PEA, a Biodiversity Net Gain Assessment should be conducted using detailed designs.

Additional land or maintenance agreements to deliver Biodiversity Net Gain off-site may be required and should be considered during land negotiations.

5.5. Summary

The ecological assessment highlighted that further surveys and ecological assessments are required to determine the full impact of the proposed route and the mitigation required. The recommendation to avoid Langwith Great Wood presents a delivery risk for this project and needs to be investigated to determine the feasibility of the proposed alignment.

6. Stakeholder Engagement

This chapter outlines the process of stakeholder engagement that was undertaken and summarises the responses that were received.

6.1. Parish Councils

Parish Councillors for Heslington, Elvington and Wheldrake were invited to an online meeting to discuss the proposals for a new walking and cycling route between Elvington and Heslington as the suggested alignments would fall within their parish boundary. Meetings were held with members from both Elvington and Heslington Parish Council. No comments were received from Wheldrake Parish Council.

6.1.1. Elvington Parish Council

Elvington Parish Council expressed support for the suggested alignments and did not anticipate any contention with a widened, sealed surface to accommodate the route. Representatives of the council reported that most people currently follow the southern alignment along the existing public footpath into Elvington, with the most eastern section of the northern alignment currently fenced off as it has a grazing licence. They estimated that a quarter of workers at the industrial estates north of Elvington live in the village and highlighted that there were equestrian users in the village who currently drive to Wheldrake Wood to ride.

Representatives proposed a link from the suggested alignments via an existing track past the Sewage Works, locally referred to as Smelly Lane, to access the primary school on Elvington Lane. They considered this to be a potential route for school children as the current conditions on Elvington Lane are unsafe and unpleasant, with school children walking close to the edge of the pavement and HGVs driving on the pavement in order to pass each other. They also proposed a cycle link from Beckside to Church Lane to connect to a proposed housing development off Church Lane.

[Confidential information redacted]

6.1.2. Heslington Parish Council

Heslington Parish Council were supportive in principle of improving active travel links to Heslington but expressed reservations about the feasibility of the suggested alignment. Representatives cited safety concerns on Common Lane, Long Lane and Langwith Stray relating to road width, visibility, surface conditions and their frequent use by farm vehicles. They were concerned that an increased use of the lanes through the creation of the route would increase the safety risk. The council regarded additional passing places as insufficient in addressing these concerns, particularly as they were concerned that cars would park along the route. Representatives also believed that a link into the new housing development and a subsequent increase in use would have a detrimental effect on these roads.

The question of maintenance along these lanes was raised and council representatives suggested that drainage would have to be upgraded. They reported that the lanes are currently not maintained well. With regards to lighting, they cited environmental concerns with a potential impact on moth, barn owl and bat populations. There were also concerns regarding illegitimate use of the route by motorcycles which they highlighted was an existing issue on Tillmire SSSI.

6.2. User Groups

Local organisations with an interest in active travel were invited to attend two online sessions to comment on the proposals. Representatives of the British Horse Society, Open Country, York Cycle Campaign, Dunnington Group and Friday Group attended.

6.2.1. General feedback

All representatives expressed support for linking Elvington to Heslington and did not have concerns regarding the possibility of a 3m wide shared-use path, especially as they anticipated lower use compared to other routes in York. They also did not have any concerns regarding the use of Common Lane / Long Lane / Langwith Stray, reporting that narrow lanes like these are very common in the area and user conflicts rarely happen, with the onus on drivers of farm vehicles to ensure safe passing. Outlined below are more detailed responses from three user groups.

6.2.2. British Horse Society

There are currently 801 horses registered in the areas YO10 and YO41. The society's representative considered a non-separated Pegasus crossing across Wheldrake Lane

acceptable as he expected low use in the area. In terms of path width, a 5m wide path was considered ideal, however, a 3m path was reported to be acceptable as well. A rubber crumb surface would be preferred by equestrian users and its porous surface may be advantageous in the area due to frequent flooding, but the representative suggested that any surface down to dust was acceptable. The society is in discussions with Forestry England regarding the standardisation of user status and rider permits across their land. The representative suggested that the status of equestrian users in Wheldrake Wood, whether they are tolerated or considered legitimate users, would affect funding for the route.

6.2.3. Open Country

The organisation Open Country leads countryside activities for people with disabilities with a weekly Tandem Club and a monthly Walking Group in York. Representatives considered the proposed route to be beneficial for their groups as they currently do not have access to villages beyond Heslington due to a lack of continuous and barrier-free routes. They reported using NCN routes regularly as they typically do not have barriers. The proposed route was considered attractive particularly for leisure use and less attractive for utility cycling. Representatives did not have any specific concerns regarding the section through Wheldrake Wood and only mentioned potential security concerns which could be mitigated by low-level lighting, for example with spotlights. They also noted that 90-degree turns should be avoided to allow for generous turning circles.

6.2.4. York Cycle Campaign

The representative for York Cycle Campaign highlighted that the secluded nature of the alignment through Wheldrake Wood affects the versatility of the path, limiting it largely to leisure use and commuting during the summer and day light. The alignment was also considered to potentially increase conflict with other users as the Wood is heavily used by walkers. An alignment via Elvington Lane was considered more attractive for utility cycling and with the benefit of linking it to the bridleway to Kexby. With regards to the alignment section along Common Lane / Long Lane / Langwith Stray, little user conflict was expected, with the main conflict arising from drivers accessing fishing lakes. A quiet treatment of these roads was welcomed and speeds above 30mph were not considered appropriate.

7. Business Case

This chapter provides a Value for Money assessment of the proposal to support decision-makers in determining whether the expected costs of the proposal are justified by its expected benefits to the public. Achieving value for money is defined as 'using public resources in a way that creates and maximises public value' in the DfT's Value for Money Framework[5].

7.1. AMAT Analysis

The Active Mode Appraisal Toolkit (AMAT) is a spreadsheet-based tool published by the DfT for assessing the overall benefits and costs of proposed walking and cycling interventions. It is designed to be consistent with UK Government guidance on policy appraisal. It quantifies key impacts of proposed interventions to provide decision-makers with a comprehensive view about impacts on transport users, the environment, society, and the economy. By encouraging a consistent approach to measuring scheme costs and benefits, it enables the DfT to easily compare proposals and draw conclusions about whether a proposal offers value for money. Two AMAT analyses were undertaken to assess the benefits and costs of both the northern and the southern alignments. The complete AMAT spreadsheets detailing sources and assumptions can be found in Appendix I.

7.1.1. Inputs

Estimated usage

Sustrans' Research and Monitoring Team estimated current cycling and walking numbers for the study corridor, using a model which focuses on the likelihood of commuter journeys being taken by active modes. These estimates were used to generate projected usage figures for the proposed interventions using the Capital Fund Uplift Tool along with the scheme costs detailed in Chapter 4.4. The figures for both current and projected users shown in Table 10 were used to run the AMAT analyses for the northern and southern alignments.

[5] Value for Money Framework. Moving Britain Ahead, DfT, 2015.

Table 10: AMAT inputs for estimated usage – North Path

	Estimate of current users	Projected user numbers – North Path	Projected user numbers – South Path
Walking	932	1689	1710
Cycling	332	871	886

Costings

High level cost estimates for the two routes were produced and are discussed in Chapter 4.4. For both analyses, the total scheme costs of £4,216,484 for the northern alignment and £4,332,570 for the southern alignment were spread evenly across a five-year funding period.

7.1.2. Results

North Path

Figure 16 shows that this scheme has a Benefit-Cost Ratio (BCR) of 4.22 which means that for every £1 that is spent, the scheme is expected to return a benefit of £4.22 representing a high value for money.

Analysis of Monetised Costs and Benefits (in £'000s)	
Congestion benefit	62.05
Infrastructure maintenance	1.27
Accident	9.12
Local air quality	1.27
Noise	0.47
Greenhouse gases	14.37
Reduced risk of premature death	5773.45
Absenteeism	838.13
Journey ambience	1662.73
Indirect taxation	-14.11
Government costs	1978.43
Private contribution	0.00
PVB	8347.48
PVC	1977.17
BCR	**4.22**

Benefits by type:		
Mode shift	74.45	0.9%
Health	6611.58	79.2%
Journey quality	1662.73	19.9%

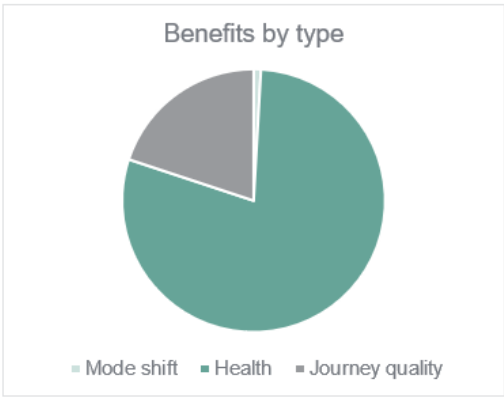


Figure 16: AMAT output for North Path

South Path

Figure 17 shows that the southern alignment returns a similar BCR to the northern alignment, scored at 4.21. It too represents a scheme with a high value for money.

Analysis of Monetised Costs and Benefits (in £'000s)	
Congestion benefit	63.77
Infrastructure maintenance	1.30
Accident	9.37
Local air quality	1.31
Noise	0.48
Greenhouse gases	14.77
Reduced risk of premature death	5933.85
Absenteeism	861.41
Journey ambience	1682.73
Indirect taxation	-14.50
Government costs	2032.90
Private contribution	0.00
PVB	8553.20
PVC	2031.60
BCR	**4.21**

Benefits by type:		
Mode shift	76.52	0.9%
Health	6795.26	79.4%
Journey quality	1682.73	19.7%

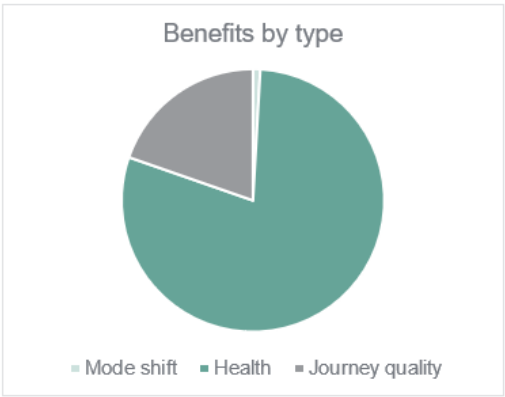


Figure 17: AMAT output for South Path

Other benefits

Other material benefits of the scheme which cannot currently be quantified in AMAT include improvements to townscape as well as an increase in leisure use and tourism. It is important to note that the AMAT focuses on mode shift for utility journeys, looking only at 250 'working days' of the year. Leisure, tourism and sport cycling, which are popular along the NCN 62 and TPT, are underrepresented in the Sustrans usage model and the AMAT.

8. Conclusions and Next Steps

Following the identification of a preferred route and two alignment options and their assessment against site opportunities and constraints, policy and design guidance, ecological impact, and stakeholder concerns, this study concludes that the feasibility of creating a high-quality NCN route between Heslington and Elvington is largely dependent on landowner approval.

The presented route would provide an attractive, safe, accessible, and direct alternative for walking and cycling to B1228 Elvington Lane and it would complement a Heslington to Wheldrake link. It would support both long distance journeys on the NCN and local journeys for work, education and recreation. The route would help to meet CYC's policy objectives of expanding its walking and cycling network beyond the urban core and creating access to villages; linking residential areas and employment sites; and improving the environment for active travel. It would also help to meet the national vision of providing attractive and safe active travel links to encourage more car-free journeys.

The route would broadly be to LTN1/20 standards with some departures owing to site constraints and landowner feedback. Mixed traffic is proposed along existing sections of highway, with minor interventions proposed to increase user safety (speed limit reduction, passing places, tightened geometry, formalised parking). For the new sections of the route, a 3m wide shared-use path is proposed with an adjacent 2m wide trotting strip for equestrians. A semi-bound path to forest track specifications is proposed for sections of the route through Langwith Great Wood and Wheldrake Wood. Lighting is proposed for open land sections but not through the wooded areas. These design compromises create potential accessibility issues for users with limited visibility, limited mobility or safety concerns.

Most landowners were supportive of the route and in principle agreed for the route to cross their land. However, landowners for two sections of the route, one to the west of Wheldrake Wood and one to the east of Wheldrake Lane, were not supportive of the proposals. This could present a challenge to the feasibility of the route.

Ecological constraints were identified for the section through Langwith Great Wood and further ecological assessments and surveys are required to determine the full impact of the alignment and potential mitigation measures.

The creation of the route is largely supported by local interest groups and parish councils following targeted engagement, but a few concerns were identified regarding its impact on landowners and local residents which need to be addressed during further engagement.

The business case analysis also supports the scheme, with benefit-cost ratios for the two alignment options at 4.21 and 4.22, representing high value for money.

The scheme is at an early stage of the development with many assumptions and potential key issues which could impede the scheme. The following next steps are recommended to develop the scheme:

- Resolve the scheme's interaction with the Heslington to Wheldrake scheme. It is recommended that both schemes are designed under a single scheme to avoid duplication and maximise coherence. It needs to be further investigated whether both links could also be delivered under a single scheme. This is particularly relevant as the Heslington to Wheldrake scheme is scheduled for delivery in 2023.
- Resolve the interaction of the scheme with the proposed housing development on Elvington Airfield. It is recommended to impose a condition on the developer to embed a safe and accessible active travel link to LTN 1/20 standards between Heslington and Elvington to ensure walking and cycling links in the long term.
- Negotiate with affected landowners and property owners to obtain approval.
- Carry out preliminary ecological assessment and species surveys identified in the ecological report to determine the feasibility of the alignment and mitigation measures.
- Carry out topographical, utility and traffic surveys to understand site opportunities and constraints and to inform design development.
- Identify funding and delivery methods to ensure that the scheme is deliverable and to understand what the delivery requirements such as planning permission will be.

Appendix A – 2011 Report [redacted]

Appendix B – Route Options Appraisal

Route Options Assessment

Project: DfT4_13252_Heslington - Elvington Feasibility Study
Compiled by: Katharina Kopf
Document ref: 13252-N-XX-02-0004
Date Updated: 26/04/22

Critical	Very Poor	Poor	Average	Good	Very good
0	1	2	3	4	5

If a section scores critical for any measure, it shall be discounted, and no further criteria need be assessed.
Weightings are set on Introduction Sheet. Default value = 1

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			Criteria score and weighting							
Alignment reference	**Description of Strengths / Opportunities**	**Description of Weaknesses / Threats**	- User experience	- Strategic potential	- Impact on the natural environment	- Impact on residents and stakeholders along route	- Possible delivery risks	Overall unweighted score	**Overall (weighted) score**	**Comments**
			1	1	1	1	1			
1A-1 Heslington Lane -> golf course access road	Quiet way; use of existing bridleway, connects to Heslington and Fulford, University Campus, Science Park; connects to York Cycle Network; uses existing bridge over A64	Construction required to widen access to Heslington Lane - potential impact on ecology / landowners; potential user conflict with golf club users; steep gradient on A64 bridge	4	5	3	3	4	19	19	Moderate to little ecological impact expected. Potential delivery risk regarding landowner / stakeholder support. Overall, attractive option with good links.
1A-2 golf course access road	Quiet way; use of existing bridleway, links to wider public rights of way network.	Potential conflict with golf course users; resurfacing required to provide smooth, well drained surface.	4	5	4	3	3	19	19	Attractive alignment which links to wider network. Main risk is user conflict. Would have to be discussed with landowner.
1A-3 golf course access road -> public footpath -> public bridleway	Use of existing public bridleway and footpath; traffic-free; direct and attractive; connects to other PROW.	Potential conflict with golf course users; dependent on landowner feedback; path construction required; edge of SSSI - major ecological and planning concerns	4	5	0	3	0	CRITICAL	CRITICAL	Alignment follows edge of SSSI - major ecological and planning concerns mean it is not feasible
1B-1 Heslington roundabout -> Main Street -> Common Lane	Quiet road, no / little construction required; good links into York, Heslington, Fulford; to Campus, Science Park; connects to local cycle network	Does not connect to direct infrastructure link into University / existing NCN - connection is on-road	3	5	5	5	5	23	23	Alignment with excellent links to attractions and wider network which requires little to no construction. Little impact on ecology, stakeholders / landowners expected. No major delivery risks identified.
1B-2 Heslington Main Street -> public bridleway -> new A64 bridge -> golf course access road	Quiet way / traffic-free alignment; use of existing public bridleway; direct and attractive; connects to other PROW; new A64 to LTN 1/20 standard.	Cost of new A64 bridge; potential ecological impact of construction; dependent on landowner and stakeholder feedback.	5	5	3	3	2	18	18	Attractive, accessible traffic-free alignment with main risk regarding construction cost of new bridge
1B-3 access road -> public bridleway on eastern edge of golf course	Traffic-free; use of existing public bridleway; connects to other PROW; attractive and direct	Resurfacing required for smooth, well drained surface; potential user conflict with golf course; onward connections severely limited by ecological / planning concerns associated with SSSI	5	5	2	3	1	16	16	In itself attractive alignment, however, major risk re further connections due to ecological and planning concerns associated with Tillmire SSSI.
1B-4 southbound public bridleway to Fir Tree Farm -> Langwith Stray	Traffic-free; use of existing public bridleway; connects to other PROW; attractive and direct	Path construction required; edge of SSSI - major ecological and planning concerns	5	5	0	3	0	CRITICAL	CRITICAL	Alignment follows edge of SSSI - major ecological and planning concerns mean it is not feasible
1C-1 Common Lane -> Long Lane	Quiet road; little to no construction required; attractive and direct; existing A64 bridge; good link between Heslington and local attractions and services and Langwith; potential link to future housing development; link to existing PROW	Introduction of speed limit or construction of segregated infrastructure required.	4	5	4	4	4	21	21	Alignment with low delivery risk as on adopted highway requiring little construction. Potential objections from some stakeholders to lower speed limit or new infrastructure.
2A-1 Langwith Stray - edge of Elvington Airfield - northwestern corner of Langwith Great Wood (LGW)	Traffic-free; attractive environment; links to exsting PROW network; establishes link between Heslington - Elvington via Wheldrake Wood connection	Path construction required; dependent on landowner feedback; potential ecological impact regarding hedges; potential conflict with with agricultural use of area	4	5	3	3	3	18	18	Alignment partially establishes attractive link between Langwith / Heslington and Elvington / Wheldrake. Delivery risk relates to landowner feedback and potential ecological impact.
2A-2 Western edge of LGW -> southern edge of LGW	Traffic-free; attractive environment; establishes link between Heslington - Elvington via Wheldrake Wood connection	Path construction required; dependent on landowner feedback; potential ecological impact on woodland	5	5	3	3	3	19	19	Alignment partially establishes attractive link between Langwith / Heslington and Elvington / Wheldrake. Delivery risk relates to landowner feedback and potential ecological impact.

			Criteria score and weighting							
Alignment reference	**Description of Strengths / Opportunities**	**Description of Weaknesses / Threats**	- User experience	- Strategic potential	- Impact on the natural environment	- Impact on residents and stakeholders along route	- Possible delivery risks	Overall unweighted score	**Overall (weighted) score**	**Comments**
			1	1	1	1	1			
2A-3 Southbound track in Wheldrake Wood -> existing forest road	Traffic-free; attractive environment; provides links into Wheldrake.	Dependent on landowner feedback; may not be usable at all times of day/ year due to weather and light as well as forestry operations; potential ecological impact.	4	5	3	3	4	19	19	Alignment has low delivery risk as landowner supportive in past and provides connections to Wheldrake. Potential risk regarding user experience as may not be usable all year round due to weather / seasons/ conditions / forestry operations. Potential ecological impact.
2A-4 Broad Highway -> eastbound path through Glebe Plantation	Traffic-free; attractive and direct; links to Elvington, Wheldrake, local business park and industrial estate.	Dependent on landowner feedback; potential ecological impact; may not be usable at all times of day/ year due to weather and light as well as forestry operations.	4	5	2	3	3	17	17	Alignment provides direct link to Elvington with good links to Wheldrake. Potential impact on landowner; ecology; user experience.
2A-5 northern edge of Glebe Plantation -> field edge -> access road to Cannon House Farm	Quiet way; attractive and direct link; partial use of existing public footpath	Path construction required; resurfacing required for smooth, well drained surface; dependent on landowner feedback; potential impact on residents and agricultural operations; potential ecological impact	5	5	3	2	3	18	18	Attractive alignment along quiet way and existing public footpath. Potential impact on landowner, residents and agricultural operations
2B-1 northern edge of Wheldrake Wood	Traffic-free; attractive and direct; follows forest edge to enable use all-year round	Potential ecological impact as close to forest edge; potential impact on privacy / security of residents; dependent on landowner feedback	5	5	3	2	3	18	18	Traffic-free alignment for all-year-round use but with potential impact on residents' privacy.
2B-2 Broad Highway	Quiet way; use of existing infrastructure; link to Wheldrake	Dependent on landowner feedback; potential impact on stakeholders	4	4	4	4	4	20	20	Alignment with links to Wheldrake and low delivery risk.
2B-3 edge of Glebe Plantation -> field edge -> access road to Dodsworth Farm	Traffic-free; direct and attractive; links to Wheldrake, Elvington, business park and industrial estate; preferred alignment by landowner in 2011 study.	Potential ecological impact; dependent on landowner feedback	4	5	3	4	4	20	20	Alignment which establishes link between Elvington and Wheldrake identified previously as preferred alignment by landowner
2C-1 northern edge of LGW -> southern edge of Elvington Airfield	Traffic-free; direct; establishes link between Langwith and Elvington with potential onward connections to business park and industrial estate, existing PROW; potential link to housing development	Dependent on landowner feedback. Landowner previously against alignment - section of alignment not included in development site allocation - concern re landowner support. Potential ecological impact - adjacent to ancient woodland. User experience depends on alignment / future development.	3	5	3	2	2	15	15	Alignment with considerable constraints regarding landowner feedback and ecological impact. Delivery risk may be lower for long-term route; higher for short-term route.
2C-2 Broad Highway - access road to Dodsworth Farm	Quiet road; use of existing infrastructure; creates link between Langwith and Elvington; link to future housing development.	Dependent on landowner feedback; impact on privacy; resurfacing may be required.	4	4	4	2	3	17	17	Alignment which creates link between Elvington and Wheldrake. Potential risk regarding landowner feedback / privacy.
2C-3 edge of Elvington Airfield -> access road to Dodsworth Farm	Quiet road; use of existing infrastructure; no ecological impact expected; links Elvington to Wheldrake, links to business park and industrial estate.	Dependent on landowner feedback; impact on privacy; resurfacing may be required.	4	5	4	2	3	18	18	Alignment which creates link to Langwith and the future housing development. Potential risk regarding landowner feedback / privacy.
2C-4 eastbound access road to Dodsworth Farm	Quiet road; use of existing infrastructure; direct link into Elvington, business park and industrial estate, establishes connection to Wheldrake	Dependent on landowner feedback; potential ecological impact	5	5	3	3	3	19	19	Alignment creates direct link into Elvington and local attractions. Delivery depends on landowner feedback.
2C-5 access road to Dodsworth Farm -> Brinkworth Rush	Quiet road; existing infrastructure; direct; links to Elvington via business park and industrial estate	Volume and type of traffic on road requires construction of segregated infrastructure	3	5	4	3	4	19	19	Alignment provides good links and has low delivery risk as works confined to carriageway. Potential risk is traffic.
2D-1 Langwith Stray	Quiet way; existing infrastructure; attractive; links to existing PROW	Resurfacing and path widening may be required	5	5	4	4	4	22	22	Attractive alignment with potential onward connections uses existing infrastructure with minimal construction required

		Criteria score and weighting								
Alignment reference	**Description of Strengths / Opportunities**	**Description of Weaknesses / Threats**	- User experience	- Strategic potential	- Impact on the natural environment	- Impact on residents and stakeholders along route	- Possible delivery risks	Overall unweighted score	**Overall (weighted) score**	**Comments**
			1	1	1	1	1			
2D-2 Langwith Stray -> public footpath past fishing lakes -> northern edge of Elvington Airfield	Use of existing public footpath; quiet way; partial use of existing infrastructure; links into future housing development; link to Heslington and local attractions	Dependent on landowner feedback; dependent on housing development; potential conflict of interest - fishing; potential impact on residents; path construction required	4	5	3	3	3	18	18	Alignment provides direct link into future housing development. Proximity to fishing lakes and farm makes it dependent on landowner / stakeholder feedback.
2D-3 Elvington Airfield	Direct; good links to Heslington, Elvington, future housing development	Dependent on housing development	4	5	3	3	3	18	18	Alignment provides direct link between Heslington and Elvington via the housing development. Feasibility depends on timescale of development.
2D-4 southern edge of Elvington Airfield -> woodland -> Halifax Way	Traffic-free; links to future housing development, business park, industrial estate, Elvington.	Dependent on landowner feedback; considerable ecological impact on woodland	4	4	1	3	2	14	14	Alignment provides traffic-free link from future development site to business park / Elvington. Concern regarding considerable impact on woodland and associated delivery risk.
2E-1 Long Lane -> Langwith Stray	Quiet way; existing infrastructure; attractive; links into Heslington; potential link to future housing development	Resurfacing and path widening may be required	5	5	4	4	4	22	22	Attractive alignment with potential onward connections uses existing infrastructure with minimal construction required
2E-2 Long Lane -> northen edge of Elvington Airfield	Direct; good links to Heslington, Elvington, future housing development	Dependent on housing development	4	5	3	3	3	18	18	Alignment provides direct link between Heslington and Elvington via the housing development. Feasibility depends on timescale of development.
2E-3 northern edge of Elvington Airfield	Potential link between Heslington and Elvington via future housing development site	Dependent on housing development; dependent on landowner feedback; onward connection likely via Elvington Lane	4	4	3	3	3	17	17	Alignment follows edge of development site and airfield. Potential for short-term and long-term route; however, less direct and desirable alignment as would link via Elvington Lane.
2E-4 western edge of Gipsey Plantation -> northern edge of Elvington Airfield	Potential link between Heslington and Elvington via future housing development site	Less direct; dependent on housing development; dependent on landowner feedback; potential ecological impact	4	3	3	3	3	16	16	Alignment follows edge of development site. Potential for short-term and long-term route; however less direct alignment.
2E-5 northern edge of Elvington Airfield -> Drome Farm access road	Quiet way; use of some existing infrastructure; attractive and direct; links to future housing development and Elvington	Dependent on landowner feedback - prevous opposition from landowners; onward connection via Elvington Lane	4	4	3	3	3	17	17	Alignment connects to Elvington Lane and has moderate delivery risk with negative landowner feedback in the past
2E-6 Elvington Lane near Elvington Airfield	Potential link to future housing development; link to business park and industrial estate; link to Elvington	Dependent on landowner feedback; potential ecological impact; moderate delivery risk regarding construction and LTN 1/20 compliance; negative user experience	1	4	3	4	3	15	15	Alignment has moderate delivery risks regarding construction and LTN 1/20 compliance as well as negative user experience
2F-1 Long Lane -> Langwith Stray -> public bridleway	Quiet way; existing infrastructure; attractive; links into Heslington; potential link to future housing development	Some resurfacing may be required; onward connections likely via Elvington Lane	5	4	3	4	4	20	20	Alignment follows edge of development site. Potential for short-term and long-term route; however less direct alignment.
2F-2 Langwith Stray -> public bridleway	Traffic-free; use of existing public bridleway; attractive; existing infrastructure; links to Heslington	Dependent on landowner feedback; dependent on future housing development; onward connection likely via Elvington Lane	4	4	3	3	3	17	17	Alignment depends on future housing development with likely onward connection via Elvington Lane
2F-3 field edge near Gipsey Wood	Potential link between Heslington and Elvington via future housing development site	Dependent on housing development; dependent on landowner feedback; potential ecological impact	4	3	3	3	3	16	16	Alignment follows edge of development site. Potential for short-term and long-term route.
2F-4 field edge -> northen edge of Gipsey Plantation -> Elvington Lane	Traffic-free; attractive; potential link to future housing development; link between Elvington - Heslington	Dependent on landowner feedback - prevous opposition from landowners; potential ecological impact; onward connection via Elvington Lane	4	4	3	3	2	16	16	Alignment connects to Elvington Lane and has moderate delivery risk with negative landowner feedback in the past

			Criteria score and weighting							
Alignment reference	**Description of Strengths / Opportunities**	**Description of Weaknesses / Threats**	- User experience	- Strategic potential	- Impact on the natural environment	- Impact on residents and stakeholders along route	- Possible delivery risks	Overall unweighted score	**Overall (weighted) score**	**Comments**
			1	1	1	1	1			
2F-5 Elvington Lane near Gipsey Plantation	Potential link to future housing development; link to business park and industrial estate; link to Elvington	Dependent on landowner feedback; potential ecological impact; moderate delivery risk regarding construction and LTN 1/20 compliance; negative user experience	1	4	3	4	3	15	15	Alignment has moderate delivery risks regarding construction and LTN 1/20 compliance as well as negative user experience
2G-1 Langwith Stray -> public footpath	Traffic-free; use of existing public footpath; attractive; links to Heslington; links to future housing development	Indirect alignment; potential ecological impact; dependent on housing development	4	3	2	3	3	15	15	Alignment follows edge of development site. Potential for short-term and long-term route; however less direct alignment.
2G-2 path towards Gipsey Wood Corner -> Elvington Lane	Attractive traffic-free section; links to future housing development, York Maze.	Dependent on landowner feedback; potential ecological impact; moderate delivery risk regarding construction and LTN 1/20 compliance; negative user experience	3	4	2	3	3	15	15	Alignment has moderate delivery risks regarding construction and LTN 1/20 compliance as well as negative user experience, however, would provide a good link to York Maze.
3A-1 Brinkworth Rush -> southbound dirt track to Cannon House Cottages	Quiet way; use of existing infrastructure; links into business park and industrial estate; links into Elvington	Resurfacing required for smooth, well drained surface; dependent on landowner feedback	4	5	4	3	3	19	19	Alignment provides good links to employment sites and the village Elvington requiring minimal construction. Feasibility depends on landowner feedback.
3A-2 Access road to Cannon House Cottages -> Wheldrake Lane	Quiet way; partial use of existing public footpath; use of existing infrastructure; potential link into business park and industrial estate; links into Elvington	Resurfacing required for smooth, well drained surface; dependent on landowner feedback	5	5	4	3	4	21	21	Alignment follows existing public footpath and provides pleasant connection to Elvington with minimal construction. Depends on landowner feedback.
3A-3 Wheldrake Lane	Potential links into Elvington, employment sites.	User experience and LTN 1/20 compliance dependent on alignment - construction within field boundary preferable; dependent on landowner feedback; potential ecological impact	3	4	3	4	3	17	17	Alignment provides potential links within Elvington but feasibility depends on alignment with considerable construction expected
3A-4 Wheldrake Lane -> existing dirt track -> public footpath ->field edge	Traffic-free; use of existing public footpath; partial use of existing track; potential link to employment sites; attractive link into Elvington	Dependent on landowner feedback; potential ecological impact; path construction required	5	5	3	3	3	19	19	Attractive traffic-free alignment into centre of Elvington via existing public footpath. Feasibility dependent on landowner feedback.
3B-1 Brinkworth Rush -> Hunter Drive	Quiet way; use of existing infrastructure; link to employment sites and Elvington	Volume and type of traffic on road requires construction of segregated infrastructure	3	4	4	4	4	19	19	Alignment provides good links and has low delivery risk as works confined to carriageway. Potential risk is traffic.
3B-2 Hunter Drive -> military track -> Wheldrake Lane	Quiet way; use of existing infrastructure; link to employment sites and Elvington	Indirect alignment; volume and type of traffic on road requires construction of segregated infrastructure; vegetation clearing required; dependent on landowner impact	4	4	4	3	3	18	18	Slightly indirect alignment provides link into business park and industrial estate and uses existing infrastructure. Dependent on landowner feedback.
3B-3 Wheldrake Lane -> northern field edge towards Elvington	Traffic-free; direct and attractive; potential link to sports and play area, industrial estate	Dependent on landowner feedback; potential ecological impact; path construction required	5	5	3	3	3	19	19	Attractive traffic-free alignment into centre of Elvington with potential links to key attractions along Elvington Lane
3B-4 northern field edge -> central alignment across field	Traffic-free; direct and attractive	Dependent on landowner feedback; potential ecological impact; path construction required	5	4	3	3	3	18	18	Attractive traffic-free alignment into centre of Elvington
3B-5 field edge -> Smelly Lane (Sewage Works)	Traffic-free; direct and attractive; potential link to medical practice, church and other services on Elvington Lane	Dependent on landowner feedback; potential ecological impact; path construction required	5	5	3	3	3	19	19	Attractive traffic-free alignment into centre of Elvington with potential links to key attractions along Elvington Lane
3B-6 northern and eastern field edge to Elvington -> Beck Close	Traffic-free; direct and attractive; potential link to medical practice, church and other services on Elvington Lane	Dependent on landowner feedback; potential ecological impact; path construction required	5	5	3	3	3	19	19	Attractive traffic-free alignment into centre of Elvington with potential links to key attractions along Elvington Lane
3B-7 Beck Close -> Beckside -> Main Street	Quiet way; use of existing public footpath; direct; links into centre of Elvington; pub and local shop	Minor ecological impact on hedge	4	5	4	4	5	22	22	Direct, quiet alignment into centre of Elvington via existing public footpath

			Criteria score and weighting							
Alignment reference	**Description of Strengths / Opportunities**	**Description of Weaknesses / Threats**	- User experience	- Strategic potential	- Impact on the natural environment	- Impact on residents and stakeholders along route	- Possible delivery risks	Overall unweighted score	**Overall (weighted) score**	**Comments**
			1	1	1	1	1			
3C-1 Brinkworth Rush -> Halifax Way	Quiet way; use of existing infrastructure; link into business park, industrial estate, Yorkshire Air Museum	Volume and type of traffic on road requires construction of segregated infrastructure; onward connections via Elvington Lane	3	4	4	4	4	19	19	Alignment provides good links and has low delivery risk as works confined to carriageway. Potential risk is traffic.
3C-2 Elvington Lane / Halifax Way junction -> Elvington Lane -> Wheldrake Lane junction	Direct; links to business park, industrial estate, Elvington	Dependent on landowner feedback; potential ecological impact; moderate delivery risk regarding construction and LTN 1/20 compliance; negative user experience	1	5	2	4	3	15	15	Alignment has moderate delivery risks regarding construction and LTN 1/20 compliance; ecological impact (removal of trees) as well as negative user experience
3C-3 Elvington Lane/ Wheldrake Lane junction -> Wheldrake Lane	Links to business park, industrial estates, Elvington	Dependent on landowner feedback; potential ecological impact; moderate delivery risk regarding construction and LTN 1/20 compliance; negative user experience	2	5	2	3	3	15	15	Alignment has moderate delivery risks regarding construction and LTN 1/20 compliance as well as negative user experience
3C-4 Elvington Lane / Wheldrake Lane junction -> eastbound Elvington Lane	Direct; links to industrial estate, sports and play area, as well as other facilities along Elvington Lane	Potential ecological impact; moderate delivery risk regarding construction and LTN 1/20 compliance; negative user experience	2	5	2	3	3	15	15	Alignment has moderate delivery risks regarding construction and LTN 1/20 compliance as well as negative user experience
3C-5 Elvington Lane -> private access road -> northern field edge	Quiet way; links to industrial estate, sports and play area	Dependent on landowner feedback; potential ecological impact	4	5	3	3	3	18	18	Alignment linking into facilities and services along Elvington Lane
3C-6 Elvington Lane near medical centre	Direct; links to industrial estate, church, medical practice, sports and play area and other facilities along Elvington Lane	Potential ecological impact; moderate delivery risk regarding construction and LTN 1/20 compliance; negative user experience	2	5	2	3	3	15	15	Alignment provides good links but has moderate delivery risks regarding construction and LTN 1/20 compliance as well as negative user experience
3C-7 Sewage Works -> Smelly Lane -> Elvington Lane	Quiet way; links to church, medical practice and other facilities along Elvington Lane	Dependent on landowner feedback; potential ecological impact	4	5	3	3	3	18	18	Alignment provides good links to facilities on Elvington Lane
3C-8 Elvington Lane -> Elvington Main Street near Beckside	Links to facilities in centre of Elvington	Potential ecological impact; moderate delivery risk regarding construction and LTN 1/20 compliance	3	5	3	3	3	17	17	Alignment provides good links but has moderate delivery risks regarding construction and LTN 1/20 compliance
3D-1 northern field edge towards Elvington	Traffic-free; direct and attractive; potential link to sports and play area, industrial estate	Dependent on landowner feedback; potential ecological impact; path construction required	5	5	3	3	3	19	19	Attractive traffic-free alignment into centre of Elvington with potential links to key attractions along Elvington Lane
3D-2 northern field edge parallel to footpath -> Beck Close	Traffic-free; partial use of existing public footpath; potential link to employment sites; attractive link into Elvington	Dependent on landowner feedback; potential ecological impact; path construction required	5	5	3	3	3	19	19	Attractive traffic-free alignment into centre of Elvington via section of existing public footpath. Feasibility dependent on landowner feedback.

Appendix C – Drawings

LOCALITY PLAN

Rev	Description	Drawn	Check	Appr	Date
A					

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Leeds Bridge House, Hunslet Road, Leeds LS10 1JN
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Project:
DfT4 Heslington to Elvington

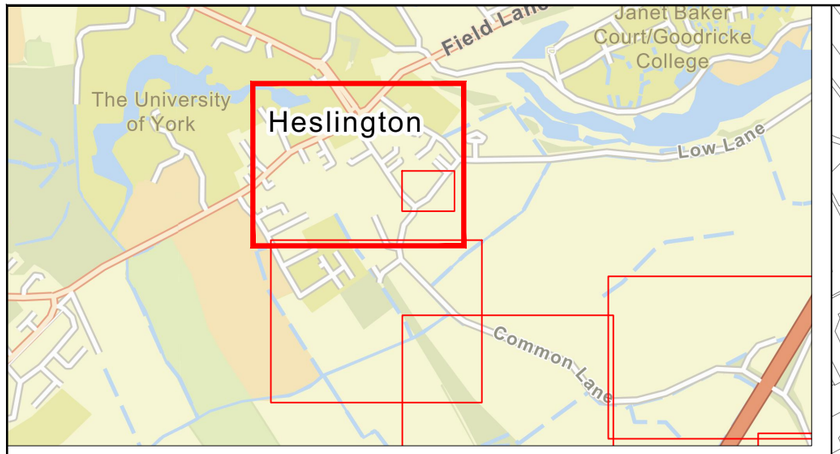
Title:
Heslington to Elvington
Feasibility Study
General Arrangement Layout

Drawn:	Check:	Appr:	Date:	Scale at A3:
KA/AG	MT	MB	06/06/2022	1:25000

Status: CONCEPT

Drawing No: 13252-N-DR-02-0000

Revision: -



LOCALITY PLAN

Esri Community Maps Contributors, Esri UK, Esri, HERE, Garmin, GeoTechnologies, Inc., METI/NASA, USGS

UNIVERSITY ROAD
FIELD LANE
SCHOOL LANE
LORD DERAMORE'S PRIMARY SCHOOL
N
MAIN STREET
HESLINGTON
MAIN STREET
MAIN STREET
1
Improvements to be made to road environment to support cycling in mixed traffic
LOW LANE
COMMON LANE
See Drawing No. 13252-N-DR-02-0002
See Drawing No. 13252-N-DR-02-0003
0m 50m 100m
SCALE 1:2000 at A3

Key:	
	Proposed route in mixed traffic environment
	PRoW footpath
	Water course
1	Key Constraint or Risk referenced in Report

Notes:
1. Do not scale off plan.
2. Not to be used for Construction.
3. The delivery of this drawing in electronic format shall not be construed to provide any authorisation or right of the receipt or any other person to rely upon, alter or otherwise use the information provided. Any use of this information is at the sole risk and liability of the user and Sustrans assumes no liability for unauthorised use or alteration of the information contained herein.
4. This drawing has been produced to be read in colour, for the sheet size specified below.
5. These drawings are to be read in conjunction with the design information provided in the Study Report.
6. If Sections are referred to see drawings 13252-N-DR-02-1001 & 1002.

Rev	Description	Drawn	Check	Appr	Date
A					

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0113 245 0006 www.sustrans.org.uk

Project:
DfT4 Heslington to Elvington

Title:
Heslington to Elvington
Feasibility Study
General Arrangement 01 of 17

Drawn:	Check:	Appr:	Date:	Scale at A3:
KA/AG	MT	MB	06/06/2022	1:2000

Status: CONCEPT

Drawing No:	Revision:
13252-N-DR-02-0001	-

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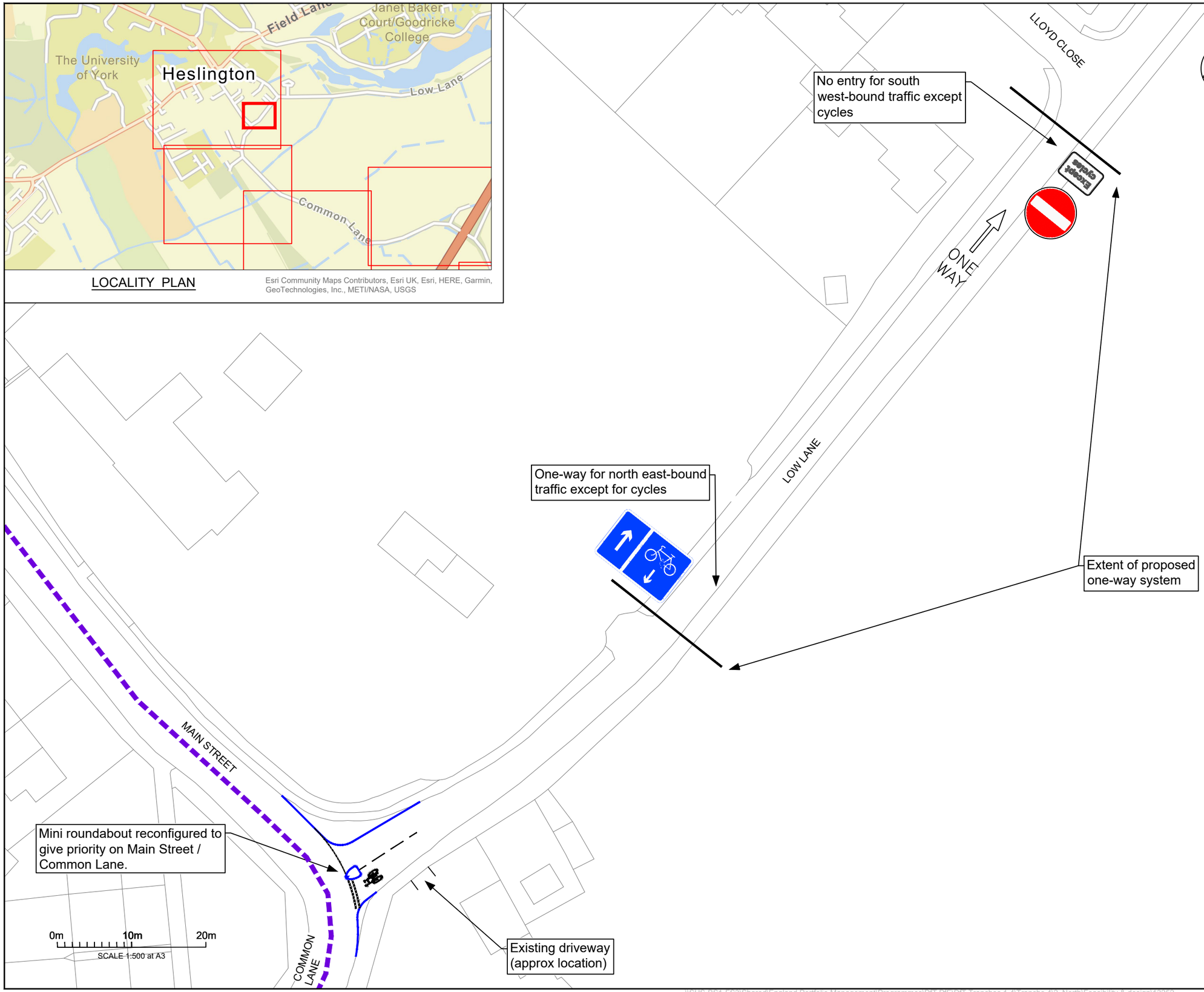
LOCALITY PLAN



Key:	
	Proposed route in mixed traffic environment
	Proposed new kerbline
	Proposed 'no entry' for vehicular traffic
	Proposed 'one way' for vehicular traffic

Notes:
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6. If Sections are referred to see drawings 13252-N-DR-02-1001 & 1002.

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Title:
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Feasibility Study
General Arrangement 02 of 17

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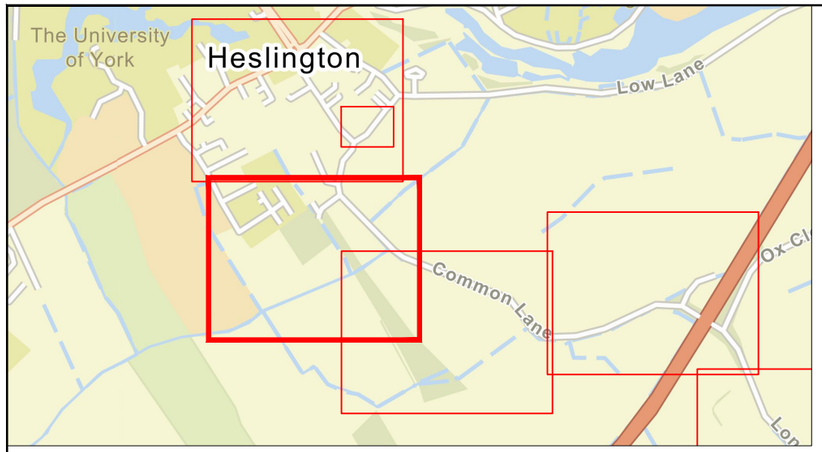
Status: CONCEPT

Drawing No:	Revision:
13252-N-DR-02-0002	-



LOCALITY PLAN

See Drawing No. 13252-N-DR-02-0001

OUTGANG FARM

RECREATION GROUND

COMMON LANE

PP

PP

Possible alternative route.

TRACK

See Drawing No. 13252-N-DR-02-0004

See Drawing No. 13252-N-DR-02-0004

N

0m 50m 100m

SCALE 1:2000 at A3

Key:	
	Proposed route in mixed traffic environment
	Alternative route
PP	Existing passing place widened to 5.5m
	PRoW footpath
	PRoW bridleway
	Water course

Notes:

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Title:
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General Arrangement 03 of 17

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Status: CONCEPT

Drawing No:	Revision:
13252-N-DR-02-0003	-

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PP

See Drawing No.
13252-N-DR-02-0003

PP

COMMON LANE

PP

N

TRACK

See Drawing No.
13252-N-DR-02-0003

Possible alternative route

2

PP

See Drawing No.
13252-N-DR-02-0005

TRACK

0m 50m 100m

SCALE 1:2000 at A3

Key:	
	Proposed route in mixed traffic environment
	Alternative route
PP	Existing passing place widened to 5.5m
1	Key Constraint or Risk referenced in Report
	PRoW bridleway
	Water course
	National Forest Inv Woodland

Notes:

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2. Not to be used for Construction.
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Status:
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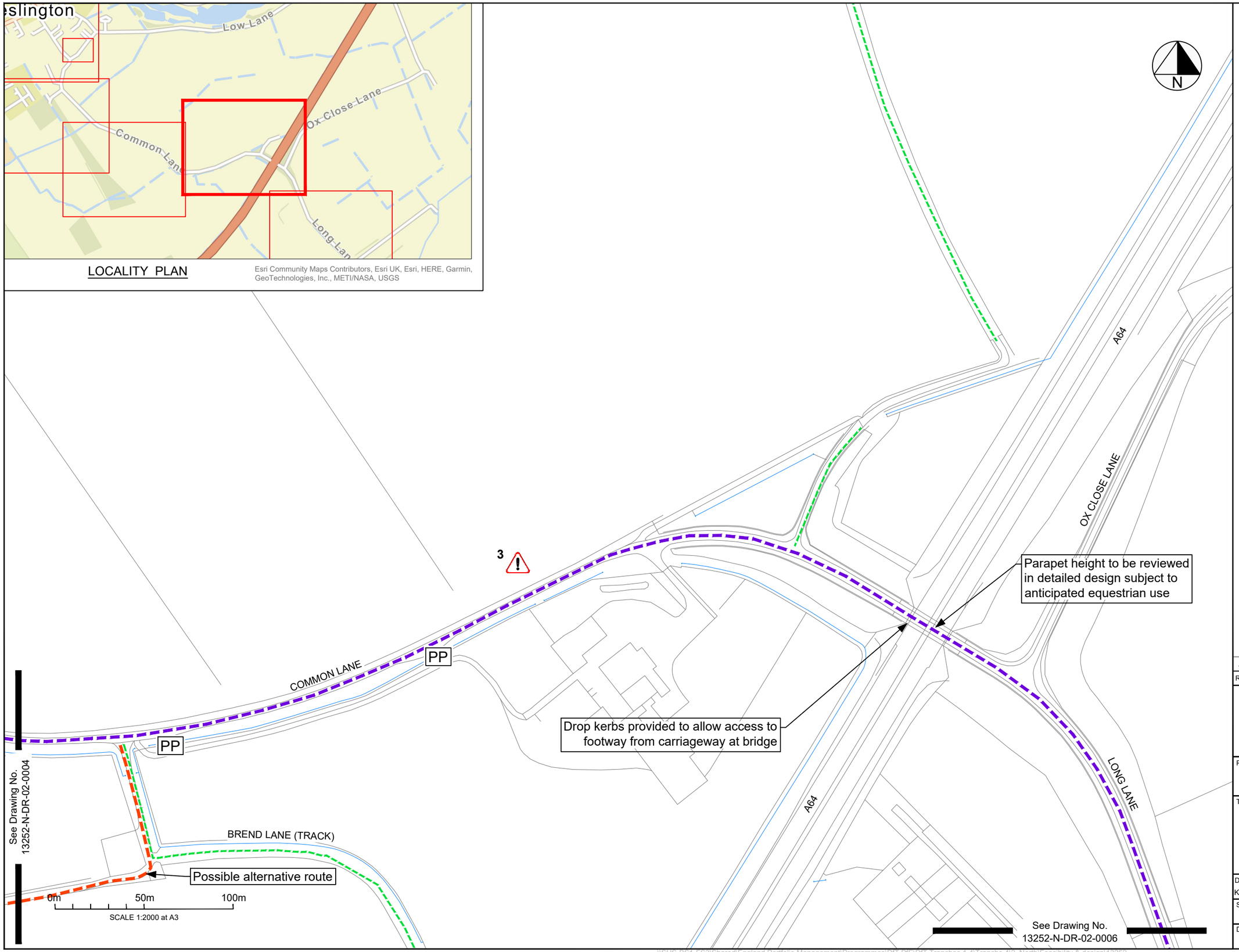
13252-N-DR-02-0004	-

LOCALITY PLAN



Key:	
	Proposed route in mixed traffic environment
	Alternative route
PP	Existing passing place widened to 5.5m
1	Key Constraint or Risk referenced in Report
	PRoW bridleway
	Water course

Notes:

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Status: CONCEPT

Drawing No:	Revision:
13252-N-DR-02-0005	-

See Drawing No.
13252-N-DR-02-0005

N

PROSPECT
FARM

PP

LONG LANE

PP

HOLME HILL

MAST
(TELECOMMUNICATIONS)

HOLME HILL LANE

PRIMROSE
HILL FARM

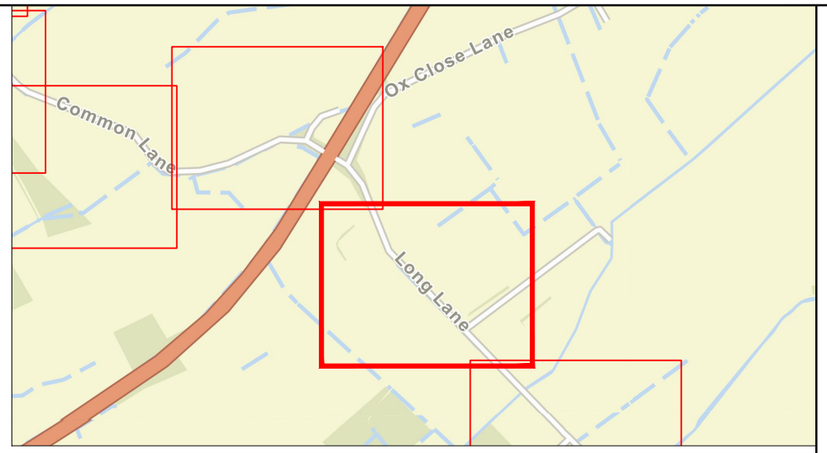
PP

PP

New passing places:
150m max spacing. Total width of passing place and carriageway is to be 5.5m to accommodate wider farm vehicles. Max length 36m.

0m 50m 100m
SCALE 1:2000 at A3

See Drawing No.
13252-N-DR-02-0007



LOCALITY PLAN

Key:	
	Proposed route in mixed traffic environment
PP	Existing passing place widened to 5.5m
PP	Proposed new passing place
	Water course

Notes:
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Status: CONCEPT

Drawing No:	Revision:
13252-N-DR-02-0006	-

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See Drawing No.
13252-N-DR-02-0006

N

PP

PP

PP

PP

TILLMIRE DRAIN

LONG LANE

New passing places:
150m max spacing. Total width of passing place and carriageway is to be 5.5m to accommodate wider farm vehicles. Max length 36m.

COOPER'S
PLANTATION

Approximate location of possible junction with development road. Junction type to be confirmed.

4

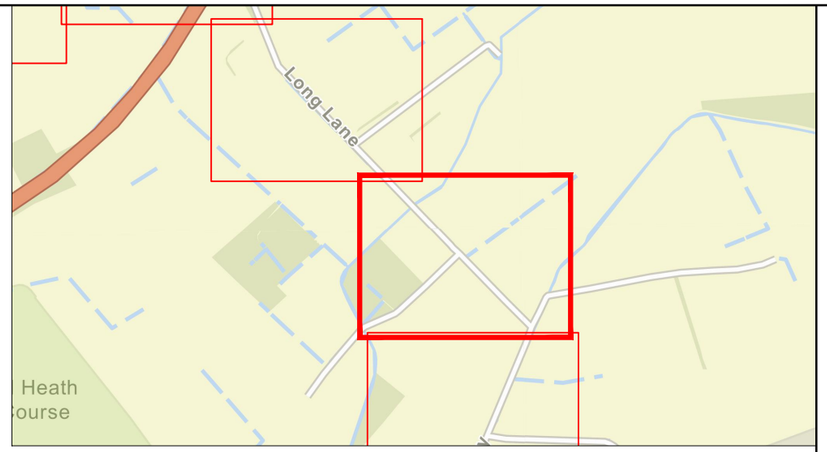
TRACK

Trim vegetation to improve visibility at corner.

5

0m 50m 100m
SCALE 1:2000 at A3

See Drawing No.
13252-N-DR-02-0008



LOCALITY PLAN

Key:	
	Proposed route in mixed traffic environment
	PRoW footpath
	PRoW bridleway
PP	Proposed new passing place
1 !	Key Constraint or Risk referenced in Report
	Water course
	National Forest Inv Woodland

Notes:

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Feasibility Study
General Arrangement 07 of 17

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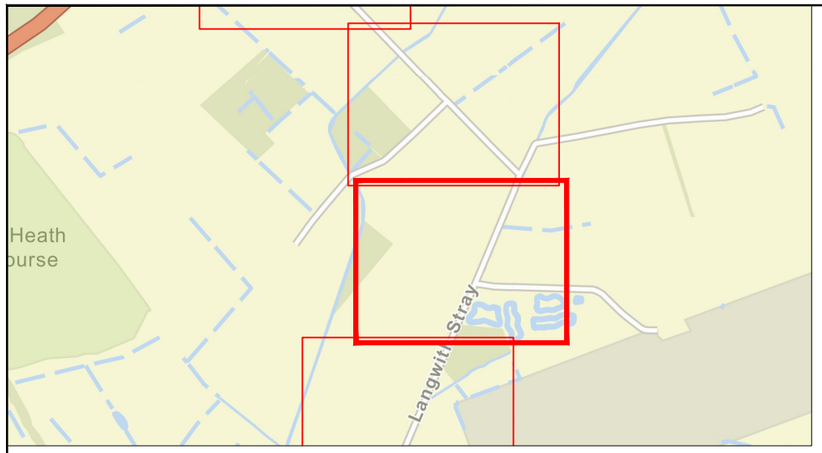
Status: CONCEPT

Drawing No:	Revision:
13252-N-DR-02-0007	-



LOCALITY PLAN

See Drawing No.
13252-N-DR-02-0007

N

LANGWITH STRAY

KEYS
PLANTATION

PP

PP

6

New passing places:
150m max spacing. Total width of passing place and carriageway is to be 5.5m to accommodate wider farm vehicles. Max length 36m.

PP

PP

LANGWITH
LAKES

0m 50m 100m
SCALE 1:2000 at A3

See Drawing No.
13252-N-DR-02-0009

Key:	
	Proposed route in mixed traffic environment
	PRoW footpath
PP	Proposed new passing place
1	Key Constraint or Risk referenced in Report
	Water course
	National Forest Inv Woodland

Notes:
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Title:
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Feasibility Study
General Arrangement 08 of 17

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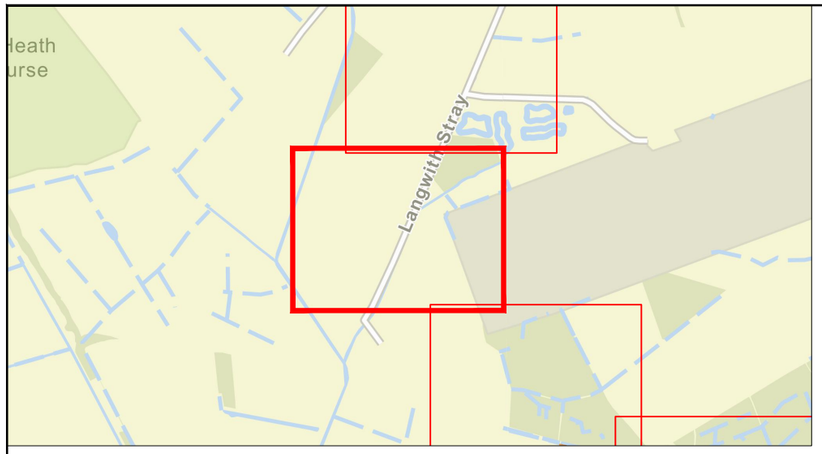
Status: CONCEPT

Drawing No:	Revision:
13252-N-DR-02-0008	-



LOCALITY PLAN

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See Drawing No. 13252-N-DR-02-0008

GILL WOOD

N

PP

New passing place:
150m max spacing. Total width of passing place and carriageway is to be 5.5m to accommodate wider farm vehicles. Max length 36m.

LANGWITH STRAY

Existing bridge across ditch

Access to forest along path alignment. Path to support occasional vehicle use.

7

See Drawing No. 13252-N-DR-02-0010

0m 50m 100m

SCALE 1:2000 at A3

Key:

	Proposed route in mixed traffic environment
	PRoW bridleway
PP	Proposed new passing place
1	Key Constraint or Risk referenced in Report
	Water course
	Proposed Greenway Section (Bridleway)
	National Forest Inv Woodland

Notes:

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Title:
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Feasibility Study
General Arrangement 09 of 17

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Status: CONCEPT

Drawing No:	Revision:
13252-N-DR-02-0009	-

See Drawing No.
13252-N-DR-02-0009

N

Existing culvert

LANGWITH GREAT WOOD

Approx. line through forest - exact alignment to avoid mature trees and minimise tree loss and operational inconvenience.

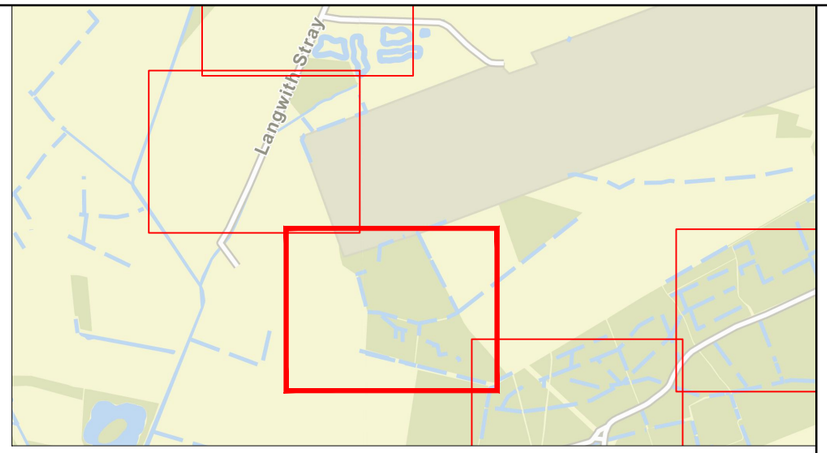
New culvert/bridge over drain

8

New culvert/bridge over drain

See Drawing No.
13252-N-DR-02-0011

0m 50m 100m
SCALE 1:2000 at A3



LOCALITY PLAN

Key:	
	Proposed Greenway Section (Bridleway)
	Proposed Greenway Section - Forest Path
	Proposed new structure
1	Key Constraint or Risk referenced in Report
	Water course
	National Forest Inv Woodland

Notes:

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General Arrangement 10 of 17

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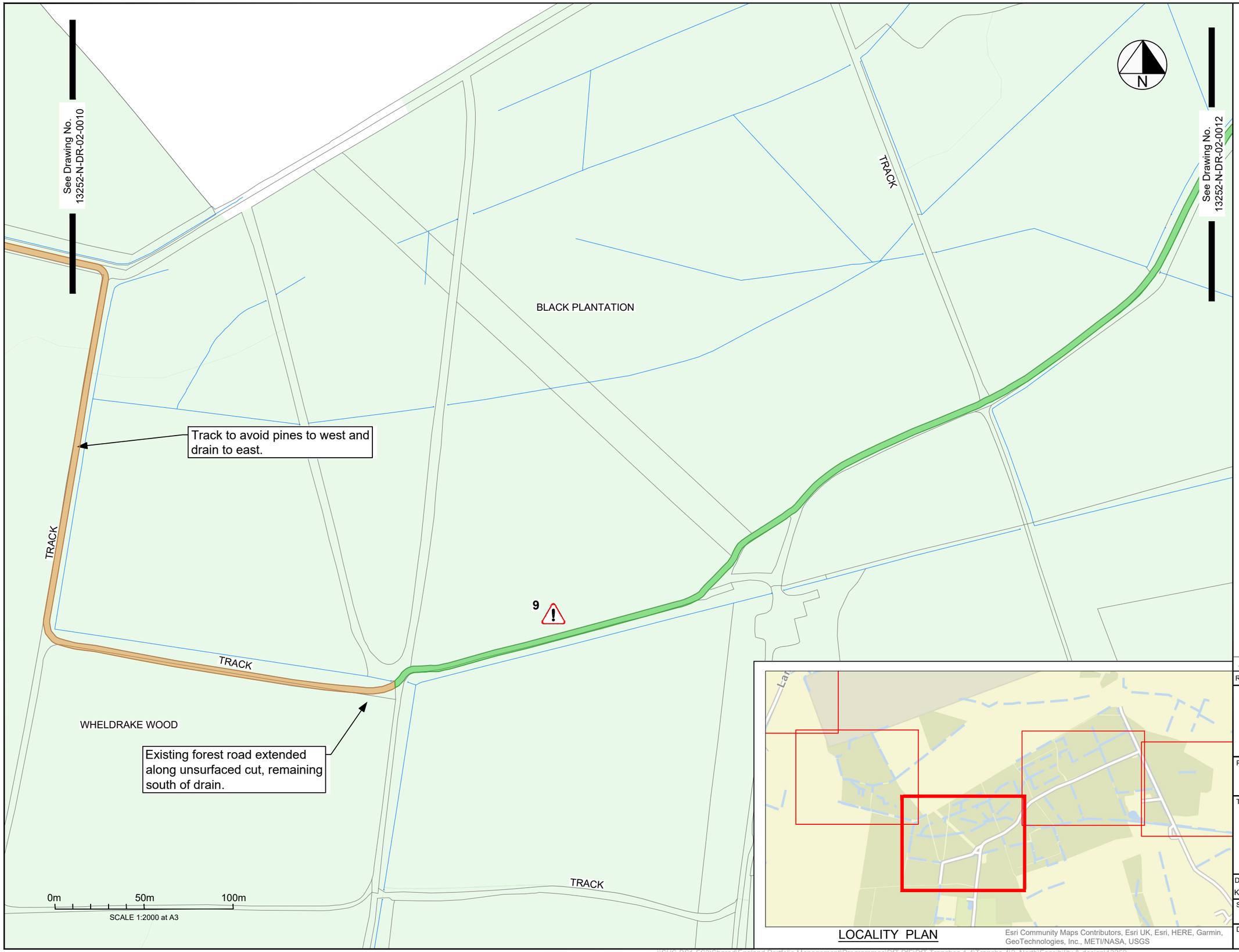
Status: CONCEPT

Drawing No:	Revision:
13252-N-DR-02-0010	-



Key:	
	Proposed Greenway section - Forest Path
	Upgrading of forest track
1	Key Constraint or Risk referenced in Report
	Water course
	National Forest Inv Woodland

Notes:

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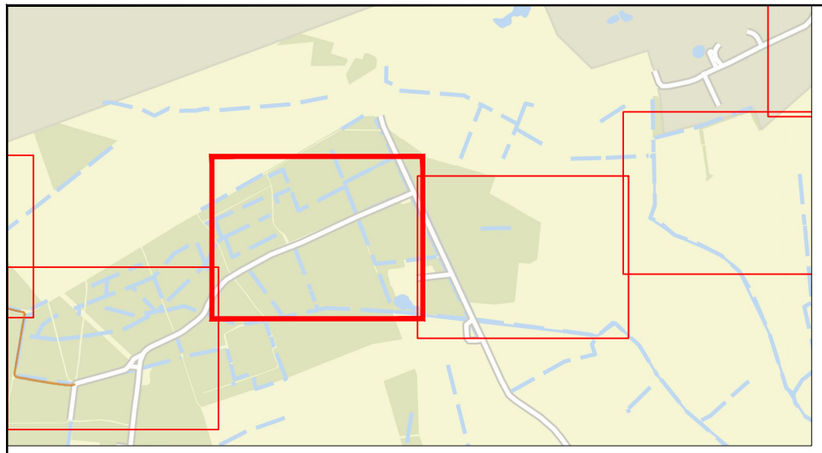
Status: CONCEPT

Drawing No: 13252-N-DR-02-0011

Revision: -



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BLACK PLANTATION

WHELDRAKE WOOD

BROAD HIGHWAY

N

PP

CAR PARK

See Drawing No. 13252-N-DR-02-0013

HARD MOOR

9

TRACK

TRACK

See Drawing No. 13252-N-DR-02-0011

HARDMOOR PLANTATION

0m 50m 100m

SCALE 1:2000 at A3

Key:	
	Proposed route in mixed traffic environment
	Upgrading of forest track
	Water course
	National Forest Inv Woodland

Notes:

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General Arrangement 12 of 17

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Status: CONCEPT

Drawing No:	Revision:
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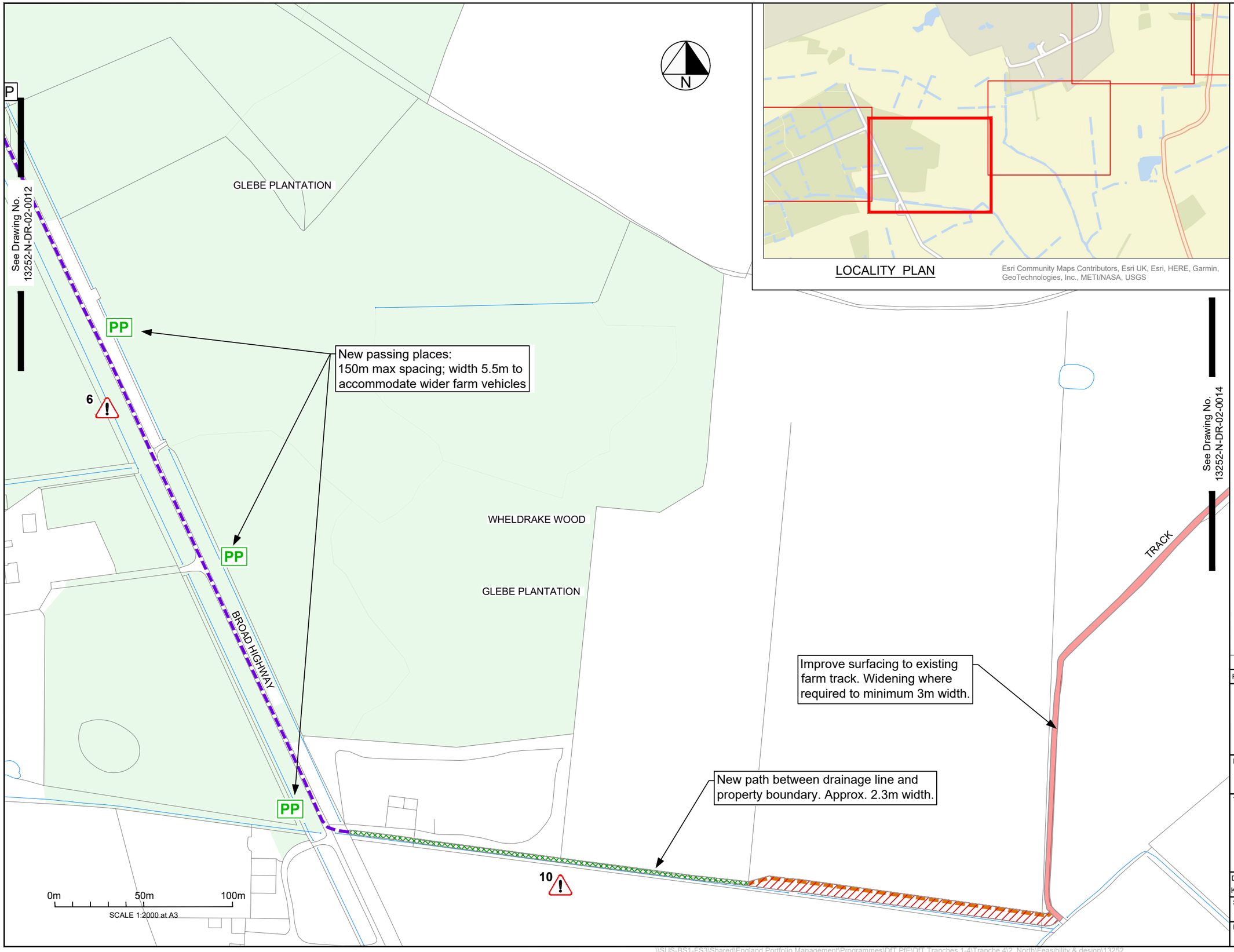

Key:	
	Proposed route in mixed traffic environment
PP	Proposed new passing place
1	Key Constraint or Risk referenced in Report
	Proposed Greenway Section - Shared Use Path
	Resurfacing/widening of existing track
	Water course
	Proposed Greenway Section (Bridleway)
	National Forest Inv Woodland

Notes:
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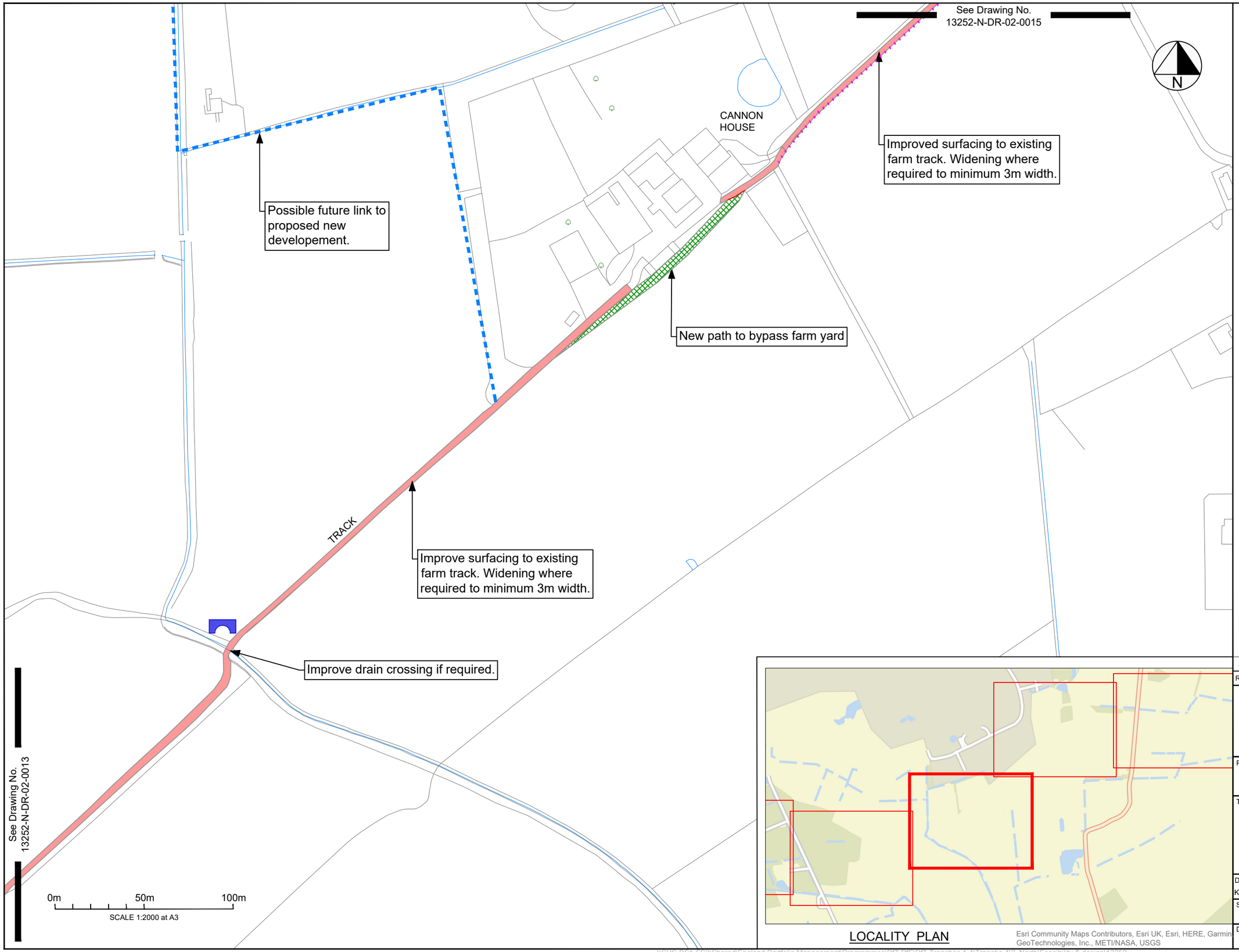
Status: CONCEPT

Drawing No.: 13252-N-DR-02-0013
Revision: -



Key:	
	Resurfacing/widening of existing track
	Proposed Greenway Section - Shared Use Path
	Proposed new structure
	PRoW footpath
	Water course
	Possible link

Notes:

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Feasibility Study
General Arrangement 14 of 17

Drawn:	Check:	Appr:	Date:	Scale at A3:
KA/AG	MT	MB	06/06/2022	1:2000

Status: CONCEPT

Drawing No: 13252-N-DR-02-0014

Revision: -

BRINKWORTH RUSH

ELVINGTON COMMON

Vegetation trimmed to provide min 3m clearway along existing military road. Resurfacing to provide smooth surface.

Possible link (lighting proposed) to industrial estate, would require further negotiation with landowner.

Link to existing track if Option 1 preferred.

Elvington Fields Option 1 (North Path)

See Drawing No. 13252-N-DR-02-0016

Elvington Fields Option 2 (South Path)

Cattle grid

TRACK

Existing track upgraded to provide smooth sealed surface. Widen to 3m where required.

See Drawing No. 13252-N-DR-02-0014

0m 50m 100m

SCALE 1:2000 at A3

N

Key:	
	Resurfacing/widening of existing track
	PRoW footpath
	Possible link
	Water course
	Proposed Greenway Section (Bridleway)
	Lighting proposed along new path
	National Forest Inv Woodland

Notes:

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2. Not to be used for Construction.
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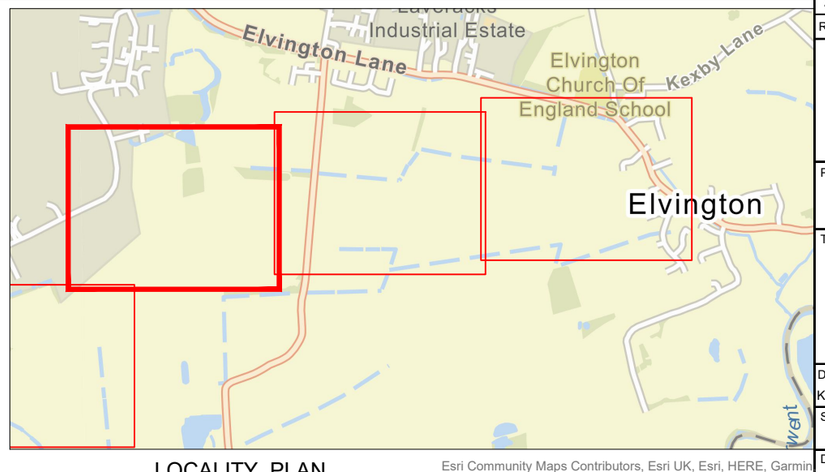
6. If Sections are referred to see drawings 13252-N-DR-02-1001 & 1002.



LOCALITY PLAN

Esri Community Maps Contributors, Esri UK, Esri, HERE, Garmin, GeoTechnologies, Inc., METI/NASA, USGS

Rev	Description	Drawn	Check	Appr	Date
A					

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Project:
DfT4 Heslington to Elvington

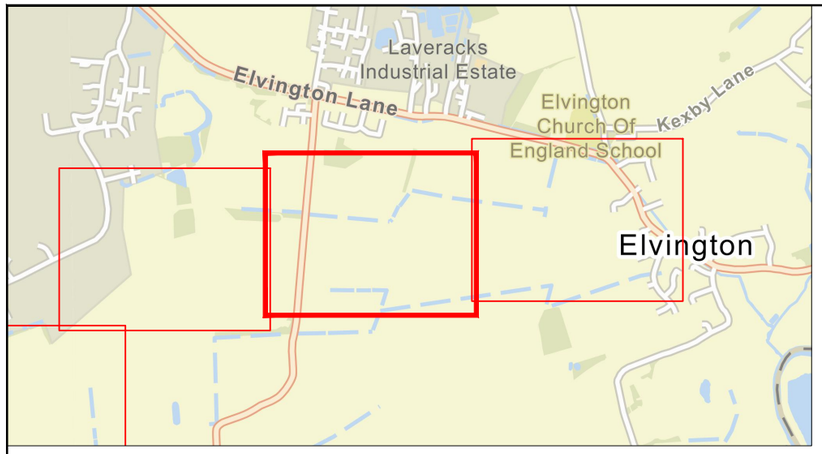
Title:
Heslington to Elvington
Feasibility Study
General Arrangement 15 of 17

Drawn:	Check:	Appr:	Date:	Scale at A3:
KA/AG	MT	MB	06/06/2022	1:2000

Status: CONCEPT

Drawing No.: 13252-N-DR-02-0015

Revision: -



LOCALITY PLAN

N

Elvington Fields Option 1
(North Path)

Elvington Fields Option 2
(South Path)

New culvert over ditch

Pegasus crossing to link to existing disused military road.

Path to follow field edge to minimise land take and operational disruption. Screening placed to shield Cannon House Cottages and compensate for hedge loss at carriageway crossing.

Replace existing bridge over ditch on eastern side of Wheldrake Lane.
New culvert over ditch on western side of Wheldrake Lane.

Track to be resurfaced to provide smooth surface

CANNON HOUSE COTTAGES

WHELDRAKE LANE

See Drawing No. 13252-N-DR-02-0015

See Drawing No. 13252-N-DR-02-0017

0m 50m 100m
SCALE 1:2000 at A3

Key:

	Resurfacing/widening of existing track
	Lighting proposed along new path
	Proposed new structure
1	Key Constraint or Risk referenced in Report
P	Proposed pegasus crossing
	Proposed Greenway Section (Bridleway)
	PRoW footpath
	Water course
	National Forest Inv Woodland

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General Arrangement 16 of 17

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Drawing No:	Revision:
13252-N-DR-02-0016	-

Possible link (lighting proposed) to primary school via "Smelly Lane".

Bound surface to link to track edge, with 'give way' line at edge of main path line.

SEWAGE WORKS

WHITE HOUSE GROVE

ELVINGTON LANE

LORRAINE AVENUE

B1228

ELVINGTON

Reduced kerb radius to slow turning vehicles

Elvington Fields Option 1 (North Path)

Improved crossing over drain required.

Removal of short length of hedge for construction will also provide enhanced sight lines.

Possible link (lighting proposed) from "Smelly Lane" if Option 2 preferred.

12

BECK CLOSE

See Drawing No. 13252-N-DR-02-0016

Open fields in this location ensure good visibility. Path to follow field boundaries. Reinforcement at/near corners to allow farm vehicles to pass over track between fields.

Elvington Fields Option 2 (South Path)

0m 50m 100m

SCALE 1:2000 at A3

N

Key:	
	Proposed Greenway Section (Bridleway)
	Lighting proposed along new path
	Proposed new structure
	Reinforcement in proposed path for use by farm vehicles
1	Key Constraint or Risk referenced in Report
	Possible link
	Proposed route in mixed traffic environment
	PRoW footpath
	Proposed new kerbline
	Water course

Notes:

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3. The delivery of this drawing in electronic format shall not be construed to provide any authorisation or right of the receipt or any other person to rely upon, alter or otherwise use the information provided. Any use of this information is at the sole risk and liability of the user and Sustrans assumes no liability for unauthorised use or alteration of the information contained herein.
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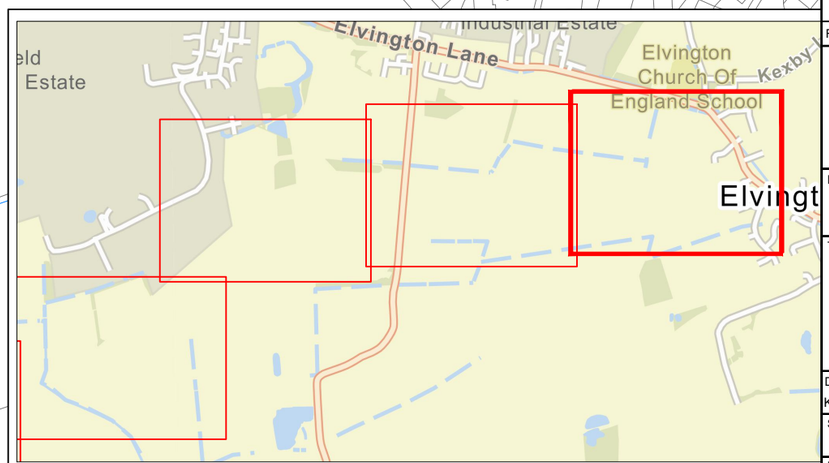

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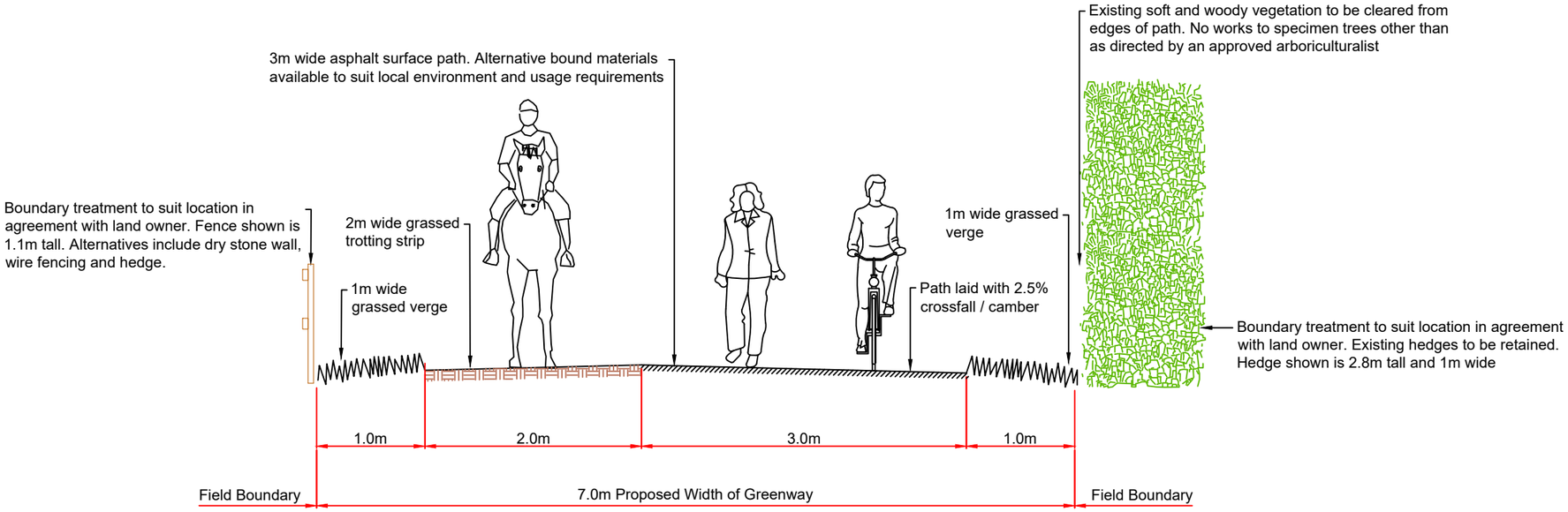
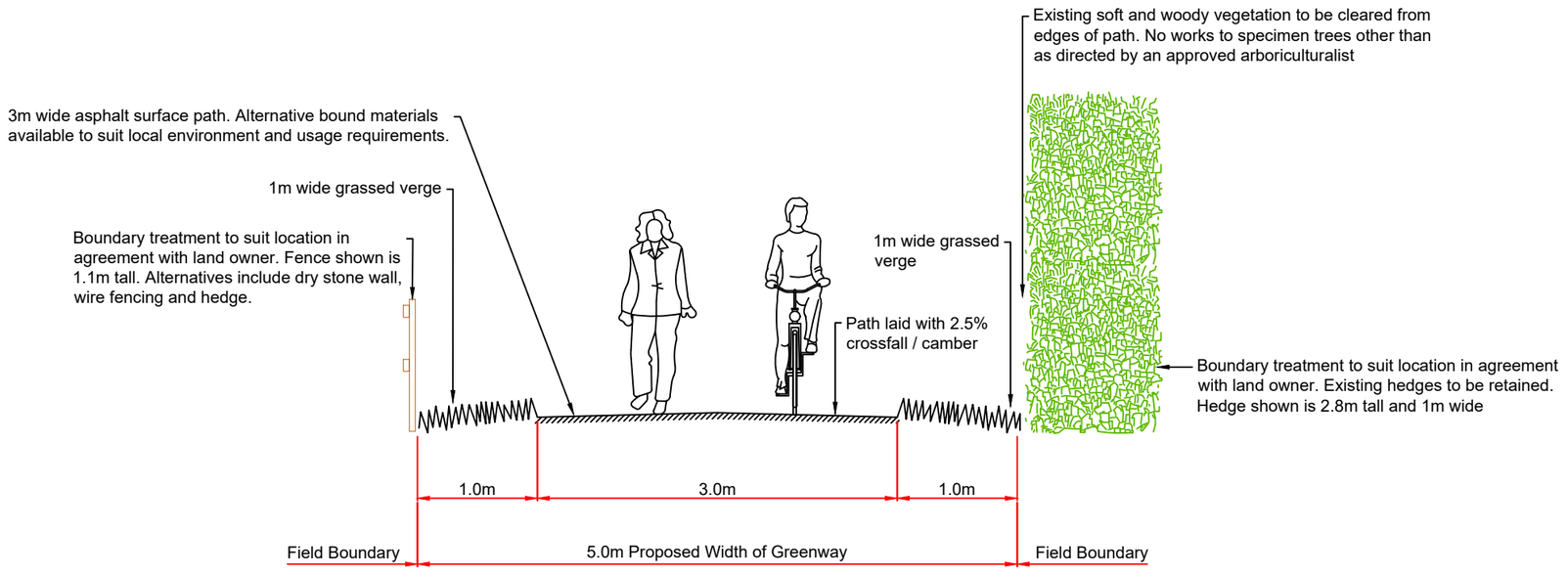
Status: CONCEPT

Drawing No: 13252-N-DR-02-0017

Revision: -



Proposed Greenway Section (Bridleway)



Proposed Greenway Section - Shared Use Path

0m 1m 2m
SCALE 1:50 at A3

Notes:
1. All dimensions are in metres unless noted otherwise.
2. Do not scale from this drawing.
3. These sections are typical details intended for visualisation. Their suitability should be reviewed as the project design is developed and will be subject to site survey. Additional width may be required for drainage or other site constraints.

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Feasibility Study
Typical Sections
Sheet 1 of 2

Drawn:	Check:	Appr:	Date:	Scale at A3:
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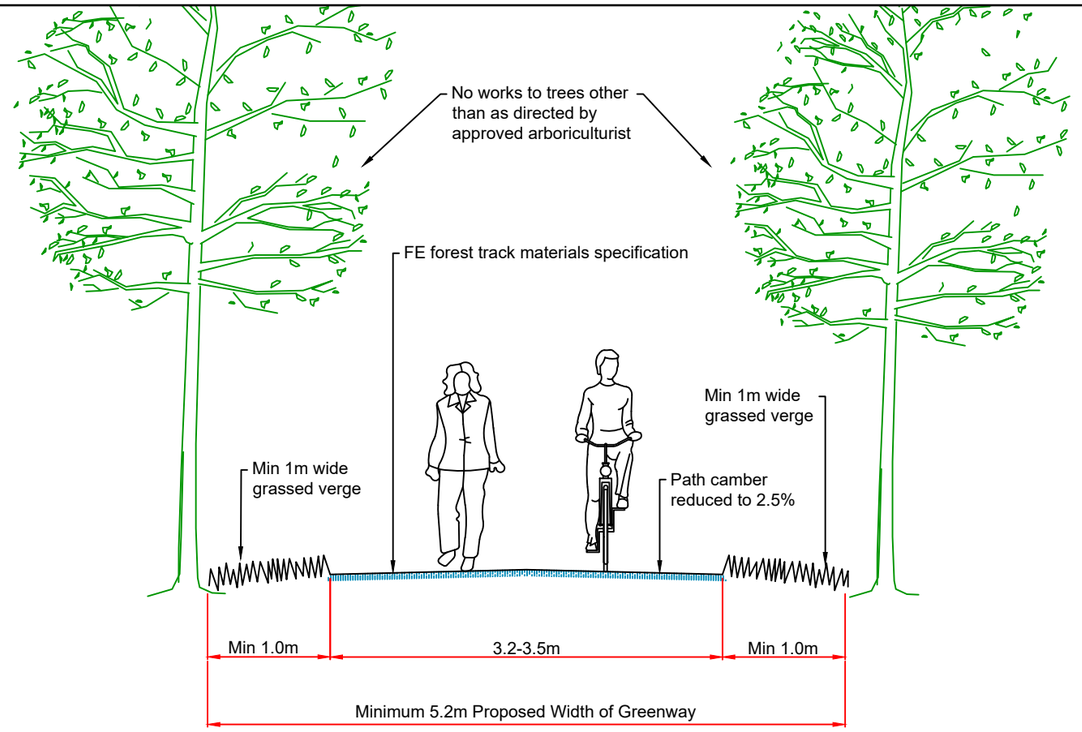
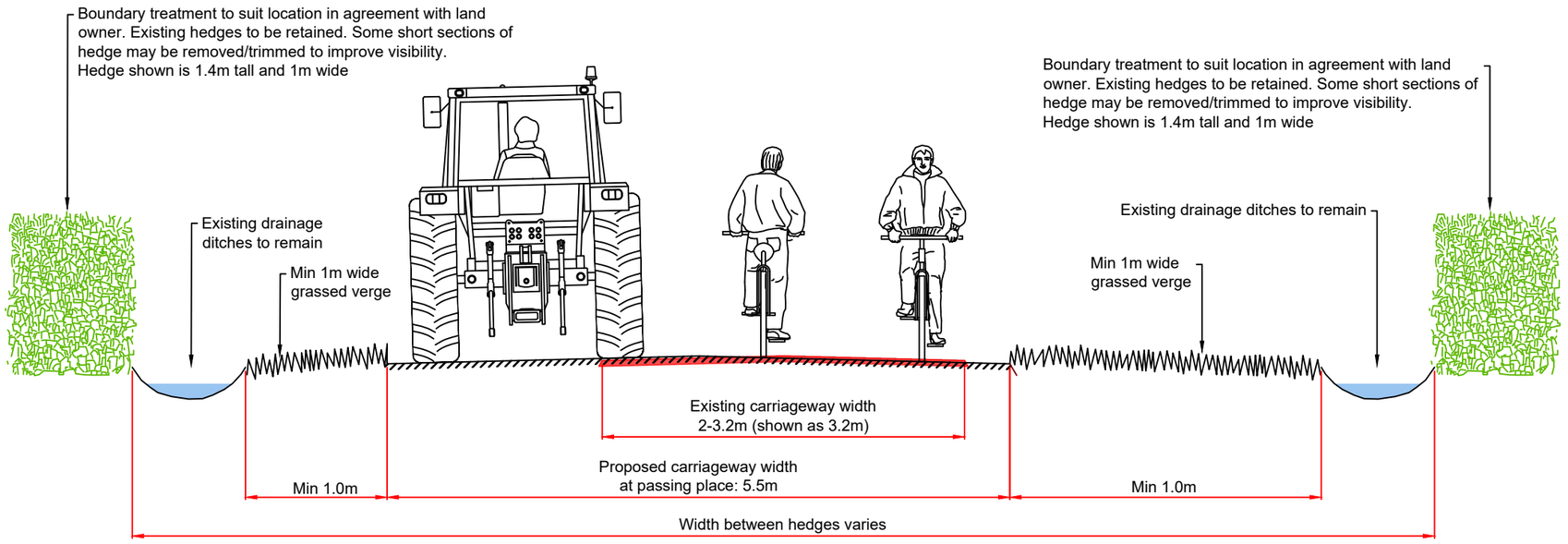
Status: CONCEPT

Drawing No:	Revision:
13252-N-DR-02-1001	00



Proposed Greenway Section - Forest Path



Proposed Carriageway at Passing Place

0m 1m 2m
SCALE 1:50 at A3

Notes:
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3. These sections are typical details intended for visualisation. Their suitability should be reviewed as the project design is developed and will be subject to site survey. Additional width may be required for drainage or other site constraints.

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Feasibility Study
Typical Sections
Sheet 2 of 2

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Status: CONCEPT

Drawing No: 13252-N-DR-02-1002
Revision: 00

Appendix D – Design Risk Register

Design Risk Register

Project:	**Hestlington-Elvington Feasibilty Study**
Compiled by:	**Katrina Adam**
Document ref:	**13252-N-XX-02-0002**
Date Updated:	**08/06/2022**

Risk categories:	
Ac	Acceptable
Ma	Marginal
Mo	Moderate
Un	Unacceptable

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Hazard Identification					Risk Assessment				Risk Response						Risk Monitoring & Control					
ID No.	Date identified	Identified by	Project phase when hazard may occur	Description of hazard (briefly describe the nature of the hazard and the consequences should it occur)	Severity	Probability	Risk Category	Persons at Risk*	Response organisation	Response action description	Response type (E-STOP hierarchy of control)	Action by (name or role)	Action required at project stage	Review date	Severity	Probability	Risk Category	Update (description of any changes since last review)	Current status
1	13/12/21	Katrina Adam	Construction	Construction within managed forest. Risk of conflict between forestry works and construction, leading to injury or death.	3	2	Mo	Contractor	Contractor	Ensure planned forestry and construction works are not concurrent.	Eliminate	Contractor	Construction				Ac		
2	13/12/21	Katrina Adam	Construction	Working adjacent to statutory undertakers equipment (Including overhead lines). Striking equipment leading to electrocution, fire, explosion, etc.	3	2	Mo	Contractor	Designer	Designers to complete utility searches during future design stages. Infrastructure specification to take account of services where present.	Technical controls	Designer & Contractor	Developed Design				Ac		
3	13/12/21	Katrina Adam	Construction	Working adjacent to statutory undertakers equipment (Including overhead lines). Striking equipment leading to electrocution, fire, explosion, etc.	3	2	Mo	Contractor	Contractor	Contractor to use appropriate construction methods in presence of services.	Operational controls	Contractor	Construction				Ac		
4	13/12/21	Katrina Adam	Construction	Construction over and alongside watercourses, leading to drowning and/or disease.	2	2	Ma	Contractor	Contractor	Contractor to use appropriate construction plan to minimise risk when working alongside watercourses.	Operational controls	Contractor	Construction				Ac		
5	13/12/21	Katrina Adam	Construction	Route passes through acitve industrial estate, leading to risk of collision between users and vehicles and injury or death.	2	2	Ma	Public	Designer	Designer to ensure levels of provision are suitable to protect users as they pass through the industrial estate. Waymarking signs to clearly identify boundaries to route.	Technical controls	Designer	Developed Design				Ac		
6	13/12/21	Katrina Adam	Construction	Construction on active, narrow highway, with regular farm vehicle movements.	2	3	Mo	All	Contractor	It is not possible to eliminate working within the highway. Contractor to develop construction plan to ensure safe working within the highway.	Operational controls	Contractor	Construction				Ac		
7	13/12/21	Katrina Adam	Post-construction	Route passes through managed forest. Risk of conflict between users and forestry works, leading to injury or death.	3	2	Mo	Public	Client	Client to work with Forest landowners to ensure suitable operational controls are in place during foresty works. Public currently have access to the woods, but enhanced controls may be required to take account of new intended use along alignment.	Operational controls	Client	In Use				Ac		
8	13/12/21	Katrina Adam	Post-construction	User isolation on inter-urban paths once opened. Security of users from ambush, injury etc.	3	2	Mo	Public	Designer	Path to be specified to maximise visibility of surroundings where possible. Provision of lighting is specified on stretches of the route most likely to be used in the hours of darkness. Further consideration towards personal security should be given at subsequent design stages.	Technical controls	Designer	Developed Design				Ac		
9	13/12/21	Katrina Adam	Post-construction	Cycling in mixed traffic resulting in collisions between users and vehicles.	3	2	Mo	Public	Designer	Where highway is not already suitable for mixed traffic cycling, designer to specify appropriate measures to bring traffic speeds and volumes into line with guidance for cycling in mixed traffic environment. Information provided to users detailing nature of provision along route.	Technical controls	Designer	Developed Design				Ac		
10	13/12/21	Katrina Adam	Post-construction	Risk of high speed vehicles leaving Elvington Airfield and colliding with route users.	3	1	Ma	Public	Designer	While severity of this risk is high, the probability of it occuring is considered very low. If the risk is assessed as being unacceptable, design to ensure a physical barrier is present between the airfield and path alignment.	Technical controls	Designer	Concept Design				Ac		
11	15/02/22	Katrina Adam	Post-construction	Grip holes and debris prevents users leaving road along Langwith Stray and Common Lane, resulting in risk of interaction with vehicles and farm vehicles.	3	2	Mo	Public	Designer	Designer to take into account road profile along single-track roads. New drainage provision and reprofiling to be specified if necessary.	Technical controls	Designer	Developed Design				Ac		
12	15/02/22	Katrina Adam	Post-construction	Road width does not provide adequate passing space for users, resulting in collisions.	3	3	Un	Public	Designer	Design to specifiy increased road width and or passings places as required.	Technical controls	Designer	Developed Design				Ac		
13	22/02/22	Katrina Adam	Post-construction	Passing places provided to ensure safe passage by vehicles and/or pedestrian and cycle users are used as parking spaces, negating the benefit of providing them and re-introducing collision danger.	2	3	Mo	Public	Client	It is not possible to prevent inappropriate use by the public after scheme completion. Client to develop strategy to deter, monitor *and enforce against* inappropriate use.	Operational controls	Client	In Use				Ac		
14	22/02/22	Katrina Adam	Post-construction	Vehcile numbers on Common Lane and Long Lane are significantly increased after Langwith development constructed, with roads no longer suitable for cycling in mixed traffic.	3	3	Un	Public	Client	Designer to ensure Client is aware of future risk so that Client and Designer for Langwith project can assess impact of new development and provide appropriate mitigation measures to ensure safe use of link by cycles and pedestrians.	Eliminate	Designer	Handover & Close Out				Ac		

Appendix E – Decision Log

Design Decision Log	
Project:	**13252_Heslington-Elvington Feasibility Study**
Compiled by:	**KA**
Document ref:	**13252-N-XX-02-0001 Design Decision Log**
Date Updated:	**08/06/2022**

No.	Decision Type	Location	Design Decision	Standard	Justification	Alternative Solution(s)	Discarded alternatives
1	User numbers	Whole Route	Assumption that cycle and pedestrian numbers will not exceed 300 per hour (each) in peak hour.	LTN1/20: Table 6-3	Based on average daily totals (2016) of ~450 cycles taken from cycle counters at Windmill Lane (88) and Retreat Lane (92)		
2	Design Speed	Whole Route	Cycle track design speed 30kph.	LTN1/20: Table 5-4	General off-carriageway cycle tracks with gradient <3%		
3	Provision	Main Street, Heslington	Cycling in mixed traffic.	LTN1/20:Figure 4.1	Speed limit of general traffic lanes - 20mph. Low vehicle numbers assumed.		
4	Provision	Common Lane, Long Lane, Langwith Stray	Cycling in mixed traffic.	LTN1/20: Fig. 4:1 (Note 3)	Assumption that speed limit will be reduced to 30mph, which is the maximum acceptable speeds for mixed used cycling in rural areas. Due to very low vehicle numbers and no-through nature of roads, this is considered the most appropriate solution for this location.		Retain higher speed limit and provide separated infrastructure. This was rejected because provision of separated infrastructure would have the effect of significantly urbanising this rural link. Additionally, provision of a new cycle track to meet LTN1/20 standard would significantly increase the coverages of impermeable surface (more than doubling along much of Langwith Stray) with associated impacts of drainage and flooding.
5	Provision	Common Lane Bridge	Increase parapet height to 1.5m	BHS advice on Bridges, Gradients and steps, Oct '19	For equestrian use over roads, bridge parapet height is recommended as 1.5m with 1m solid infill, where natural line of travel is greater than 2m from parapet. It is likely that equestrian users will remain in carriageway rather than opt to use footway, so 1.5m is considered acceptable.	1.8m height to allow safe use of footway by equestrians.	
6	Provision	Common Lane, Long Lane, Langwith Stray	Where passing places do not already exist, additional passing places introduced at 150m spacing. New and existing passing places to be provided/widened to 5.5m width.	LTN1/20 (7.3.5), Roads and Transport Guidelines, Highland Council	Narrow carriageway widths are acceptable where it is expected that cycles and vehicles may pass in opposite directions. Provision of wider passing places allows the safe crossing of cycles and larger farm vehicles. Standard passing place width considered appropriate due to most likely passing traffic to be large vehicle and cycle/pedestrian user, rather than two large vehicles. Due to raised banks along much of the lane, passing places may provide the only opportunity for cycles and other users to move away from the centre of the carriageway.		Widening carriageway to allow passing at any point was discarded as it was anticipated that this would have the effect of increasing traffic speeds.
7	Provision	Common Lane, Long Lane, Langwith Stray	Carriage way width limited to 3.2m where existing carriageway is 3.2-3.9m wide.	LTN1/20 Table 7-2	Carriageways of between 3.2-3.9m wide can encourage close overtaking. Carriageways narrowed rather than widened to encourage slower speeds and passing at passing places.		
8	Provision	All new traffic free sections, unless otherwise specified	Min 3m width for shared use (cycles and pedestrians), plus 2m trotting strip	LTN1/20: Table 6-3	Minimum width based on assumption of < 300 cyclists and pedestrians per hour. Provision of trotting strip adds 2m width that could be used by some pedestrian/cycle users as well as equestrians. Given anticipated levels of use, it is unlikely that fully separated corridor would be acceptable to landowners and local community. Paths could be widened at a later stage, if a need for greater width fully demonstrated.	3m shared width surfaces with flexible rubber bound surface, to accommodate all users in narrower corridor, if land-take is an issue.	Provide separated provision from outset. Min 5m required - 3m cycle, 2m pedestrian, separated with trapezoidal strip. It is considered this is unlikely to meet with local approval, and expected usage levels are unlikely to justify this approach.
9	Provision	All traffic free sections, excluding forest tracks	Sealed and bound surface. Material and colour to be decided in conjunction with stakeholders.	LTN1/20: 8.5	A sealed smooth surface is more comfortable for scooters, adapted cycles, wheelchairs etc.		Unbound /semi-bound surface. Not preferred due to limitations on comfort, and higher maintenance requirements.
10	Provision	Forest tracks	Water bound limestone surface.		New tracks in Langwith Great Woods and Wheldrake Woods will extend existing forest tracks built to Forestry England forest road specification.	Sealed, bound surface. This would have maintenance cost implications. Unlike general situations, forest management activity is likely to mean provision of a bound surface would increase, rather than decrease, maintenance costs.	
11	Provision	Wheldrake Lane	Pegasus crossing, no separate corral. Speed limit reduction to 40mph.	LTN1/20 Table 10-2	Current speed limit (60mph) requires grade-separated crossing. Speed limit reduction to 40mph allows use of controlled crossing. Visibility between Wheldrake Lane and traffic free path is likely to be limited.		Without additional changes to road layout, it is unlikely that reduction of speed limit to 30mph to facilitate parallel crossing would be observed.
12	Provision	Beck Close to Airfield Business Park link	Low level motion-sensitive lighting provided.		The use of lighting increases security for users at night. In areas where commuter use is likely, hours of work extend to darkness in winter.	Unlit. Limits feeling of security for users in hours of darkness Likely to reduce commuter use in winter.	
13	Provision	Heslington to Cannon House Farm	Unlit		Existing highway is unlit beyond village boundary. Lighting through Wheldrake Wood unlikely to be viable, for ecological and operational reasons. Lighting through farmland subject to ecological assessment. Based on the uncertainty surrounding the future development and impacts on the links between farmland and Heslington Village, lighting provision in this section is not recommended at this stage. Further consideration of lighting provision should be given as detailed of the development and transport links emerge.	Lighting provided on farm tracks to establish precedent for future link through airfield development.	Provision of lighting along whole stretch. Discarded at this stage based on possible interim nature of link through woodland, Langwith Stray and Long Lane.
14	Level of provision	Beck Close	Cycling in mixed traffic. Signage to indicate presence of cycles and walkers. Speed limit reduction to 20mph.	LTN1/20: Figure 4.1	Existing pedestrian access to footpath. Based on expected traffic levels in Beckside and Beck Close. Reduced speed limit ensures provision is suitable for most people.		
15	Visibility	Elvington Fields	Sight stopping distance is lower than required minimum for cycle design speed of 30kph (31m).	LTN1/20: Table 5-5	Sharp turns required to navigate ditch crossings and field openings mean reduced visibility is acceptable as cycles will be travelling more slowly to make the turns. Reduction of hedge height could also be considered but would have ecological implications.		

Appendix F – Cost Estimate

Design Schedule and Scheme Costs	
Project:	**Heslington - Elvington Feasibility Study**
Compiled by:	**KA**
Document ref:	**13252-N-XX-02-0003**
Date Updated:	**21/03/2022**

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Non-construction up-front costs		
Item	**%**	**How applied**
Ecology	8.5	Calculated as percentage of construction costs without preliminaries. Applied to whole scheme.
Land & Legal	10	Calculated as percentage of construction costs without preliminaries. Applied to whole scheme.
Construction Preliminaries	17	Calculated as percentage of construction costs without preliminaries. Applied to whole scheme.
Design & Development	8	Calculated as percentage of construction costs with preliminaries and contingency. Applied to whole scheme.

Construction phase costs		
Item	**%**	**How applied**
Biodiversity Net Gain	20	Calculated as percentage of construction costs with preliminaries. Applied to whole scheme.
Contingency	10	Calculated as percentage of construction costs with preliminaries. Applied to whole scheme.

Operation and Maintenance	**%**	**How applied**
Traffic-free	4	Calculated as percentage of construction costs without preliminaries. Applied to individual links.

Costs - Elvington Fields Option 1 (North Path)			11.57	km
Cycling & walking (C&W) infrastructure				
Construction (without preliminaries)		£	1,618,673.00	
Ecology@ 8.5%	0.085	£	137,587.00	Calculated as percentage of construction costs without preliminaries. Applied to whole scheme.
Land & Legal @ 10%	0.1	£	161,867.00	Calculated as percentage of construction costs without preliminaries. Applied to whole scheme.
Construction Preliminaries @ 17%	0.17	£	275,174.00	Calculated as percentage of construction costs without preliminaries. Applied to whole scheme.
Biodiversity Net Gain (New routes) @20%	0.2	£	378,769.00	Calculated as percentage of construction costs with preliminaries. Applied to whole scheme.
Contingency @ 10%	0.1	£	189,385.00	Calculated as percentage of construction costs with preliminaries. Applied to whole scheme.
Design & Development @ 8%	0.08	£	166,659.00	Calculated as percentage of construction costs with preliminaries and contingency. Applied to whole scheme.
Total Cost (without OB)		£	2,928,114.00	
Optimism Bias @44%	0.44	£	1,288,370.00	Assumed Stage 1
Total Cost with OB		**£**	**4,216,484.00**	
C&W infrastructure maintenance per year		**£**	**39,079.00**	Calculated as percentage of construction costs without preliminaries. Applied to traffic-free path construction elements as shown in design schedule

Costs - Elvington Fields Option 2 (South Path)			11.43	km
Cycling & walking (C&W) infrastructure				
Construction (without preliminaries)		£	1,663,237.00	
Ecology@ 8.5%	0.085	£	141,375.00	Calculated as percentage of construction costs without preliminaries. Applied to whole scheme.
Land & Legal @ 10%	0.1	£	166,324.00	Calculated as percentage of construction costs without preliminaries. Applied to whole scheme.
Construction Preliminaries @ 17%	0.17	£	282,750.00	Calculated as percentage of construction costs without preliminaries. Applied to whole scheme.
Biodiversity Net Gain (New routes) @20%	0.2	£	389,197.00	Calculated as percentage of construction costs with preliminaries. Applied to whole scheme.
Contingency @ 10%	0.1	£	194,599.00	Calculated as percentage of construction costs with preliminaries. Applied to whole scheme.
Design & Development @ 8%	0.08	£	171,247.00	Calculated as percentage of construction costs with preliminaries and contingency. Applied to whole scheme.
Total Cost (without OB)		£	3,008,729.00	
Optimism Bias @44%	0.44	£	1,323,841.00	Assumed Stage 1
Total Cost with OB		**£**	**4,332,570.00**	
C&W infrastructure maintenance per year		**£**	**40,699.00**	Calculated as percentage of construction costs without preliminaries. Applied to traffic-free path construction elements as shown in design schedule

Option (where relevant)	Description	GA Drawing	Approx. length	Width where required	Quantity for costing	Unit	Type of Provision	Rate Ref (2020 CICET)	Bespoke Cost per unit	Standard Cost per unit	Growth rate for 2020 estimates (20% increase based on CPI for total contstruction materials)	Calculated Construction Cost (£)	Construction Cost Estimate Notes	Maintenance Cost Estimate
-	Beck Close		245		245	m	Cycling in mixed traffic, minimal intervention. Treat as quietway.	-		12	0	£2,940.00	Quiet way Treatment. T6 cost estimation tool	
-	Beck Close		-		1	No.	Tighten radii at entrance to Beck Close	**6.5**	£10,000.00		12000	£12,000.00	Priced as £5000/corner reduction (cost equivalent to build outs)	
Elvington Fields Option 1	Field-based path (Beck Close to Wheldrake Lane)		1255		1255	m	3m shared use path plus 2m trotting strip (excludes reinforced sections)			232	0	£291,160.00	Priced as £192/m for new traffic free route (T6 cost estimation), plus £40/m trotting strip (built from earthworks and materials rates taken from 2020 tenders)	£11,646.40
Elvington Fields Option 1	Full option 1 link		1415		1415	m	Low level motion senstive lighting			55	0	£77,825.00	Price based one unit every 4m, with assumed cost of £200/unit, based on publicly available price ranges for solar bollard requiring no trenching or cabling.	£3,113.00
Elvington Fields Option 1	Sewage Works entrance		32		32	m	Reinforced path for farm access		£436.00		523.2	£16,742.40	Priced based on Sustrans standard detail for Concrete Farm crossing pad, and tenders received for similar.	£669.70
Elvington Fields Option 1	Sewage Works culvert		-		1	No.	Culvert for existing drainage	**5.9**	£1,975.00		2370	£2,370.00	Priced as 5m culvert, 450mm diameter (£395/m)	£94.80
Elvington Fields Option 1	Wheldrake Lane crossing		-	-	1	No.	New ditch crossing	**5.9**	£1,975.00		2370	£2,370.00	Priced as 5m culvert, 450mm diameter (£395/m)	£94.80
Elvington Fields Option 1	Wheldrake Lane crossing		-	-	1	No.	Pegasus crossing		£90,000.00		108000	£108,000.00	Priced as 1 No. Toucan Crossing - no corral to be constructed. T6 cost estimation tool	
Elvington Fields Option 1	Military Road		25		25	m	Vegetation clearance and resurfacing	**2.26**		96	0	£2,400.00	Based on £96/m resurfacing of existing traffic free route (T6 estimation tool) plus £10/m vegation clearance	£96.00
Elvington Fields Option 1	Military Road link		135		135	m	3m shared use path plus 2m trotting strip			232	0	£31,320.00	Priced as £192/m for new traffic free route (T6 cost estimation), plus £40/m trotting strip (built from earthworks and materials rates taken from 2020 tenders)	£1,252.80
Elvington Fields Option 2	Field-based path (Beck Close to farm track)		878		878	m	3m shared use path plus 2m trotting strip (excludes reinforced sections)			232	0	£203,696.00	Priced as £192/m for new traffic free route (T6 cost estimation), plus £40/m trotting strip (built from earthworks and materials rates taken from 2020 tenders)	£8,147.84
Elvington Fields Option 2	Full option 2 link		1624		1624	m	Low level motion sensitive lighting			55	0	£89,320.00	Price based one unit every 4m, with assumed cost of £200/unit, based on publicly available price ranges for solar bollard requiring no trenching or cabling.	£3,572.80
Elvington Fields Option 2	Field boundary crossing		43		43	m	Reinforced path for farm access		£436.00		523.2	£22,497.60	Priced based on Sustrans standard detail for Concrete Farm crossing pad, and tenders received for similar.	£899.90
Elvington Fields Option 2	Farm track		276		276	m	Resurfacing existing track			96	0	£26,496.00	Costed as higher of £85/m provision of tarmac surface to stone track (CAS 4 Cost plan, 2019) and £96/m resurfacing exsting traffic free route (T6 cost estimation tool)	£1,059.84
Elvington Fields Option 2	Wheldrake Lane crossing		-	-	1	No.	New ditch crossing	**5.9**	£1,975.00		2370	£2,370.00	Priced as 5m culvert, 450mm diameter (£395/m)	£94.80
Elvington Fields Option 3	Wheldrake Lane crossing				1	No.	Replacement bridge			48000	0	£48,000.00	Priced as new bridge (small span <5m) T6 estimation tool	£1,920.00
Elvington Fields Option 2	Wheldrake Lane crossing		-	-	1	No.	Pegasus crossing		£90,000.00		108000	£108,000.00	Priced as 1 No. Toucan Crossing - no corral to be constructed. T6 cost estimation tool	
Elvington Fields Option 2	Field-based path (Wheldrake Lane to Cannon House Cottages farm track)		200		200	m	3m shared use path plus 2m trotting strip			232	0	£46,400.00	Priced as £192/m for new traffic free route (T6 cost estimation), plus £40/m trotting strip (built from earthworks and materials rates taken from 2020 tenders)	£1,856.00
Elvington Fields Option 2	Cannon House Cottage Farm Track		270		270	m	Resurfacing existing track			96	0	£25,920.00	Costed as higher of £85/m provision of tarmac surface to stone track (CAS 4 Cost plan, 2019) and £96/m resurfacing exsting traffic free route (T6 cost estimation tool)	£1,036.80
-	Farm Track (Cattle Grid to Cannon House Farm)		636		636	m	Resurfacing existing track			96	0	£61,056.00	Costed as higher of £85/m provision of tarmac surface to stone track (CAS 4 Cost plan, 2019) and £96/m resurfacing exsting traffic free route (T6 cost estimation tool)	£2,442.24
-	Cannon House Farm		117		117	m	3m shared use path (no trotting strip)			192	0	£22,464.00	Priced as £192/m for new traffic free route (T6 cost estimation)	£898.56
-	Farm Track (West of Cannon House Farm)		722		722	m	Resurfacing existing track			96	0	£69,312.00	Costed as higher of £85/m provision of tarmac surface to stone track (CAS 4 Cost plan, 2019) and £96/m resurfacing exsting traffic free route (T6 cost estimation tool)	£2,772.48
-	Field-based path		180		180	m	3m shared use path plus 2m trotting strip			232	0	£41,760.00	Priced as £192/m for new traffic free route (T6 cost estimation), plus £40/m trotting strip (built from earthworks and materials rates taken from 2020 tenders)	£1,670.40
-	Existing track to Broad Highway		226		226	m	Resurfacing existing track			96	0	£21,696.00	Costed as higher of £85/m provision of tarmac surface to stone track (CAS 4 Cost plan, 2019) and £96/m resurfacing exsting traffic free route (T6 cost estimation tool)	£867.84
	Broad Highway		460		460	m	Quiet Lane Treatment			12	0	£5,520.00	Quiet way Treatment. T6 cost estimation tool	
-	Broad Highway		-	-	3	No.	Provision of passing places at 150m intervals	**Various**	15000		18000	£54,000.00	Built up from CICET estimates assuming specification suitablel for HGV load. Includes ditch works.	
-	Wheldrake Woods		1256		1256	m	Resurfacing existing forest track			30	0	£37,680.00	Based on £25.60/linear metre in 2015 (forestry scotalnd grand for forest track) +12% increase (CPI)	£1,507.20
-	Wheldrake Woods		653		653	m	Creation of new forest track			160	0	£104,480.00	Priced as £160/m for new traffic free route (T6 cost estimation). Lower rate to account for lack of bitmac surfacing.	£4,179.20
-	Langwith Great Woods		578		578	m	Creation of new forest track, no existing cut	**12.2**		142	0	£82,076.00	Priced as £112/m (£32/m^2@3.5m wide) root protection path construction plus £30/m forest track construction (estimate based on Forestry Association Grant £25.60/linear metre for new forest road uplifted to 2020 price using CPI chart, and roudned. Index 2015 = 100, 2020 = 112)	£3,283.04
-	Langwith Great Woods		-	-	3	No.	New ditch crossing	**5.9**	£1,975.00		2370	£7,110.00	Priced as 5m culvert, 450mm diameter (£395/m)	£284.40
-	Langwith Great Woods to Langwith Stray		443		443	m	3m shared use path plus 2m trotting strip			232	0	£102,776.00	Priced as £192/m for new traffic free route (T6 cost estimation), plus £40/m trotting strip (built from earthworks and materials rates taken from 2020 tenders)	£4,111.04
-	Entrance to Langwith Stray		-	-	1	No.	New ditch crossing	**5.9**	£1,975.00		2370	£2,370.00	Priced as 5m culvert, 450mm diameter (£395/m)	£94.80
-	Langwith Stray to Common Lane		-	-	12	No.	New passing places		£15,000.00		18000	£216,000.00	Priced as £65/m2 carriageway resurfacing	
-	Langwith Stray to Main Street		3954		3954	m	Quiet Lane Treatment			12	0	£47,448.00	Quiet way Treatment. T6 cost estimation tool	
-	Main Street/Low Lane junction		-	-	1	No.	Junction reconfiguration	**6.5,6.9, 6.19**	£35,700.00		42840	£42,840.00	Priced as 1 No. Splitter Island (£9,450) and 2 No. buildouts (£5000/unit) plus 250m2 resurfacing @ £65/m2)	
-	Main Street		345		345	m	Cycling in mixed traffic, minimal intervention. Treat as quietway.			12	0	£4,140.00	Quiet way Treatment. T6 cost estimation tool	
-	Low Lane		-	-	4	No.	Traffic signs indicating one way	**8.1**	£347.00		416.4	£1,665.60	Priced as £347/ new traffic sign under 0.5m2	
Elvington Fields Option 1	Whole Scheme Ancilliaries		-	-	-	-	Ancilliary items - fencing, drainage, signs		-	-	-	£147,152.10	Calculated as 10% of total elements in whole scheme or Elvington Fields Option 1	
Elvington Fields Option 2	Whole Scheme Ancilliaries		-	-	-	-	Ancilliary items - fencing, drainage, signs		-	-	-	£151,203.32	Calculated as 10% of total elements in whole scheme or Elvington Fields Option 2	

Appendix G – Land Registry Information [redacted]

Appendix H – Ecological Assessment

Ecological Assessment

Heslington to Elvington Route Options

01 March 2022

Commissioned by Sustrans

Reference: 13252

To find out more, please contact: Derek Hilton-Brown
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Contents

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Useful links

Link 1: www.sustrans.org.uk

1 Introduction

1.1 Background

Sustrans is examining the feasibility of creating a new NCN quality standard route between Heslington (York) and Elvington village (B1228) and will produce concept designs for the agreed option in discussion with the City of York Council and landowners.

The project intends to improve accessibility and user experience along the path whilst also increasing the capacity and enable an uplift in user numbers.

This Ecological assessment has been produced to review the proposed route options. It provides a summary of potential ecological risks and constraints associated with each option.

The principal author of this report is Derek Hilton-Brown, who is an experienced ecologist and full member of the Chartered Institute of Ecology and Environmental Management (CIEEM), with over 25 years professional experience. Derek holds Natural England survey licenses for bats and great crested newts.

1.2 Site Location and Description

This proposed route would provide a strategic greenway link between Heslington to the south of York and the village of Elvington. Much of the route would involve existing lanes and public rights of way but new alignments would also be required.

The proposed route would pass predominately through rural areas consisting of arable farmland enclosed by mature native hedgerows and interspersed with plantation woodlands, watercourses and country lanes.

The proposed alignments under consideration are shown in Figure 1 below.

1.3 Proposals

The following design parameters have been used to assess the anticipated ecological impacts of the scheme:

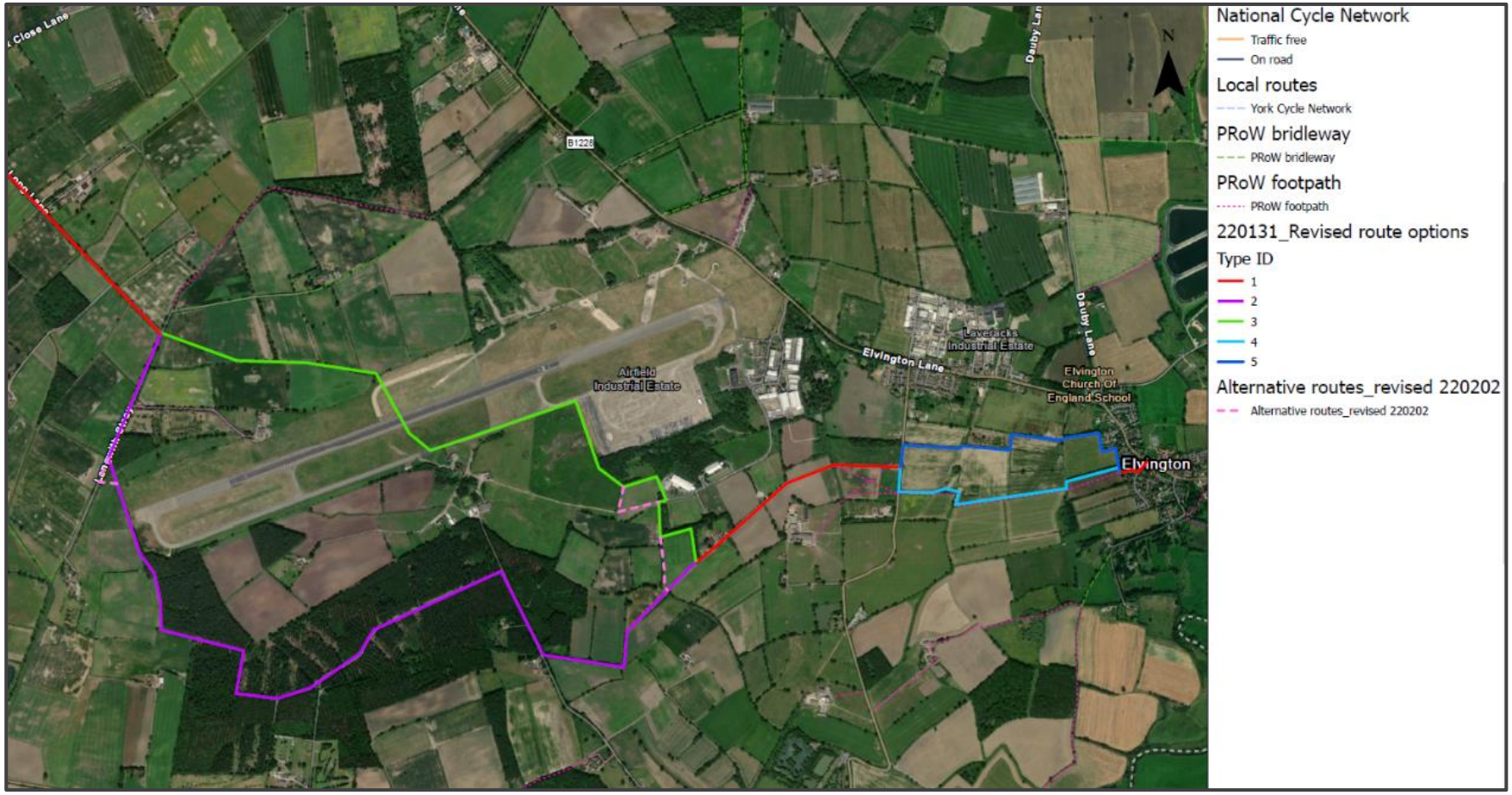
- Path to be of a minimum of 3m width, with 1m verge on either side, with preferably a sealed tarmac surface, or equivalent suitable surface dressing.

1.4 Scope of Assessment

The following ecological assessment of the Heslington to Elvington route options was carried out through a desktop survey and an ecological walkover assessment. No detailed ecological surveys were undertaken during the site visit at this stage and this information only provides

a broad overview of ecological risks and constraints of the cycleway options. The report does however consider the potential for ecological impacts to occur in the context of relevant legislation and planning policy.

Figure 1: Heslington to Elvington Route Options plan 1.



2 Methodology

The method for carrying out this assessment is based upon standard guidance published by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2017).

2.1 Desk study

This appraisal has involved the initial collation and review of contextual information such as designated sites occurring within the potential zone of influence of the proposed route options.

Natural England (MAGIC website) and the National Biodiversity Network Atlas (NBN) were consulted in January 2022 and the following information examined:

- Designated sites of international importance within a 5km radius of the route;
- Other statutory designated sites within a 1km radius of the route;
- Non-statutory sites within 500m of the route;
- Priority habitats and landscape classifications present at the site and the surrounding environs (50m); and
- Protected and priority species recorded within 500m of the route.

2.2 Site Walkover

The sections of the proposed route shown in Figs 1 and 2 were walked by Derek Hilton-Brown (Sustrans Ecologist) on 11 February 2022, as referenced above, a full ecological survey was not undertaken at this time.

2.3 Legal and Planning Context

Legal Context

A range of habitats and species that may actually or potentially be relevant to the application site are afforded legal protection under national and international legislation (**Appendix 1** refers).

Planning Context

National and Local Planning policy have also been considered within the assessment (**Appendix 1** refers).

3 Results and Discussion

3.1 Statutory Designated Sites

Statutory designations often represent the most important ecological features, being of recognised importance at an international and/or national level.

Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and Ramsar sites are now incorporated into a National Site Network within the UK territory following Brexit. National designations include Sites of Special Scientific Interest (SSSIs) and National Nature Reserves (NNRs) and Local Nature Reserves (LNR).

The proposed route is located within 5km of 9 National Site Network sites, as summarised below.

Table 1: Statutory Designated Sites within the proposed alignment's potential Zone of Influence.

Name of Site and Designation	Location relative to the site	Reasons for designation
Heslington Tillmire SSSI	500m to west	Heslington Tillmire is situated on silt and clay drift deposits on low lying, flat land in the Vale of York. It is important for its tall herb fen plant community and for its marshy grassland and associated assemblage of breeding birds. The marshy grassland provides a breeding habitat for a range of wetland bird species. Up to ten species have bred in any one year including lapwing, snipe, curlew, redshank, teal, shoveler and pintail.
Lower Derwent Valley SAC, SPA.	600m to east	A seasonally inundated river floodplain between two villages. Dominant vegetation is grassland

Including Newton Mask and River Derwent SSSIs		that is determined by the extent of winter flooding. The site includes one of the most important examples of traditionally managed species-rich alluvial flood meadow habitat remaining in the UK. The site is of particular importance for several species of breeding waders, and nationally important numbers of ducks and swans breed or winter at the site.
Lower Derwent Valley NNR	1300m to the south-east	The Lower Derwent Valley National Nature Reserve comprises a series of flood meadows, pastures and woodlands supporting a rich diversity of plant species and outstanding populations of breeding and wintering birds.
Derwent Ings SSSI	3200m to the east	The Derwent Ings consists of a series of neutral alluvial flood meadows, fen and swamp communities and freshwater habitats lying adjacent to the River Derwent between Sutton upon-Derwent and Menthorpe. The Derwent Ings represents one of the most important examples of agriculturally unimproved species-rich alluvial flood meadow habitat remaining in the UK
Melbourne and Thornton Ings SSSI	3300m to the east	Melbourne and Thornton Ings comprise of a series of flood meadows, pasture and woodland associated with the Beck and the Pocklington Canal, supporting a rich diversity of plant species and of outstanding ornithological interest.
Fulford Ings SSSI	3700m to the west	Fulford Ings is an important example of flood plain mire located on low lying land between the River Ouse and Fulford village. It supports a sequence of plant communities which reflect the topography and hydrology, with alluvial grassland on higher ground, adjacent to the flood bank, a transitional zone of rich fen meadow and swamp in the most low-lying areas

		furthest from the river. Such a sequence of plant communities is now uncommon.
Naburn Marsh SSSI	4200m to the west	The flood meadows at Naburn marsh are contained within a bend of the River Ouse about 4 km south of the centre of the City of York. The site comprises a mosaic of species-rich flood meadow grassland with swamp and inundation communities. This type of flood meadow grassland is now nationally rare and further threatened by conversion to arable land or more intensive grassland.

Given the distance and scale of the proposed works it is not anticipated that there will be any direct impact on the designated sites by the proposals, and the proposed works will not disrupt any functional links across the landscape.

However, the alignment of all the proposed routes do fall within the SSSI Impact Risk Zone and any transport proposal (excluding routine maintenance) trigger this risk, therefore the Local Planning Authority (LPA) should consult Natural England (NE) on likely risks of this scheme and seek their agreement when assessing the planning application.

3.2 Non-Statutory Designated Sites: County and Local Importance

Non-statutory designations are 'local sites' which are commonly of at least County level importance and which receive planning policy protection only. Non-statutory designated sites within 500m of the proposed routes are summarised in the table below:

Table 2: Non-Statutory Designated Sites within the proposed alignment's potential Zone of Influence.

Name of Site and Designation	Location relative to the site	Reasons for designation
Elvington Airfield SINC	Route passes through site	This site comprises of a mosaic of acid and neutral grassland, fen, scrub and seasonal pools. It reportedly has a sizeable population of skylarks and significant invertebrate interest. It also provides habitat for species such as little ringed plover and snipe.

Dodsworth Farm Candidate SINC	Route passes through site	Site of possible bird interest (Guideline B5). No further details available.
Wheldrake Wood SINC	Route passes through site.	Lowland acid grassland.
Brinkworth Rush and Elvington Air Museum SINC	150m north	Old, established seminatural neutral grassland, Rich-fen, Mixed habitat with high structural diversity, good population of great crested newt
Church Lane Meadows SINC	320m south	Old, established seminatural neutral grassland.
Broad Highway Verges SINC	100m south	Old, established seminatural neutral grassland
Elvington Tilmire Green Infrastructure Corridor	Route is within this corridor	
SINC = Site of Importance for Nature Conservation		

Additional designated sites which should be considered at this level include Ancient and Semi Natural Woodland (ASNW) and Plantation on Ancient Woodland Soils (PAWS) where these are not covered by other designations. Sections 13 and 14 (see Fig 3 and Table 3 below) of the proposed routes passes through or directly adjacent to a PAWS known as Langwith Great Woods.

3.3 Habitats

A full assessment of the habitats present along the routes has not been conducted at this phase of the project due to the early stage of proposals. However, a review of the Priority Habitats Inventory available through Magic Maps, aerial photography and the site walkover have been used to assess the habitats and ecological constraints.

The proposed route options have been divided into sections for ease of reporting and these are shown in Figs 1 and 2 below. The habitats and ecological constraints encountered on each section are set out in Table 3 and target notes (TN) referenced in Figs 1 and 2 are also included.

Fig 3: Heslington to Elvington Route Sections plan 1.

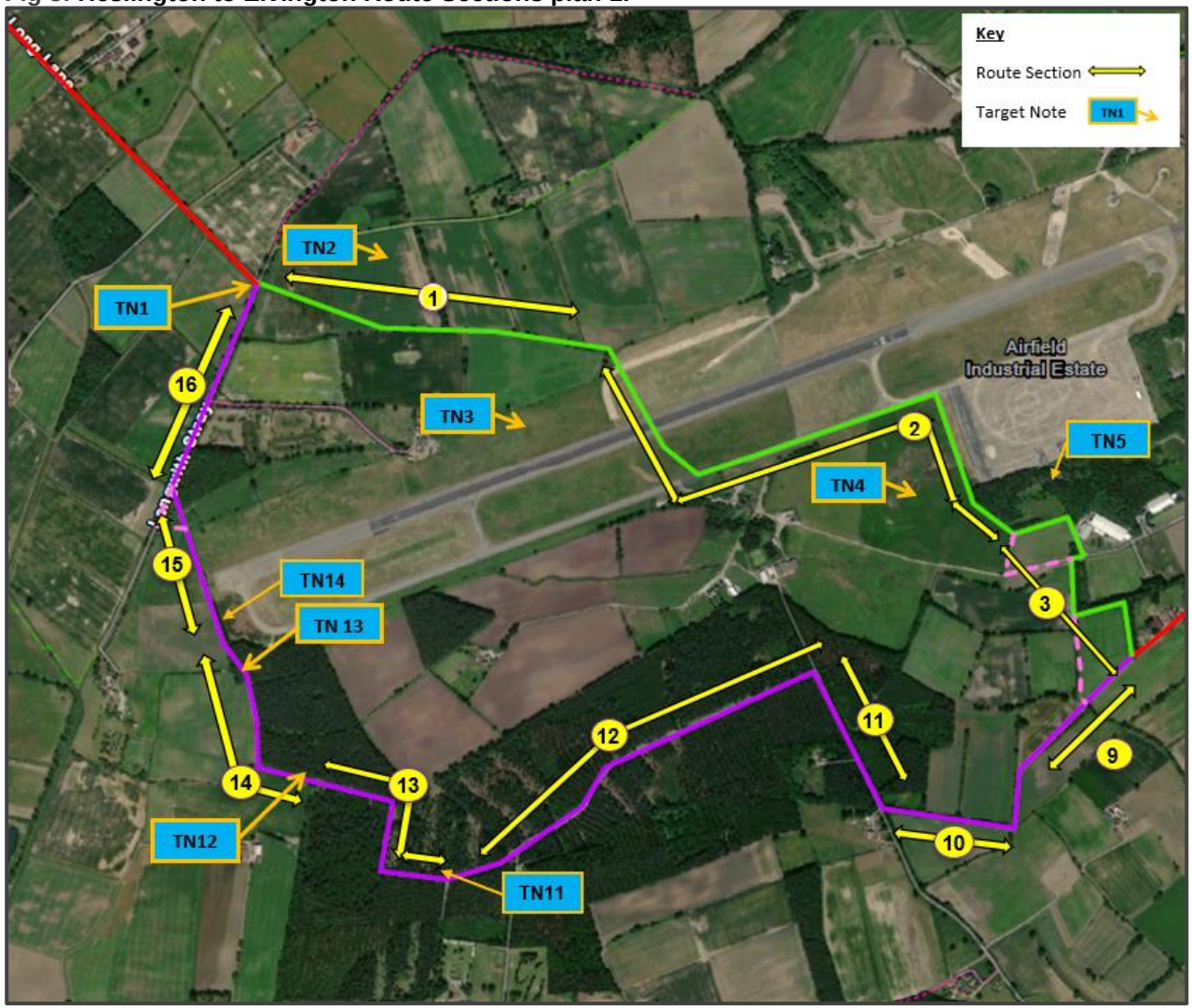


Fig 4: Heslington to Elvington Route Sections plan 2.

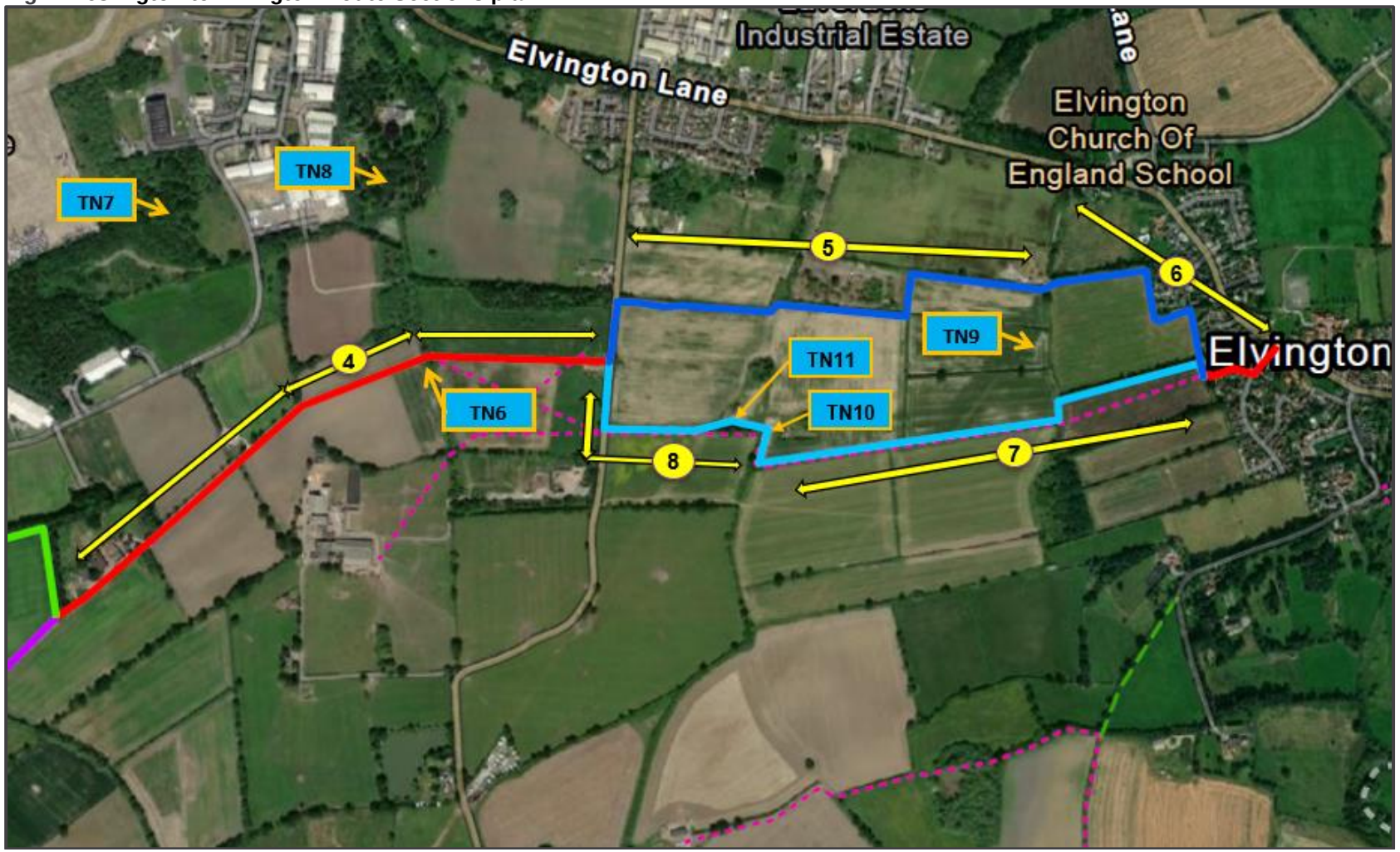


Table 3: Habitats and Ecological Constraints within the proposed alignment's potential Zone of Influence.

Section Number	Habitats and ecological constraints along route options
Section 1	This portion of the proposed route would cross over areas of arable and pasture landscape enclosed by native hedgerows and trees. Access through the existing hedgerows would be required which would lead to the loss of small sections of this priority habitat. Mitigation for the loss of these sections of hedgerow would be required. It is recommended that existing gaps in the hedgerows are used wherever possible. A new bridge would also be required over the existing watercourse (**TN1**). This watercourse provides suitable habitat for water vole (*Arvicola amphibius***)** and therefore, surveys and appropriate mitigation would be required to ensure no impacts on this or other species. The arable and pasture land is likely to be of low ecological importance, although it may provide nesting and foraging habitat for ground nesting birds such as skylark (*Alauda arvensis*) and lapwing (*Vanellus vanellus)* which are both priority species. Skylark were observed during the walkover assessment (**TN2**). To reduce impacts on ground nesting birds the alignment would need to remain close to existing field boundaries. New hedgerows could be planted parallel with the cycle way to further reduce disturbance and provide mitigation for loss of hedgerows.
Section 2	No direct access was possible on this section. Elvington Airfield is designated as a Site of Importance for Nature Conservation (SINC) and therefore protected under the City of York planning policies NE5a: Local Nature Conservation Sites and NE5b (See Appendix 1). This site comprises of a mosaic of acid and neutral grassland, fen, scrub and seasonal pools. It reportedly has a sizeable population of skylarks and significant invertebrate interest. It also provides habitat for species such as little ringed plover (*Charadrius dubius***)** and snipe (*Gallinago gallinago***)**. Mitigation for the loss of SINC habitat and disturbance to priority species would be required as part of any proposals for a new cycle route. It is noted that a large residential development (**TN3**) is proposed on land West of Elvington Lane (York Local Plan Site ST15). The indicative proposed route alignment would fall within this residential development site. It is therefore important to consult with the LPA to see what green infrastructure proposals are

	included within their masterplan for this area and how they aim to retain and mitigate for the SINC. The land directly to the south of this section is identified as Dodsworth Farm, a Candidate SINC for its bird interest (**TN4**). This area appears to be regularly flooded and contains standing water. It is likely that it is used by species of wading birds, it may also have great crested newt (*Triturus cristatus*) potential and botanical interest. Additional recreational use of this track could cause disturbance to ground nesting, foraging and overwintering birds as well as loss of important ecological habitats. Ecological surveys would be required to establish its importance and consultation with the LPA and the City of York's ecologist is strongly recommended.
Section 3	No direct access was possible on this section. The section directly south of the Airfield appears to follow the edge of an arable field, possibly with boundary hedgerows and trees which would need to be retained and protected. A great crested newt (GCN) breeding pond has been identified approximately 125m to the north of this proposed route (**TN5**) It then joins a surfaced track down past York Maling and onto Brinkworth Rush before entering arable fields which are bordered by deciduous woodland and hedgerows. These hedgerows and trees should be protected as they are likely to have moderate ecological importance. The arable fields are presumed to have a low ecological importance but may provide foraging and nesting areas for farmland birds. Although it should be noted again that access to this area was not possible during the site visit. The route then leaves the arable land and enters onto Canon House Farm access road, which is wide and hard surfaced with negligible ecological importance
Sections 4	This section between Brinkworth Rush and Wheldrake Lane is a wide hard surfaced lane/ highway with negligible ecological value and no ecological impacts are likely. A pond (**TN6**) is present directly adjacent to this access road to Cannon House Farm. Direct impacts on this waterbody are unlikely. A GCN survey is recommended.

	It should be noted that GCN are present in 2 locations to the north of this route (**TN7**), both recordings are within Brinkworth Rush and Elvington Air Museum SINCs. Any works within 250m of these ponds would require surveys. Ponds are also present to the north of this section (**TN8**). Although, it is unlikely that this section of the route would have any impacts on GCN.
Sections 5 & 6	It should be noted that full access to this section was not possible, and observations were made from the neighbouring PRoW, highways and aerial photographs. The recreational route would be required to cross Wheldrake Lane and create a new route through arable fields, running parallel with the existing hedge lines towards the sewage works and onto Beck Close in Elvington. Ecological impacts should be low provided the route stays within the arable fields (low ecological importance) and does not have any adverse effects on the existing boundary hawthorn hedgerows which are priority habitats. Once again, creation of a new recreational route could cause disturbance to ground nesting, foraging and overwintering birds. Large flocks of yellowhammer (*Emberiza citronella*) were observed using hedgerows and foraging within the fields during the field assessment (**TN9**). These birds are a species of principal importance and on the Birds of Conservation Concern red list. New native hedgerows could be planted along the new alignment to reduce disturbance and provide mitigation. It is recommended, that wherever possible, existing gaps in the hedgerows are used. If removal of sections is required for access, then replacement planting and enhancement of existing hedgerows would be required.
Section 7	This part of the cycle way would run along the boundaries of arable fields following the existing PRoW. These fields are again considered to be of low ecological value and importance but do have value for ground nesting farmland birds.
Section 8	A shallow watercourse/ drainage ditch runs alongside the footpath. A new bridge crossing and a small section of hedge removal would be required at one point along the proposed route (**TN10**). Full ecological surveys would be required for the watercourse and surrounding area. Mitigation would be required for the loss of native scrub/ hedgerow. Once again new native hedgerows could be planted along the new alignment to provide mitigation.

	A small area of dense blackthorn scrub and outgrown hedgerow is present along this section which has a moderate to high ecological importance and would require protection (**TN11**). I would recommend avoiding this habitat and going south around this area of scrub. A brick-built structure with an asbestos roof is also present within this area of scrub. This building has low potential bat roosting features which would require assessment if the structure were to be removed. The alignment then rejoins Wheldrake Lane (negligible ecological importance) and then connects with section 4.
Section 9 & 10	These sections carry on from Cannon House Farm and follow the existing access road before becoming an unsurfaced track for farm vehicles accessing the arable fields. The section consists predominately of arable fields bordered by hawthorn hedges (priority habitat) and bare muddy tracks. Ecological impacts are likely to be low providing the existing hedgerows are retained, protected and enhanced. The route would require a new access onto Broadway which may require the removal of a small section the existing outgrown hedge/ scrub. Mitigation would be required for the loss of any of this habitat. Mitigation should be possible within the locality.
Section 11	Broad Highway is an existing tarmacked highway with negligible ecological importance. The woodland on the east of Broad Highway is known as Glebe Plantation. There appeared to be permissive paths through this Forestry England woodland. The plantation is relatively immature and consists mostly of pine with areas of planted or self-sett, immature, native deciduous trees and shrubs. There is a clear route through the woodland which has probably been retained as a firebreak. The path is narrow and unsurfaced, consisting of neutral grassland underfoot. This area of wood is not covered under the SINC designation and is not a priority habitat, but full ecological data searches, surveys and proposed mitigation would be required prior to final designs. If a new route through this area was required, it could have significant adverse ecological impacts which would require considerable mitigation.

Section 12	All of Wheldrake Woods is designated as a SINC for its lowland acid grassland and is therefore protected by local planning policies NE5a and NE5b. This section of the Wheldrake Wood, from the Forestry England's Hard Moor car park already contains a wide surfaced path. Ecological impacts on this stretch of the route are likely to be low. Wheldrake Wood is predominately a pine woodland but there are some mature deciduous trees along the edge of the footpath which should be retained and protected. No-dig construction methods should be used to protect these trees during any works. Large drainage ditches were present adjacent to the existing footpaths. The route did not appear to cross any of these watercourses. However, these would require protection during construction works.
Section 13	This part of the proposed route is presently unsurfaced. There is a wide existing and well used path through the woodland on this section. However, acid grassland, bracken, native scrub and young deciduous trees were present on both sides of the path. Retention of these habitats is recommended. Mitigation for removal should be incorporated within any designs. Mitigation should be possible within Wheldrake Woods. A line of mature oak (*Quercus robur*) trees was identified at the beginning of this section which should be fully protected (**TN11**).
Section 14	The path becomes considerably narrower (desire line only) as it enters Langwith Great Wood. These woods are identified as a Plantation on Ancient Woodland Site (PAWS). Often such sites have been replanted with commercial stands of timber, such as conifers, as is the case in this situation. However, much of the value of ancient woodland lies in the soils and many remnants of the ancient habitat still remain. Areas of acid grassland and bracken were present. Ecological surveys and mitigation would be required for all sections within Langwith Great Wood. Rows of mature/ veteran English oaks were observed on the southern and western boundaries of this woodland (**TN12 & TN13**). These trees are considered to be irreplaceable, and therefore should be fully protected during development. Paragraph 175(c) of the National Planning Policy Framework (NPPF), states; "*When determining planning applications, local planning authorities should apply the following principles: development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists*".

	Many of the oaks had potential bat roosting features and therefore bat surveys would be required if pruning works to these trees is necessary. Arboricultural Impact Assessments (AIA) would be required for works within this woodland. No-dig construction measures would be essential to protect these trees. A route through this woodland would also require felling and removal of many pine trees. Signs of badgers were present within the woodland. A badger survey would be required prior to final designs. A shallow drainage ditch was present within these woods which would require culverting or crossing. A row of mature poplar (P*opulus* Sp) trees was identified between the arable fields and Elvington Airfield (**TN14)**. These should be retained and protected, and no-dig construction measures may be likely if the path is in close proximity to these trees. It is recommended that the cycle route does not enter Langwith Great Woods, but circumvents it by remaining in the surrounding arable fields which are of low ecological importance.
Section 15	The section from Langwith Great Woods to Langwith Stray is arable land of low ecological value. Although, ground nesting birds should be taken into consideration. It is recommended that the cycle route uses an existing access point onto Langwith Stray. This would prevent damage to the native hedgerow and negate the requirement for a new bridge which could have impacts on the watercourse and its associated species.
Section 16	The Langwith Stray section is a wide surfaced lane with negligible ecological value. However, the drain and surrounding grass banks and verges have moderate ecological importance and should be protected. The watercourse would require assessment for water vole and otter. Sections of Langwith Stray are within Flood Zones 2 and 3 and would therefore require a Flood Risk Assessment (FRA) to comply with local planning policy GP15a: Development and Flood Risk.

3.4 Species and Species Groups

Certain species receive legal protection in the United Kingdom and are commonly known as 'protected species'. The level of protection for different species varies considerably, from protection solely against 'killing and injury' to full protection of the species and their places of refuge. Where pertinent, details of legal protection afforded to species/species-groups are provided below.

Prior to Brexit certain species were safeguarded through European legislation and designated as European Protected Species (EPS). This legislation has been superseded by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. For England, amendments to the Habitats Regulations will be largely limited to ‘operability changes’ that will ensure the regulations can continue to have the same working effect. These species therefore still receive the same level of protection under these adopted regulations.

Due to the length of route and early stage of the project, data search for species records has not been conducted, nor have any on-site surveys been conducted.

Species groups that could or are known be present from readily available information are considered below.

Amphibians

GCN have full legal protection under The Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019.

Under Section 41 of the NERC Act 2006, GCN and common toads (*Bufo bufo)* are listed as species of principal importance (SPI) for the purpose of conserving biodiversity.

The MAGIC search included review of extant and expired European Protected Species Mitigation Licenses (EPSML), the closest granted EPSML for GCN is located adjacent to the proposed route on Brinkworth Rush near York Mailing.

This study identified ponds and other waterbodies within 250m of the proposed route. Two ponds containing GCN were also identified within the MAGIC search. Therefore, GCN and common toad will need to be considered and if any ponds or ditches are identified as a breeding site for GCN then an EPSML may be required from Natural England.

Badgers

Badgers (*Meles meles)* are protected from harm under the Protection of Badgers Act 1992, including damaging or destroying a sett or obstructing access routes.

Badgers are known to use woodland, grassland and urban edge habitats which are present along the route sections. Badger setts and trails were observed during this survey and so badgers can be reasonably expected to form a constraint to development.

Badgers can be affected by work within 30m of a sett and will require further consideration and survey to establish if the proposals will impact upon a sett.

Where the route will lead to unavoidable impacts on badgers, a license for the work must be obtained from NE and suitable mitigation provided.

Bats

Bats are a rare and declining group of species, and as such all species are protected under national and international law by the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. Bats are protected from intentional and reckless disturbance. In addition, bats' breeding, resting, and sheltering places are protected from damage and disturbance, even while not in use.

Bats are widespread in the York area and should be considered likely to be present within the wider landscape and may present a constraint to the proposals.

The proposed route intersects with a range of habitats important for bats including deciduous woodland, hedgerows and grassland.

The MAGIC search included review of extant and expired EPSML. One expired EPSML was recorded at Elvington and one extant EPSML identified at Mount Pleasant, 350m and 1800m respectively from the proposed route. However, the proposed route options would not be located within the boundary of any historic, or active bat EPSML.

Bats can be impacted by destruction and disturbance of roosts (e.g. tree removal or intervention to structures), loss and degradation of foraging, sheltering and connecting habitat, loss of habitat connectivity (e.g. creating gaps in hedgerow or removal of trees in closed canopy woodland), and changes to lighting. If lighting is proposed, then extensive further survey work in respect to bat activity will be required.

Mature trees with bat roosting potential were identified along sections of the routes. Individual trees subject to works as part of the proposals would need to be assessed for bat roost

potential and possibly subject to nocturnal activity surveys. If works are required to a bat roost, an EPSML will be required from NE.

One small derelict building was identified on section 10 which would require a risk assessment.

Birds

The proposed alignment will potentially impact upon deciduous woodland, hedgerow, grassland and scrub habitats that are likely to support a range of birds.

All wild birds (including both eggs and nests) are protected by law and nesting birds will form a constraint to development. Some species are afforded additional protection from disturbance during nesting and others are afforded additional consideration due to their rarity.

Birds can be affected by loss of habitat such as hedgerow removal or removing ground nesting habitat with activities like soil stripping, and increased disturbance caused by recreation.

Where possible important habitat for birds should be retained. Works should be planned to fall outside of the breeding bird season (March to August inclusive). Loss of nesting habitat should be compensated by creating new habitat by planting native trees, shrubs or plants, improving links to habitats, or installing artificial nesting sites e.g., through installing nest boxes.

Disturbance to ground nesting species should be reduced by ensuring new routes hug the edge of arable and pasture fields. Additional mitigation could be provided by planting of new hedgerows to screen the proposed routes and reduce disturbance.

Invertebrates

Certain invertebrate species are either legally protected, identified as a priority species for conservation action and/or are rare and endangered. These are material considerations in a planning decision. There are 400 priority species of conservation importance listed under Natural Environment and Rural Communities Act (Section 41).

Notable invertebrate species may be associated with the deciduous woodland, hedgerows, and any area of higher quality grassland.

Plant species

Certain rare and declining plant species are protected under Schedule 8 of the Wildlife and Countryside Act. In addition, other scarce and localised plant species, such as those listed as threatened on the Red Data List (Stroh et al, 2014) may be given additional protection when considered through the planning system.

The scheme design should avoid impacting on habitat supporting protected and notable plants. Where this is not possible, mitigation will be required in the form of improving habitats, creating new areas of habitat, or translocating plants to a new location, but only as a last resort.

It is possible there are invasive plant species listed on Schedule 9 of the Wildlife and Countryside Act which could pose a constraint to construction. Should any Schedule 9 species be identified they will require remediation prior to any construction activity to prevent spreading them further.

Reptiles

Reptiles are protected under Schedule 5 of The Wildlife and Countryside Act (1981). These species may be associated with habitat along the proposed route including grassland and woodland edge.

Reptiles therefore may form a constraint to the proposals and could require further consideration as part of the design process. Further assessment for these species is required to determine their presence.

If the project requires the removal of habitat supporting these species, sensitive methods of work or in some cases reptile translocation prior to works commencing may be required. Mitigation in the form of supplementary habitat may also be required.

Water Vole and Otter

Water vole and otter are fully protected under the Wildlife & Countryside Act 1981 (as amended) and otter are also a European Protected Species protected under the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019.

Suitable habitat is present for these species along much of the route. Therefore, any works within 5m of a watercourse will require further assessment to determine the location, seasonality and extent of usage of the watercourse by water vole and otter. This assessment may identify the requirement for an otter Mitigation Licence to be sought from Natural England to allow the proposed construction works to take place.

Other Species

Once a Habitat survey is undertaken it may identify additional species to the ones listed above which will require consideration and further survey. Until a Habitat survey is undertaken it is not possible to predict ecological constraints in full.

4 Biodiversity Net Gain

The requirement for Biodiversity Net Gain is embedded in the National Planning Policy Framework (NPPF, Para 170(d) and Para 175(d)). The Environment Bill (2021) specifies a mandatory 10 % BNG to be maintained for a period of at least 30 years.

Scope for habitat enhancement, restoration and creation to achieve this net gain should be considered at an early stage within the proposed scheme design. Impacts to high biodiversity habitats such as woodland or good quality grassland should be avoided as it will be difficult and costly to achieve BNG when losing high quality habitat. As the scheme is brought forward a BNG calculation should be undertaken to ensure that the scheme is achieving this gain. This will bring the scheme forward in line with current National Planning Policy which must be met if this scheme requires planning permission.

Appropriate compensation will need to be identified for the biodiversity units lost due to the proposals, such as planting new hedgerow or woodland, or changing management of grassland for the benefit of wildflowers.

Given the scale of the scheme, the range of habitats that could potentially be lost and the likely requirement on the project to see compensatory habitats maintained to maturity (min 30 years), achieving BNG presents a potentially considerable constraint to the scheme. Where there is not space to implement biodiversity enhancements on site then biodiversity offsetting may be purchased, however this is expensive. As an example, Cornwall County Council ecologists have created an averaged Habitat Creation Cost for all habitats of £28,679 per unit. This is an average cost calculated from research costs across the spectrum of habitat creation (woodland, grassland, heathland, wetland), and is likely to be applicable outside of Cornwall. This cost includes land procurement / rental for the 30 year period.

Early consultation with the City of York Council's ecologist and planning department is recommended to agree if the scheme would be required to achieve BNG and if it would be classed as a major or minor scheme. This would then determine which BNG calculator would need to be used to calculate the schemes loss and gains and the percentage of gain required.

The design process should look for opportunities to minimise loss of habitat, especially priority habitat, to reduce this constraint, and should seek to identify as many opportunities for enhancement as possible.

5 Recommendations

Preliminary Ecological Appraisal (PEA)

It is recommended that a PEA which encompasses all the proposed works (including access and storage areas) should be prepared at an early stage. This will further refine ecological constraints and opportunities that may be present and outline the further ecology survey works that will be required to support the scheme. This should include a Habitat survey accompanied by a detailed desk study including purchasing ecology data from the Local Environmental Record Centre.

The PEA will identify if further species surveys are required to inform the design of the scheme.

Trees and Woodlands

It is recommended that the cycle route does not enter Langwith Great Woods, but circumvents it by remaining in the surrounding arable fields which are of low ecological importance.

Arboricultural Impact Assessments (AIA) should be carried out for Langwith Great Woods and Wheldrake Woods. This should be implemented at an early stage to inform the design and layout of the development. This survey would take into account tree root protection zones and likely changes to site levels.

To safeguard the habitats adjacent to site, adherence to an Arboricultural Method Statement (AMS) and Tree Protection Plan (TPP) will be required, to prevent damage to boundary features and retained trees.

Further Assessment

It is recommended that any further assessment specified within the PEA is undertaken. Further assessment (e.g. badger, bats, water vole, otter and GCN surveys etc.) is best undertaken in accordance with the latest published best practice guidance and by suitably qualified, and where necessary licenced ecologists.

The findings of the PEA and further surveys should feed into the scheme design. For example, higher value habitats will be identified or any locations where alterations to the design proposals would significantly reduce potential adverse ecological impacts.

The findings of the PEA and further surveys (where required) should be combined, along with the finalised designs for the scheme into an Ecological Impact Assessment (EcIA) report. An EcIA is suitable for submission as part of any future planning application to LPA. In accordance with industry guidance, this report will evaluate potential effects of the proposals on ecological features. The report will also incorporate detail of measures to avoid, reduce and compensate for ecological impacts.

It is recommended that a Construction Environmental Management Plan (CEMP) is prepared prior to construction (including vegetation clearance) commencing. Typically, a CEMP would incorporate the findings of all ecology survey work completed to date and demonstrate how all legal requirements with respect to ecology will be met, including details of any Wildlife Licences issued by the relevant statutory authority or ecological supervision during construction to be undertaken.

Consultation with the City of York Council's Planning Department and Ecologist

An early discussion about the requirement for achieving Biodiversity Net Gain with City of York Council's planning department and ecologist is recommended. This would enable the financial implications of incorporating mitigation and enhancement measures into route delivery to be determined at an early stage. Discussion about the route passing through a SINC and PAWS would also be required, and the level of further survey work established to support designs and comply with planning policies.

Biodiversity Net Gain

The requirement for developments to achieve a Net Biodiversity Gain should be considered throughout the design process. Following the PEA, a Biodiversity Net Gain Assessment should be conducted using detailed designs.

Additional land or maintenance agreements to deliver Biodiversity Net Gain off-site may be required and should be considered during land negotiations.

6 Summary of Potential Impacts

Feature	Route Section
1. Planning Policy	
Impact upon non designated sites – City of York Local Plan, Planning Policies: • **NE5a: Local Nature Conservation Sites,** • **NE5b: Avoidance of, Mitigation and Compensation for Harm to Designated Nature Conservation Sites**	Sections 2, 12 and 13 pass through designated sites (Elvington Airfield, and Wheldrake Woods SINCS and Dodsworth Farm Candidate SINC) and therefore must comply with local planning policies. Some loss of habitat is anticipated. Sensitive scheme design and mitigation will be required to reduce impact. Consultation with York Council's ecologist and planning department are recommended at an early stage. Sections 3 and 4 are situated in close proximity to SINCs, indirect impacts are likely.
Irreplaceable habitat – Paragraph 175(c) of the National Planning Policy Framework (NPPF): **"***planning permission should be refused for development resulting in the loss or deterioration of irreplaceable habitats"*	Section 14, Langwith Great Woods contains mature/veteran oak trees in close proximity to the proposed route. These trees are considered irreplaceable. Impacts are anticipated, sensitive scheme design will need to be informed by extensive ecology and arboricultural surveys. Planning permission likely to be rejected for this section on the basis of impacts to irreplaceable habitat.
Biodiversity Net Gain – NPPF, Para 170(d) and Para 175(d)). The Environment Bill (2021) specifies a mandatory 10 % biodiversity net gain to be maintained for a period of at least 30 years.	Sections 12 to 14 pass through woodland with some areas of broadleaved deciduous woodland which is a priority habitat. Sections 1, 3, 5, 6, 7, 8, 10 and 15 of the routes passes through areas containing native hedgerows which may require sections to be removed for improved access. Sensitive scheme design will be required to limit impacts and achieving a BNG may be difficult/expensive.

Feature	Route Section
2. Priority Habitats	
City of York Local Plan, Planning Policies: • **NE1: Trees, Woodlands and Hedgerows** Trees, woodlands and hedgerows, which are of landscape, amenity, nature conservation or historical value, will be protected. • **NE7: Habitat Protection and Creation** Development proposals will be required to retain important natural habitats and, where possible, include measures to enhance or supplement these and to promote public awareness and enjoyment of them.	
Hedgerows	Removal of areas of hedgerow (Sections 1, 3, 5, 6, 7, 8, 10 and 15) to allow path alignment may be required. Will require assessment and mitigation.
Broadleaved deciduous woodland	Impacts may occur between sections 11 to 14 (Glebe Plantation, Wheldrake Wood and Langwith Great Wood). Although it should be noted that much of these woodlands are coniferous and therefore not priority habitat, but some impacts on broadleaved deciduous woodlands and trees is likely, especially Langwith Great Woods which is a PAWS. This will require further assessment and mitigation. An AIA will be required. It is recommended that the cycle route does not enter Langwith Great Woods, but circumvents it by remaining in the surrounding arable fields which are of low ecological importance.
Grasslands	Section 2 goes through Elvington Airfield which is designated as a SINC for its species rich grasslands. Sections 12, 13 and 14 are woodland areas but also important for areas of acid grasslands. Further assessments would be required to ascertain the quality of grasslands in these areas and the level of mitigation required.
3. Species	
City of York Local Plan, Planning Policies:	

Feature	Route Section
• **NE6: Species Protected by Law** Where a proposal may have a significant effect on protected species or habitats, applicants will be expected to undertake an appropriate assessment demonstrating their proposed mitigation measures.	
Amphibians (GCN)	Several ponds were identified within 250m of the route, assessment of these for GCN and common toad is required. GCN were recorded at several sites in close proximity to sections 2, 3 and 4. GCN are also known to be present within other areas of Elvington, Wheldrake and Heslington.
Badger	Woodland offers high suitability for badger; signs of badger were recorded during walkover survey. Badger assessment required.
Bats - roosting	Mature/ veteran trees were recorded in Langworth Great Woods and Wheldrake Woods (sections 13 and 14), these trees had potential bat roosting features. If tree removal is required, this could impact upon roosting bats and cause loss in connectivity across the landscape. If roosting bats are identified and will be impacted, then a European Protected Species Mitigation Licence (EPSML) will be required. A structure was identified in section 8. If works are required to this building, then a bat risk assessment would be required and potentially bat activity surveys depending on the results of the risk assessment.
Bats - Commuting	If lighting is proposed, then extensive survey work and mitigation feeding into a sensitive lighting strategy would be required.
Birds	Possible loss in nesting habitat and disturbance to ground nesting species (sections 1, 2, 3, 5, 6, 7 and 8) due to recreational pressures. Construction works should be sensitively timed outside of breeding bird season (March to August inclusive). Surveys and mitigation for farmland ground nesting species would be required.

Feature	Route Section
Invertebrates	Notable invertebrate species may be associated with the areas of deciduous woodland, hedgerows, and any area of higher quality grassland. Further surveys may be required.
Reptiles	Common reptile species may be associated with habitat along the proposed route including grassland, scrub and woodland edge. Surveys may be required to inform if sensitive methods of work are required in respect to reptiles.
Water vole and otter	Suitable aquatic and terrestrial habitat for water vole and otter was identified in sections 1, 15 and 16. Further assessment would be required for works within 5m of these watercourses.
Other species	Once a Habitat survey is undertaken it may identify additional species to the ones listed above which will require consideration and further survey.
4. **Flood Risk**	
GP15a Development and Flood Risk: There will be a presumption against built development (except for essential infrastructure) within the functional floodplain outside existing settlement limits. Section 16 (Langwith Stray) is within a Flood Zone 2 and 3 and would therefore require a Flood Risk Assessment (FRA) for planning. GP15a states that all applications in the Flood Risk areas 2 and 3 should submit an FRA providing an assessment of additional risk arising from the proposal and the measures proposed to deal with these effects.	

Note: Once a Habitat survey is undertaken it may identify additional species and priority habitats to the ones listed above which will require consideration and further survey. Until a Habitat survey is undertaken it is not possible to predict ecological constraints in full.

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HMSO (2006). Natural Environment and Rural Communities Act 2006.

HMSO (2010). The Conservation of Habitats and Species Regulations 2010 (as amended).

IEA (1995) Guidelines for Baseline Ecological Assessment. E & F Spon, London

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Natural Environment and Rural Communities Act 2006. Priority species include those of Principal Importance listed in Section 41.

Appendix 1 – Relevant Wildlife Legislation and Policy

Legislation

Principal pieces of legislation protecting wild species are Part 1 of the Wildlife and Countryside Act 1981 (as amended) (WCA) and the Conservation of Habitats and Species Regulations 2017. Some species, for example badgers, also have their own protective legislation (Protection of Badger Act 1992). The impact that this legislation has on the Planning system is outlined in ODPM 06/2005 Government Circular: Biodiversity and Geological Conservation – Statutory Obligations and their Impact within the Planning System.

This guidance states that as the presence of protected species is a material consideration in any planning decision and it is therefore essential that the presence or otherwise of protected species, and the extent to which they are affected by proposals, is established prior to planning permission being granted. Furthermore, where protected species are present and proposals may result in harm to the species or its habitat, steps should be taken to ensure the long-term protection of the species, such as through attaching appropriate planning conditions for example.

In addition to protected species, there are those that are otherwise of conservation merit, such as those listed as species of principal importance for the purpose of conserving biodiversity under the Natural Environment and Rural Communities (NERC) Act 2006.

The Hedgerow Regulations 1997 (HMSO, 1997) were introduced to protect 'important' hedgerows in the countryside by controlling their removal through a system of notification. The Regulations apply to lengths of hedgerow greater than 20m in length, not adjoining residential curtilages. 'Important' hedgerows are defined within the Regulations on a variety of historical and/or ecological criteria.

Tree Preservation Orders (TPOs) are made under the Town and Country Planning (Tree Preservation) (England) Regulations 2012. They are made by local planning authorities to protect selected trees and woodlands if their removal would have a significant impact on the local environment and its enjoyment by the public. The criteria do not incorporate any specific

considerations of ecological value. TPOs, however, provide legal protection to trees prohibiting the cutting down, uprooting, topping, lopping, willful damage or willful destruction.

Species

Prior to Brexit certain species were safeguarded through European legislation and designated as European Protected Species (EPS). This legislation has been superseded by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. For England, amendments to the Habitats Regulations will be largely limited to 'operability changes' that will ensure the regulations can continue to have the same working effect. These species therefore still receive the same level of protection under these adopted regulations.

Badgers

Badgers are protected under the Protection of Badgers Act 1992. The act is based on the need to protect badgers from baiting and deliberate harm or injury and makes it an offence to; willfully kill, injure, take possess or cruelly ill-treat a badger, or attempt to do so, and to intentionally or recklessly interfere with a sett. Sett interference includes disturbing badgers whilst they are occupying a sett, as well as damaging or destroying a sett or obstructing access routes.

A sett is defined as "Any structure or place which displays signs indicating current use by a badger"

Works that disturb badgers whilst occupying a sett is illegal without a licence; badgers may be disturbed by works near a sett even if there is no direct interference or damage to the sett. Generally, the types of activity which may result in disturbance and require a licence include:

- Using heavy machinery (i.e. tracked vehicles) within 30m of any entrance to an active sett;
- Using lighter machinery (i.e. wheeled vehicles), particularly for any digging operations; within 20m;
- Light works such as scrub clearance, felling of trees or hand digging within 10m.

Previous guidance issued from Natural England indicates that the potential for disturbance may not be as great as previously assumed due to their relatively high tolerance levels and when determining if disturbance will be caused, factors such as sett characteristics, current

usage and the extent of works should be taken in consideration when assessing the need for a licence.

Bats

All species of British bat receive full protection under the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. This affords bats and their roosts strict protection under the Regulations. Additional protection for bats is also afforded under the Wildlife and Countryside Act 1981 (as amended) and a subset of the British bat assemblage are listed as 'Species of Principal Importance' within Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006.

Birds

The Wildlife and Countryside Act 1981 (as amended) is the principal legislation affording protection to UK wild birds. Under this legislation all birds, their nests and eggs are protected bylaw and it is an offence, with certain exceptions to recklessly or intentionally:

- Kill, injure or take any wild bird;
- Take, damage or destroy the nest of any wild bird while in use or being built;
- Take or destroy the egg of any wild bird.

Species listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) are specially protected at all times.

In addition, certain conservation concern species are listed as priority species within Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006.

Great crested newts

Great crested newts are afforded full legal protection under the Conservation of Habitats and Species Regulations (Amendment) (EU Exit) Regulations 2019 and the Wildlife and Countryside Act 1981 (as amended). In summary these pieces of legislation combined make it an offence to disturb, capture, injure and kill a great crested newt or damage and destroy its habitat.

Reptiles

All common reptile species, including grass snake, common lizard, slow worm and adder are partially protected under Schedule 5 of The Wildlife and Countryside Act 1981 (as amended),

under part of Section 9(1) and all of Section 9(5). As such it is an offence to; intentionally kill or injure an individual of these species, transport for sale or exchange, or offer for sale or exchange live or dead an individual or any part of an individual of these species.

All native reptile species are listed as Species of Principal Importance on S41 of the NERC Act 2006

Otter and Water vole

Otter and water vole are fully protected under Schedule 5 of the Wildlife & Countryside Act 1981 (as amended). This makes it an offence to intentionally or recklessly kill, injure or take these species; possess or control live or dead species or derivatives; intentionally or recklessly damage, destroy or obstruct access to any structure or place used for shelter or protection; intentionally or recklessly disturb these species whilst occupying a structure or place used for that purpose.

Otter is also protected by the Habitats and Species Regulations (Amendment) (EU Exit) 2019. This legal protection makes it an offence to deliberately kill, take or injure an otter; damage or destroy a place of shelter of an otter; and disturb an otter whilst using such a place.

Protected Sites

Special Areas of Conservation (SACs)

SACs are designated nature conservation sites of international importance. SACs are designated under The Conservation of Habitats and Species Regulations (Amendment) (EU Exit) Regulations 2019 which implements The European Community Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora 92/43/EEC (the 'Habitats Directive', EEC, 1992). Lists of candidate SACs (cSACs) have been submitted to the European Commission for approval. Both possible SACs (pSACs) and cSACs are treated by the planning system as if fully designated.

Special Protection Areas (SPAs)

SPAs are designated nature conservation sites of international importance. SPAs are classified in accordance with the European Community Directive on the Conservation of Wild Birds (79/409/EEC) (the 'Birds Directive', EEC, 1979). Under this Directive, SPAs protect rare and vulnerable birds (as listed on Annex I of the Birds Directive), and regularly occurring migratory species. The provisions of the Birds Directive are implemented in England through the Wildlife and Countryside Act 1981 (as amended) and the Habitats Regulations (Amendment) (EU Exit) Regulations 2019.

Ramsar Sites

Ramsar sites are designated nature conservation sites of international importance. The Ramsar Convention (UNESCO, 1987) requires signatory states to protect wetlands that are of international importance, particularly as waterfowl habitats.

Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and Ramsar sites are now incorporated into a National Site Network within the UK territory following Brexit.

Natura 2000 sites (now known as National Sites Network)

Natura 2000 is a network of sites selected to ensure the long-term survival of Europe's most valuable and threatened species and habitats. Under the Habitats Directive, Member States designate Special Areas of Conservation (SACs) to ensure the favourable conservation status of each habitat type and species throughout their range in the EU. Under the Birds Directive, the network must include Special Protection Areas (SPAs) designated for 194 particularly threatened species and all migratory bird species.

Sites of Special Scientific Interest (SSSIs)

SSSIs are designated nature conservation sites of national importance. The Wildlife and Countryside Act 1981 (as amended 1991 and varied 1998) (HMSO, 1981, 1991, 1998) requires Natural England, the Government body with authority for nature conservation in England, to designate areas which make a significant contribution to a national network of sites of nature conservation value as SSSIs.

The Countryside and Rights of Way Act 2000 (HMSO, 2000) came into force in full on 30 January 2001. The Act is in five parts. Part III relates to Nature Conservation and amends existing legislation (i.e. the Wildlife and Countryside Act 1981) through improved protection and management of SSSIs, improved legal protection for threatened species and the provision of a statutory basis for biodiversity conservation.

National Nature Reserves (NNR)

NNR are designated nature conservation sites of national importance. NNRs were established to protect some of our most important habitats, species and geology. Natural England manages about two thirds of England’s NNRs. The remaining reserves are managed by organisations approved by Natural England, for example, the National Trust, Forestry Commission, RSPB, Wildlife Trusts and local authorities.

Local Nature Reserves

LNRs are designated nature conservation sites of local importance. Local Nature Reserves are designated under Section 21 of The National Parks and Access to the Countryside Act 1949 (HMSO, 1949) by principal local authorities. The declaring local authority must have a legal interest in the land concerned. Local Nature reserves are designated for people and wildlife. They are places with wildlife or geological features of special interest locally and that give people special opportunities to study and learn about them or simply enjoy them and have contact with nature.

Local Wildlife Sites; County Wildlife Sites; Sites of Nature Conservation Interest

The majority of Local Authorities have a system of 'second tier' sites which do not wholly fulfil SSSI designation criteria, but which are, nonetheless, of local or regional value. The policies, encouraged by Government advice, recognise that protection should be extended beyond the statutory sites to include the best examples of wildlife habitats, populations of rare species and geological features remaining in the area and are particularly valuable in supplementing and supporting the national framework for SSSIs.

Habitats

Habitats of Principal Importance

The UK countries are obliged by their individual laws to maintain lists of species and habitats of principal importance for biodiversity conservation. Public bodies, including local authorities now have a legal duty to have regard to conserving biodiversity in the exercise of their normal functions. In England, this obligation derives from the Natural Environment and Rural Communities (NERC) Act 2006, and Habitats of Principal Importance are listed on Section 41 of this Act. They mainly derive from lists originally drawn up for the UK Biodiversity Action Plan (UK BAP).

Irreplaceable Habitats

Irreplaceable habitat is habitat that, once lost, cannot be recreated elsewhere, within a reasonable timeframe.

The Revised NPPF lists the following habitats as irreplaceable:

- Ancient woodland
- Ancient and veteran trees
- Blanket bog
- Limestone pavement

- Sand dunes
- Lowland fen

Under the Revised NPPF, a planning application which would lead to the loss or damage to any irreplaceable habitat should be refused (Section 175 c).

Planning

National Planning Policy Framework (NPPF)

The NPPF (MHCLG, 2019) emphasises that planning decisions should contribute to and enhance the natural and local environment by protecting and enhancing sites of biodiversity value (in a manner commensurate with their statutory status or identified quality in the development plan) and "minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures" (paragraph 170 refers).

The NPPF advises that when determining planning applications, local planning authorities should aim to protect and enhance biodiversity by applying the following principles (paragraph 175 refers):

"*a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;*

b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;

c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons 58 and a suitable compensation strategy exists; and

d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity."

National Planning Policy Guidance (NPPG)

The NPPG (DCLG, 2014) will be updated in due course, where necessary, to reflect the 2019 NPPF. Current NPPG advises that information on biodiversity impacts and opportunities should inform all stages of development, from site selection and design, to include any pre-application consultation as well as the application itself. The guidance notes that:

"*An ecological survey will be necessary in advance of a planning application if the type and location of development are such that the impact on biodiversity may be significant and existing information is lacking or inadequate. Pre-application discussion can help scope whether this is the case and, if so, the survey work required*."

The guidance also notes that:

"*Local planning authorities should only require ecological surveys where clearly justified, for example if they consider there is a reasonable likelihood of a protected species being present and affected by development. Assessments should be proportionate to the nature and scale of development proposed and the likely impact on biodiversity*."

Local Planning Policy

City of York, Draft Local Plan (2005).

NE1: Trees, Woodlands and Hedgerows

Trees, woodlands and hedgerows, which are of landscape, amenity, nature conservation or historical value, will be protected by:

a) refusing development proposals which will result in their loss or damage; and

b) requiring trees or hedgerows which are being retained on development sites to be adequately protected during any site works; and

c) making tree preservation orders for individual trees and groups of trees which contribute to the landscape or local amenity; and

d) making hedgerow retention notices where appropriate to protect important hedgerows and;

e) ensuring the continuation of green/wildlife corridors

All proposals to remove trees or hedgerows will be required to include a site survey indicating the relative merits of individual specimens. An undertaking will also be required that appropriate replacement planting with locally indigenous species will take place to mitigate

against the loss of any existing trees or hedgerows. Developments should make proper provision for the planting of new trees and other vegetation including significant highway verges as part of any landscaping scheme. In addition, other proposals to bring forward such provision will be actively encouraged.

NE5a: Local Nature Conservation Sites
Development likely to have an adverse effect on a Local Nature Reserve or a non-statutory nature conservation site will only be permitted where the reasons for the development clearly outweigh the substantive nature conservation value of the site.

NE5b: Avoidance of, Mitigation and Compensation for Harm to Designated Nature Conservation Sites
In exceptional circumstances where development is allowed under policies NE4a or NE5a, which would have an adverse effect on the nature conservation value of the site, the council will ensure that the appropriate use of planning conditions and planning obligations is undertaken in order to protect and enhance the site's nature conservation interest and to provide appropriate compensatory measures and site management.

NE6: Species Protected by Law
Where a proposal may have a significant effect on protected species or habitats, applicants will be expected to undertake an appropriate assessment demonstrating their proposed mitigation measures.

Planning permission will only be granted for development that would not cause demonstrable harm to animal or plant species protected by law, or their habitats. The translocation of species or habitats will be an approach of last resort.

NE7: Habitat Protection and Creation
Development proposals will be required to retain important natural habitats and, where possible, include measures to enhance or supplement these and to promote public awareness and enjoyment of them.

Within new developments measures to encourage the establishment of new habitats should be included as part of the overall scheme.

Biodiversity Net Gain (BNG)

The requirement for Biodiversity Net Gain is already embedded in the National Planning Policy Framework (NPPF, Para 170(d) and Para 175(d)). The Environment Bill (2021) specifies a mandatory 10 % biodiversity net gain to be maintained for a period of at least 30 years.

Making Space for Nature

The UK Government published a White Paper 'Making Space for Nature: securing the value of nature' in June 2011 (Lawton, 2011). This document sets out a series of commitments relating, in particular, to the protection and improvement of the natural environment, the development of a green economy and strengthening the connection between people and nature. Many of the commitments and principles identified in the White Paper are of particular relevance to this proposed development:

- The establishment of coherent ecological networks;
- The creation/use of urban green infrastructure to complete the links in the ecological networks, with green spaces managed to provide a diverse range of functions, benefitting people and wildlife, by delivering ecosystem services; and
- Re-connecting people to nature through education, by providing neighbourhood access to nature and the countryside, and encouraging voluntary participation in nature conservation activities.

Appendix 2 – Ecological Assessment Criteria

Ecological features are evaluated and assessed with due consideration for the Chartered Institute of Ecology and Environmental Management (CIEEM) 2018 Guidelines for Ecological Impact Assessment (EcIA). For clarity, the evaluation and assessment process adopted within this EcIA is set out below:

Classifying potentially Important Ecological Features (IEF)

Ecological features are assessed where they are considered to be important, and where they may be impacted by a proposed development. A feature may be considered important for a variety of reasons, such as quality, extent, rarity and/or statutory protection. Table E.1 below sets out a non-exhaustive list of ecological features that are typically considered, along with key examples:

Table 3.1 Potentially important ecological features (adapted from CIEEM 2018)

Potentially Important Ecological Features	Typical examples
Statutory designated sites under international conventions, or European Legislation	Ramsar sites (wetland habitat of international importance), Special Areas of Conservation (SAC), Special Protection Areas (SPA), including land which is functionally linked to these designations. Also includes candidate SAC and proposed SPA, SAC and Ramsar sites.
Statutory designated sites under national legislation	Sites of Species Scientific Interest (SSSI), National Nature Reserve (NNR), Local Nature Reserves (LNR), Marine Conservation Zones (MCZ)
Non-statutory, locally designated sites	Local Wildlife Sites (LWS), County Wildlife Sites (CWS), Sites of Importance for Nature Conservation (SINCS)

Country biodiversity lists	Habitats or Species of Principle Importance for the Conservation of Biodiversity (Section 41, NERC Act 2006), Ancient woodland inventories
Local biodiversity lists	Local Biodiversity Action Plan (BAP) priority species or habitats
Red Listed / Rare Species	Species of conservation concern, Red Data Book (RDB) species, Birds of Conservation Concern, Nationally Rare and Nationally Scarce Species
Legally Protected Species	E.g. species listed under Sch.5 of the W&C Act 1981, or Sch.2 of the Hag. Regs. 2010
Legally Controlled Species	Legally Controlled Species

It should also be noted that the social, community, economic or multifunctional importance attributed to ecological features are not assessed as they fall outside the scope of this assessment

Geographic Context

The importance of ecological features, as well as the significance of any likely impacts and their effects, are considered here within a defined geographic context:

- International and European
- National
- Regional (e.g. East Anglia)
- County
- Local (this can be sub-divided into district and borough where appropriate)
- Site

The size, conservation status and the quality of features are all relevant in determining their importance and assigning this to the geographic scale.

Characterising Ecological Impacts and their Effects

Where likely ecological impacts are identified in connection with the proposed project, these are considered and described with reference to the following characteristics (where this is helpful in accurately portraying the ecological effect and determining the significance):

- Positive or negative (i.e. does the anticipated change accord with nature conservation policies and objectives?)
- Extent (i.e. the spatial area over which the impact or effect may occur)
- Magnitude (i.e. the quantified size, amount, intensity or volume)
- Duration (i.e. the timeframe over which the impact or effect may occur, in both human and ecological terms)
- Frequency and timing (i.e. the number of times an activity occurs, where this is likely to influence the effect)
- Reversibility (i.e. is spontaneous recovery possible or may the effect be counteracted by mitigation?)

An effect is considered to be *significant* where this either supports or undermines biodiversity conservation objectives for an important ecological feature.

Appendix I – AMAT

Active Mode Appraisal Toolkit User Interface Intervention

Intervention-specific information

User input required for all interventions

Intervention name	R66_Heslington_Elvington_North Path
Intervention promoter	City of York Council

Key

- **User input required for all interventions**
- **User input required for all cycling interventions**
- **User input required for all walking interventions**
- **Default assumptions (can be revised with supporting justification)**

Please fill in the 'Intervenion details' to obtain a benefit cost ratio for an intervention. If local evidence is avaliable, users may revise the default assumptions below but must also provide additional sources or supporting evidence to justify any changes (column H).
A worked example is provided in the accompanying AMAT User Guidance document to provide the user with a step-by-step guide to completing an assessment using AMAT

Intervention details

Appraisal year	2022		Current year
Intervention opening year	2027		
Last year of funding	2027		
Appraisal period	25	years	The appraisal period should correspond to the expected asset life. This should not exceed 60 years.
Local area type	Rural		For applying Marginal External Costs used in mode shift calculations. Choices: London, Inner and Outer Conurbations, Other Urban, Rural, National Average

Mode information

Please fill out the cycling and walking sections where relevant. If a intervention does not directly affect the number of users of a specific mode, the relevant section should be left blank.
Ideally, forecast trip numbers should be based on counts representing an average weekday in spring or autumn to avoid seasonal bias. Both automatic and manual counts can be used.
The number of trips currently (without the intervention in place) and expected (with the intervention in place).
These sections require projections of the number of users in a 'Do-something' scenario (with the intervention in place) can be based on data from evaluations of historical interventions, case studies, or surveys.
If the user does not have current or proposed numbers, please refer to the AMAT User Guide on potential sources of data to inform your assessment.
For behaviour change schemes: 'How much of an average...trip will use the intervention?' should be set to zero and there should be no change in the Current and Proposed infrastructure.

Cycling

User input required for all cycling interventions

			Evidence/Source
Number of trips without the proposed intervention	332	per day	Current user estimate provided by RMU
Number of trips with the proposed intervention	871	per day	Capital Fund Uplifts Tool.v3, high estimate
How much of an average cycling trip will use the intervention?	50.00%	%	maximum 100%; approx.10km long route; capped at 50%
Current cycling infrastructure for this route	No provision		
Proposed new cycling infrastructure for this route	Off-road segregated cycle track		Off-road shared use path; mixed traffic on quiet lanes
Are any additional shower facilities being added?	No		
Are any additional secure storage facilities being added?	No		

Walking

User input required for all walking interventions

Number of trips without the proposed intervention	931	per day	Current user estimate provided by RMU
Number of trips with the proposed intervention	1689	per day	Capital Fund Uplifts Tool.v3, high estimate
How much of an average walking trip will use the intervention?	40.00%	%	maximum 100%; approx.10km long route; capped at 40%

Current walking infrastructure for this route

Street lighting	No	No lighting
Kerb level	No	No level crossing points
Crowding	Yes	Along Elvington Lane
Pavement evenness	No	No surfaced route
Information panels	No	
Benches	No	
Directional signage	No	

Proposed walking infrastructure for this route

Street lighting	Yes	Proposed along route; subject to ecological assessment
Kerb level	Yes	Dropped kerbs, level crossing points, tactile paving proposed
Crowding	Yes	Alternative route to Elvington Lane proposed to ease crowding
Pavement evenness	Yes	Resurfacing proposed to create smooth, well-drained surface; not possible along all sections of route (Wheldrake Wood)
Information panels	No	
Benches	No	
Directional signage	Yes	Signage and wayfinding proposed

Assumptions

Default assumptions (can be revised with supporting justification)

Default TAG assumptions have already been entered. Users should only revise these if they can provide supporting evidence.
Any additional evidence should be described in column H.

Decay rate	0.00%	%	

TAG A5.1 explains that the impact of a cycling intervention is likely to diminish year by year following investment.
The decay rate has been set at 0% for an infrastructure investment.
For revenue-funded initiatives, such as cycle training or personalised travel planning, the decay rate may be positive.
The default assumption is that 0% of new users are already active. This means all new users experience intervention-related health impacts.

Cycling

Average length of trip	4.84	km	National Travel Survey Data 2012-14
Average speed	15	km/h	National Travel Survey Data 2016
Proportion of cyclists who are employed	56.40%	%	National Travel Survey Data 2018
Proportion otherwise using a car	11.00%	%	Literature Review carried out by RAND Europe/Systra for DfT
Proportion otherwise using a taxi	8.00%	%	Literature Review carried out by RAND Europe/Systra for DfT

Walking

Average length of trip	1.1	km	National Travel Survey Data 2012-2014
Average speed	5	km/h	National Travel Survey Data 2016
Proportion of pedestrians who are employed	56.40%	%	National Travel Survey Data 2018
Proportion otherwise using a car	11.00%	%	Assumed to be the same as cycling diversion factors
Proportion otherwise using a taxi	8.00%	%	Assumed to be the same as cycling diversion factors

Additional Information

Return journeys	90%	%	National Travel Survey Data 2018

A return journey involves going to and from your destination using the same route.Trips that make up return journeys will appear twice in the daily trip count (opposite directions).

Background growth rate in trips	0.75%	%	National Travel Survey Data 2006-2016
Period over which this growth rate applies	20	years	Assumption based on TAG

This is an annualised growth rate for increases in active travel trips. This could be due to a increase in population, changes in demographics or travel trends.

Number of days for which intervention data is applicable per year	253	per year	Number of working days per year (365 minus weekends minus public
Car occupancy rate	1.6		Source: National Travel Survey 2002-16
Taxi occupancy rate	2.4		Source: TAG Data Book 2010

Promoters may want to change this depending on the intervention. For example, if the intervention is designed to shift modes from car to walking or cycling the occupancy rates may be higher.

Costs

Please provide estimates for the upfront costs, as well as any future maintenance costs in the table below.
Please enter the full costs of the intervention in Column D and any private sector contributions in Column E.
All costs should be in nominal prices (unadjusted for inflation).
Note: unless specified otherwise, all funding sources are assumed to derive from local or central government.

Default assumptions (can be revised with supporting justification)

Optimism bias 15%

Please refer to TAG unit A1.2 to set optimism bias.
Otherwise, 15% is the default assumed uplift.

Key

User input required for all interventions
Default assumptions (can be revised with supporting justification)

User input required for all interventions

Year	Total intervention costs '000£	Private sector contributions '000£
2020		
2021		
2022		
2023	843.297	
2024	843.297	
2025	843.297	
2026	843.297	
2027	843.297	
2028		
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2031		
2032		
2033		
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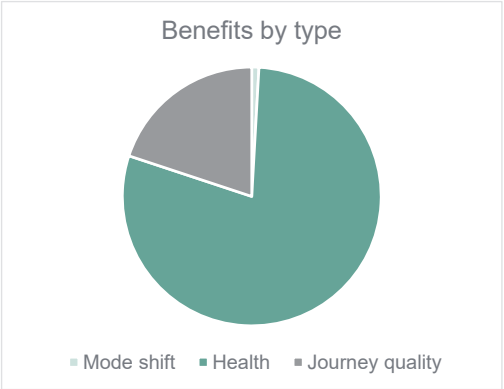
2070		

Analysis of Monetised Costs and Benefits (in £'000s)	
Congestion benefit	62.05
Infrastructure maintenance	1.27
Accident	9.12
Local air quality	1.27
Noise	0.47
Greenhouse gases	14.37
Reduced risk of premature death	5773.45
Absenteeism	838.13
Journey ambience	1662.73
Indirect taxation	-14.11
Government costs	1978.43
Private contribution	0.00
PVB	8347.48
PVC	1977.17
BCR	**4.22**

Benefits by type:		
Mode shift	74.45	0.9%
Health	6611.58	79.2%
Journey quality	1662.73	19.9%



Active Mode Appraisal Toolkit User Interface Intervention

Intervention-specific information

User input required for all interventions

Intervention name	R66_Heslington_Elvington_South Path
Intervention promoter	City of York Council

Key

- **User input required for all interventions**
- **User input required for all cycling interventions**
- **User input required for all walking interventions**
- **Default assumptions (can be revised with supporting justification)**

Please fill in the 'Intervenion details' to obtain a benefit cost ratio for an intervention. If local evidence is avaliable, users may revise the default assumptions below but must also provide additional sources or supporting evidence to justify any changes (column H).
A worked example is provided in the accompanying AMAT User Guidance document to provide the user with a step-by-step guide to completing an assessment using AMAT

Intervention details

Appraisal year	2022		Current year
Intervention opening year	2027		
Last year of funding	2027		
Appraisal period	25	years	The appraisal period should correspond to the expected asset life. This should not exceed 60 years.
Local area type	Rural		For applying Marginal External Costs used in mode shift calculations. Choices: London, Inner and Outer Conurbations, Other Urban, Rural, National Average

Mode information

Please fill out the cycling and walking sections where relevant. If a intervention does not directly affect the number of users of a specific mode, the relevant section should be left blank.
Ideally, forecast trip numbers should be based on counts representing an average weekday in spring or autumn to avoid seasonal bias. Both automatic and manual counts can be used.
The number of trips currently (without the intervention in place) and expected (with the intervention in place).
These sections require projections of the number of users in a 'Do-something' scenario (with the intervention in place) can be based on data from evaluations of historical interventions, case studies, or surveys.
If the user does not have current or proposed numbers, please refer to the AMAT User Guide on potential sources of data to inform your assessment.
For behaviour change schemes: 'How much of an average...trip will use the intervention?' should be set to zero and there should be no change in the Current and Proposed infrastructure.

Cycling

User input required for all cycling interventions

			Evidence/Source
Number of trips without the proposed intervention	332	per day	Current user estimate provided by RMU
Number of trips with the proposed intervention	886	per day	Capital Fund Uplifts Tool.v3, high estimate
How much of an average cycling trip will use the intervention?	50.00%	%	maximum 100%; approx.10km long route; capped at 50%
Current cycling infrastructure for this route	No provision		
Proposed new cycling infrastructure for this route	Off-road segregated cycle track		Off-road shared use path; mixed traffic on quiet lanes
Are any additional shower facilities being added?	No		
Are any additional secure storage facilities being added?	No		

Walking

User input required for all walking interventions

Number of trips without the proposed intervention	931	per day	Current user estimate provided by RMU
Number of trips with the proposed intervention	1710	per day	Capital Fund Uplifts Tool.v3, high estimate
How much of an average walking trip will use the intervention?	40.00%	%	maximum 100%; approx.10km long route; capped at 40%

Current walking infrastructure for this route

Street lighting	No	No lighting
Kerb level	No	No level crossing points
Crowding	Yes	Along Elvington Lane
Pavement evenness	No	No surfaced route
Information panels	No	
Benches	No	
Directional signage	No	

Proposed walking infrastructure for this route

Street lighting	Yes	Proposed along route; subject to ecological assessment
Kerb level	Yes	Dropped kerbs, level crossing points, tactile paving proposed
Crowding	Yes	Alternative route to Elvington Lane proposed to ease crowding
Pavement evenness	Yes	Resurfacing proposed to create smooth, well-drained surface; not possible along all sections of route (Wheldrake Wood)
Information panels	No	
Benches	No	
Directional signage	Yes	Signage and wayfinding proposed

Assumptions

Default assumptions (can be revised with supporting justification)

Default TAG assumptions have already been entered. Users should only revise these if they can provide supporting evidence.
Any additional evidence should be described in column H.

Decay rate	0.00%	%	

TAG A5.1 explains that the impact of a cycling intervention is likely to diminish year by year following investment.
The decay rate has been set at 0% for an infrastructure investment.
For revenue-funded initiatives, such as cycle training or personalised travel planning, the decay rate may be positive.
The default assumption is that 0% of new users are already active. This means all new users experience intervention-related health impacts.

Cycling

Average length of trip	4.84	km	National Travel Survey Data 2012-14
Average speed	15	km/h	National Travel Survey Data 2016
Proportion of cyclists who are employed	56.40%	%	National Travel Survey Data 2018
Proportion otherwise using a car	11.00%	%	Literature Review carried out by RAND Europe/Systra for DfT
Proportion otherwise using a taxi	8.00%	%	Literature Review carried out by RAND Europe/Systra for DfT

Walking

Average length of trip	1.1	km	National Travel Survey Data 2012-2014
Average speed	5	km/h	National Travel Survey Data 2016
Proportion of pedestrians who are employed	56.40%	%	National Travel Survey Data 2018
Proportion otherwise using a car	11.00%	%	Assumed to be the same as cycling diversion factors
Proportion otherwise using a taxi	8.00%	%	Assumed to be the same as cycling diversion factors

Additional Information

Return journeys	90%	%	National Travel Survey Data 2018

A return journey involves going to and from your destination using the same route.Trips that make up return journeys will appear twice in the daily trip count (opposite directions).

Background growth rate in trips	0.75%	%	National Travel Survey Data 2006-2016
Period over which this growth rate applies	20	years	Assumption based on TAG

This is an annualised growth rate for increases in active travel trips. This could be due to a increase in population, changes in demographics or travel trends.

Number of days for which intervention data is applicable per year	253	per year	Number of working days per year (365 minus weekends minus public
Car occupancy rate	1.6		Source: National Travel Survey 2002-16
Taxi occupancy rate	2.4		Source: TAG Data Book 2010

Promoters may want to change this depending on the intervention. For example, if the intervention is designed to shift modes from car to walking or cycling the occupancy rates may be higher.

Costs

Please provide estimates for the upfront costs, as well as any future maintenance costs in the table below.
Please enter the full costs of the intervention in Column D and any private sector contributions in Column E.
All costs should be in nominal prices (unadjusted for inflation).
Note: unless specified otherwise, all funding sources are assumed to derive from local or central government.

Default assumptions (can be revised with supporting justification)

Optimism bias	15%

Please refer to TAG unit A1.2 to set optimism bias.
Otherwise, 15% is the default assumed uplift.

Key

- **User input required for all interventions**
- **Default assumptions (can be revised with supporting justification)**

User input required for all interventions

Year	Total intervention costs '000£	Private sector contributions '000£
2020		
2021		
2022		
2023	866.514	
2024	866.514	
2025	866.514	
2026	866.514	
2027	866.514	
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2070		

Analysis of Monetised Costs and Benefits (in £'000s)	
Congestion benefit	63.77
Infrastructure maintenance	1.30
Accident	9.37
Local air quality	1.31
Noise	0.48
Greenhouse gases	14.77
Reduced risk of premature death	5933.85
Absenteeism	861.41
Journey ambience	1682.73
Indirect taxation	-14.50
Government costs	2032.90
Private contribution	0.00
PVB	8553.20
PVC	2031.60
BCR	**4.21**

Benefits by type:		
Mode shift	76.52	0.9%
Health	6795.26	79.4%
Journey quality	1682.73	19.7%