

## File Note

<b>Project Title</b>	<b>HIF Banwell Bypass and Highways Improvements Project</b>
<b>Document Title</b>	Lighting Strategy Technical Note
<b>Document Reference</b>	BNWLBP-ARP-HLG-XXXX-TN-CH-000001
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<b>Status</b>	<b>S4   FOR PLANNING APPLICATION</b>
<b>Revision   Date</b>	P04   28/06/22

## 1 The Project

### 1.1 Scheme Overview

1.1.1 The following section provides a brief description and overview of the Banwell Bypass and Highways Improvements Project.

1.1.2 The Scheme comprises the following distinct elements:

- a) a bypass of the village of Banwell (referred to as the “Banwell Bypass”);
- b) a route connecting the A371 at Castle Hill and the A368 at East Street (referred to as the “Southern Link”); and
- c) Mitigation and enhancement measures, which broadly consist of the following:
  - Environmental mitigation and enhancement measures in connection with the Banwell Bypass and the Southern Link, examples of which include (but are not limited to) flood compensation areas, planting and habitat creation, attenuation basins etc.
  - Placemaking improvements within Banwell, comprising mitigation and enhancement measures to the public realm; and
  - Traffic mitigation in connection with the Banwell Bypass and the Southern Link, including Improvements to the wider local road network.

1.1.3 Together, these elements comprise the “Scheme”. Each

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element as listed is described in more detail below.

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### Banwell Bypass

1.1.4 The Banwell Bypass would be located within the administrative area of North Somerset. The village of Banwell is located approximately 8km east of Weston-super-Mare. The Bypass would primarily consist of:

- a) signalisation and capacity improvements to the Summer Lane/Wells Lane junctions on the A371;
- b) a 40mph single carriageway bypass, connecting the existing A371 (east of Summer Lane) to A368 (west of Towerhead Farm);
- c) a 3 metre wide shared use path provided along the majority of the Banwell Bypass providing a link from Weston-super-Mare to Sandford;
- d) Banwell West Junction - a three arm roundabout located east of Knightcott Industrial Estate at the western end of Banwell;
- e) Wolverishill Road Junction – a traffic signalised junction, providing access for all users to the west, east, and north. Access to the south would be restricted to public transport and walking, cycling and horse-riders, and limited agricultural access only;
- f) Banwell River Bridge – an overbridge across Riverside and the River Banwell. There would not be a direct connection between Riverside and the Bypass;
- g) Moor Road to Riverside Link - a side road connection between Riverside and Moor Road; and
- h) Banwell East Junction - A three-arm traffic signalised junction, with dedicated turning lanes from the bypass towards the Southern Link.

### Southern Link Road

1.1.5 The Southern Link will provide the new primary route south to Winscombe, as Castle Hill and Dark Lane are proposed to be stopped up. The Southern Link would be a 30mph single carriageway, connecting the A368 (East Street) to the A371 at Castle Hill. The Southern Link would be located within the Mendip Hills AONB. The Southern Link would link into the Banwell Bypass at the Banwell East Junction. A T-junction located along the Southern Link would provide access into the east of Banwell (at East Street).

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### Mitigation Measures

#### **Environmental mitigation and enhancement measures in connection with the Banwell Bypass and the Southern Link.**

1.1.6 The Scheme would include mitigation measures which are provided to offset the impact of the Banwell Bypass proposal. These include (but are not limited to):

- a) flood mitigation to ensure that the Banwell Bypass does not increase flood risk for third-party properties;
- b) land for essential mitigation, such as ecology and landscape mitigation;
- c) sustainable urban drainage systems (e.g. attenuation basins and swales), and additional groundwater mitigation, to prevent adverse water quality impacts (including the Source Protection Zone); and
- d) replacement land to mitigate the impact of the scheme on Banwell Football Club.

### Placemaking improvements within Banwell

1.1.7 As a result of the Banwell Bypass, there would be a reduction in traffic through Banwell. The reduction in traffic (and resulting reduction in congestion) through the village could result in higher traffic speeds without mitigation.

1.1.8 A reduced 20mph speed limit through Banwell would discourage vehicles from travelling at higher speeds, whilst also discouraging the use of the road as a through route (instead of the Banwell Bypass).

1.1.9 The reduction of traffic through Banwell due to the provision of the Banwell Bypass provides the opportunity to make improvements to the existing road and public spaces within Banwell to enhance the historic and urban setting of the village. These improvements would include, but are not limited to:

- a) Alteration to the road and footways including resurfacing, widening, and narrowing (which would encourage drivers to comply with the posted 20mph speed limit);
- b) Incorporation of active travel measures;
- c) Soft landscaping and ecological improvements; and

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- d) Street signage improvements.

### Improvements to the wider local road network

1.1.10 Improvements to the local road network and junctions including the surrounding villages of Churchill, Sandford and Winscombe are proposed to mitigate increases in traffic as a result of the Banwell Bypass and Southern Link. These mitigation measures would consist of:

- a) Lowered speed limits:
  - 20mph: A368 through Churchill, A368 through Sandford, A371 through Winscombe.
  - 30mph: A368 between Churchill and Sandford Villages.
- b) Gateway Features when entering and exiting the villages of Sandford, Churchill and Winscombe;
- c) Non-physical traffic calming measures through and between villages (e.g. road markings and speed signage);
- d) Capacity improvements to the Churchill Junction (A38/A371);
- e) Provision of new / improvements to existing pedestrian and cycling crossings;
- f) Active travel measures along the A368, with improved footway/cycleway access from Churchill and Langford to Churchill Academy;
- g) Improvements to footways, shared pedestrian, and cycleway; and
- h) Soft landscaping, native planting, rewilding, and ecological enhancements.

## 1.2 Context

1.2.1 North Somerset Council's (NSC) Housing Infrastructure Fund (HIF) proposal supports potential housing sites (subject to the emerging Local Plan 2038).

1.2.2 A business case was submitted to Homes England to secure funding for a package of infrastructure improvements in February 2019 and a successful funding announcement was made at the end of October 2019.

1.2.3 The Bypass would provide a highway connection to enable

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potential housing sites that may be allocated in the emerging Local Plan and alleviate the anticipated impact of further traffic growth upon the already congested Banwell village.

1.2.4 NSC appointed Alun Griffiths (Contractors) Ltd, with Arup and TACP (the 'AGC Team') as their technical and environmental advisors, to develop a solution including optioneering, design and planning support of the proposed HIF Banwell Bypass and Highways Improvements Project Stage 1 (the "Scheme"). Stage 1 of the project includes: optioneering; preliminary design; Environmental Impact Assessment (EIA); planning permission; Statutory Processes. Stage 2 of the project is the detailed design and construction phase, following planning determination and land acquisition.

## 1.3 Scheme objectives

1.3.1 NSC's overall objectives for the Scheme are to deliver, within cost, quality, and programme targets:

- a) Improve the local road network to deal with existing congestion issues.
- b) Improve and enhance Banwell's public spaces by reducing traffic severance and improving the public realm.
- c) Provide the opportunity to increase active and sustainable travel between local villages and Weston-super-Mare.
- d) Deliver infrastructure that enables housing development (subject to Local Plan).
- e) Ensure the development respects the local area and minimises visual impact upon the surrounding countryside and Mendip Hills Area of Outstanding Natural Beauty (AONB).
- f) Innovative and efficient in reducing and offsetting carbon from the design and construction of the infrastructure.
- g) Ensure the development provides the opportunity to increase Biodiversity Net Gain by at least 10%.
- h) Proactively engage with stakeholders in a way that is both clear and transparent.

## 1.4 Purpose of this Technical Note

1.4.1 The purpose of this technical note is to provide information

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regarding the proposed extent of road lighting for the Scheme.

1.4.2 The note will describe the governing standards and key drivers behind the provision of road lighting, the existing provision on the A371/A368 around Banwell, and an outline of the decisions made to determine the road lighting provision on the proposed Banwell Bypass and the Southern Link.

1.4.3 The scope of this technical note is limited to the proposed Banwell Bypass, Southern Link and Footway Cycleway proposals associated with Churchill Academy. Wider network improvements considered as part of the overall Scheme (e.g. improvements to M5 Junction 21, improvements along the A368, placemaking improvements within Banwell village) are not considered within this technical note.

1.4.4 The specific areas where street lighting requirements have been assessed are as follows:

- a) Banwell Bypass
- b) Banwell West Junction
- c) Wolvershill Road Junction
- d) Moor Road to Riverside Link
- e) Banwell East Junction
- f) Southern Link
- g) Proposed Footway Cycleway, A368 and Churchill Green AX29/51/10 & AX14/21/20
- h) Proposed Footway Cycleway, East of Churchill Academy to Langford between Church Lane and Ladymead Lane (AX14/36/30, AX14/36/10, AX14/36/20 & AX14/34/10)

1.4.5 The areas listed above, as well as the road lighting proposals for those areas, are shown on the drawing outlined in Appendix A.

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# 2 Governing Standards

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## 2.1 North Somerset Council- Highways Electrical Design Guide

2.1.1 North Somerset Council's (NSC) Highway Electrical Design Guide enables the design, supply, and installation of a fully operational and adoptable lighting installation.

## 2.2 DMRB TA 501- Road lighting appraisal

2.2.1 TA 501 sets out the procedure for appraisal of new and replacement lighting on the strategic motorway and all-purpose trunk road network.

2.2.2 As the proposed Banwell Bypass is not a trunk road, the requirements and principals set out in NSC's highways electrical design guide take priority over the DMRB. This is considered to be appropriate application of the available guidance, taking into consideration the anticipated higher presence of non-vehicular users on the local road network. Where there is a lack of information in the highways electrical design guide, reference shall be made to TA 501.

2.2.3 TA 501 (Road lighting appraisal) states that "the primary purpose of road lighting on motorways and all-purpose trunk roads is to reduce personal injury collisions (PICs)."

2.2.4 This is a quantifiable benefit therefore the predicted accident cost saving should be greater than the lighting Scheme cost in order to provide economic justification for road lighting.

## 2.3 BS 5489-1:2020 – Lighting of road and public amenity areas

2.3.1 BS 5489-1 sets out the general principles of road lighting of roads and public amenity areas. The standard considers the design of lighting for all types of highways, public thoroughfares, pedestrian, and cyclists' subways as well as bridges.

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2.3.2 This standard provides specific guidance on selecting lighting classes to help design energy efficient road lighting.

## 2.4 **PLG 02 The Application of Conflict Areas on the Highway**

2.4.1 PLG 02 defines conflict areas as referenced in BS5489-1, providing guidance on the application and lighting of such areas.

2.4.2 The standard discusses the function of lighting at different types of conflict areas, the selection of lighting class, limitation of glare and arrangement of columns.

## 2.5 **British Standards**

2.5.1 Other standards applicable to the roads lighting design are:

- BS EN 12767 - Passive safety of support structures for road equipment; and
- BS EN 13201-2 - Road Lighting. Performance Requirements.

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### 3 Key Drivers

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3.1.1 The primary purpose of road lighting is to reduce personal injury collisions (PICs). As well as reducing PICs, provision of road lighting has other benefits such as:

- Improving physical fitness by encouraging active travel such as walking and cycling;
- Improving journey ambience;
- Reducing community severance; and
- Reducing crime and the fear of crime.

3.1.2 However, there are a number of key drivers to promote reducing the length of road lighting provided on new roads:

- NSC are committed to becoming a carbon neutral council and area by 2030. Road lighting is a significant consumer of electricity and therefore producer of carbon emissions. In 2020/21, emissions from the consumption of electricity for main streetlights accounted for 1,086 tonnes CO2e (carbon dioxide equivalence)<sup>1</sup> and for the year 2021/22 to date (end of Jan 2022) 590 tonnes CO2e;
- Reducing the provision of street lighting will contribute to NSC becoming carbon neutral by 2030;
- Lighting accounts for a significant proportion of electrical energy usage within the built environment and electrical energy costs are forecast to trend upwards in the foreseeable future;
- The proximity of the project to the Mendip Hills AONB. Light pollution and trespass may affect the dark skies of the area and ecology. Section 4 discusses the matter further; and
- Visual impacts of lighting columns in the daytime.

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<sup>1</sup> <https://www.n-somerset.gov.uk/sites/default/files/2020-11/NSC%20Greenhouse%20Gas%20Emissions%20Report%20-%202019-20.pdf>

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# 4 Key Considerations

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## 4.1 Road Safety

4.1.1 A key consideration of providing road lighting is to reduce the risk associated with any hazards. Improving visibility in the hours of darkness through the provision of lighting can greatly reduce the risk associated with road safety hazards.

## 4.2 Active Travel

4.2.1 NSC wants to encourage walking and cycling as a long-term method for commuting. The council have developed an Active Travel Fund (ATF) to aid it achieve Net Zero by 2030, improve public health, and aid economic recovery.

4.2.2 Uncontrolled intersecting of motorised and active travel users increases the risk associated with collisions. Lighting of active travel routes is acknowledged as an established method of increasing the visibility of users, increasing the attractiveness of a route and giving the perception of increased personal security.

4.2.3 As a key outcome of the scheme is to improve active travel links in the area, it is essential that these aspirations are met without creating barriers to use.

## 4.3 Areas of Outstanding Natural Beauty (AONB)

4.3.1 AONB's are areas of countryside that are designated for conservation.

4.3.2 The Bypass runs along the edge of the Mendip Hills AONB, while the Southern Link is within the Mendip Hills AONB.

4.3.3 Under NSC's Highways electrical design guide, AONB's are E1 Zones where the general presumption is street lighting should not be provided, unless the Council can demonstrate an overriding road safety issue which cannot be overcome by other

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means. Dark Skies

- 4.3.4 Dark skies are areas that are naturally dark at night and free of light pollution. Light pollution impacts our view of the stars and universe in the sky, as well as having an adverse effect on ecology.
- 4.3.5 While the Mendip Hills AONB is not a designated International Dark Sky Reserve (IDS), it is well known for its dark sky environment. An environment which is becoming rarer all the time due to increasing light pollution. As such, measures to preserve the dark sky environment should be taken.

## 4.4 Ecology

- 4.4.1 The greater area around Banwell (around 5km) is inhabited by bats. Areas particularly affected are to the southeast of the Scheme near the police house along the A368, and towards the south of the Scheme near the proposed southern link. Both areas are used as maternity roosts by Horseshoe bats.
- 4.4.2 Disturbance from light sources can result in adverse impacts on nocturnal species such as bats, which are protected under UK law.
- 4.4.3 The effect of road lighting is complex and varies for different species, but potential impacts include roost disturbance and abandonment, severance and loss of foraging and commuting habitats, and a decline in the availability of airborne invertebrate prey within bat foraging habitats.
- 4.4.4 Some bat species, such as the horseshoe bat species, are averse to lit areas and could be displaced from foraging areas in proximity of the proposed Scheme. As such introduced light levels should not affect existing and proposed features to be used by bats. Where this is unachievable, light levels should not exceed baseline light levels.

## 4.5 Carbon

- 4.5.1 The impact of the extent of lighting on the carbon footprint of

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this project should be considered. This includes the raw material supply, transport, installation, use and maintenance phases of the lighting. This is discussed in the Carbon Management Plan (BNWLBP-ARP-GEN-XXXX-RP-YC-000001) and reported on in the Carbon Baseline Report (BNWLBP-ARP-GEN-XXXX-RP-YC-000003).

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# 5 Provision of lighting on existing roads

## 5.1 Existing Lighting Provision

5.1.1 This section describes the extent of lighting on the existing highway network and is shown schematically in Image 1.

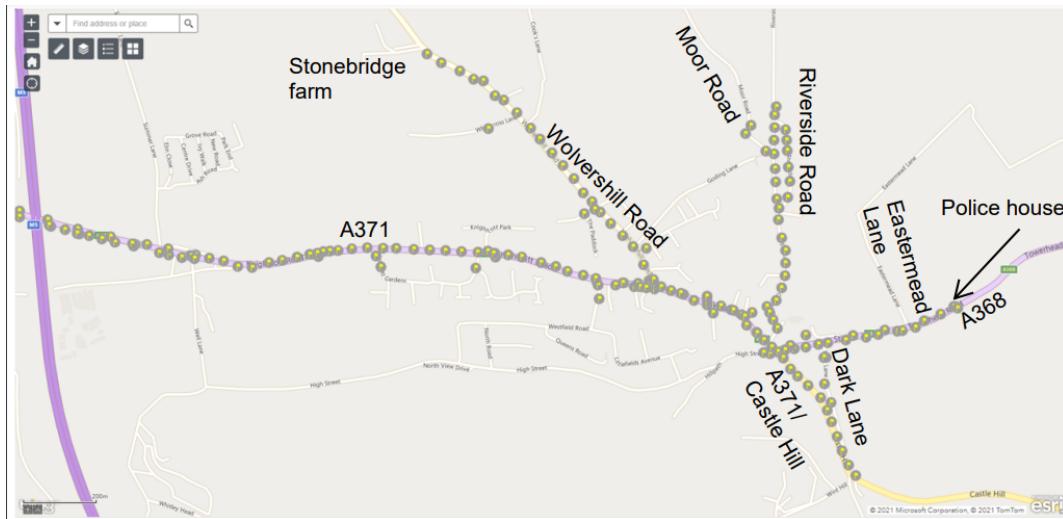


Image 1 Existing lighting schematic

5.1.2 At the western extent of the Scheme, the A371 is currently lit.

5.1.3 The lighting provision along Wovershill Road currently extends north from Banwell for approximately 900m to Stonebridge Farm. Further north from Stonebridge Farm, the road is unlit.

5.1.4 At the north of the Scheme, Moor Road is lit for a distance of approximately 115m from the junction with Riverside Road heading northwest through the residential area. The remaining length of Moor Road is unlit.

5.1.5 At the eastern extent, the A368 is lit for approximately 530m from its junction with the A371 until after Eastermead Lane. The A368 is then unlit to the village of Sandford to the east.

5.1.6 Dark Lane, connecting the A386 to the A371/Castle Hill is lit for approximately 170m from the A368 travelling southward, and Castle Hill is lit from its junction with the A368 southwards for approximately 400m.

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# 6 Design Proposals

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## 6.1 Areas of proposed lighting

### Banwell Bypass Mainline

6.1.1 In the existing situation lighting is provided on the A371, as it is identified as a primary east-west route through the area. Due to the strategic nature of the corridor, NSC's Highways Electrical Design Guide classifies the A371 as a route requiring lighting. The extent of lighting terminates at Castle Hill, approximately in line with the boundary of the AONB.

6.1.2 Lighting the entirety of the proposed Bypass was considered. There are no major or exceptional road safety or security issues with the exception of junctions which are classified as points of conflict and their interface with non-vehicular traffic.

6.1.3 It is therefore proposed that lighting should not be provided across the whole route due to the requirement to protect the ecological value of the surrounding area, conserve dark skies and minimise the carbon impact of the Scheme, as discussed within Section 4.

6.1.4 This aligns with the aspirations defined within NSC's Highways Electrical design guide, for E2 Zone designations, stating lighting should not be provided unless the council deem it to be in the best interest of the community for road safety or personal security reasons.

### Junctions

6.1.5 Discrete sections of lighting are proposed at Banwell West Junction, Wolvershill Road, Eastermead Lane tie-in and Castle Hill tie in, the remaining junctions are to be unlit as shown schematically in Image 2 and Image 3 and discussed in Sections 6.2-6.6.

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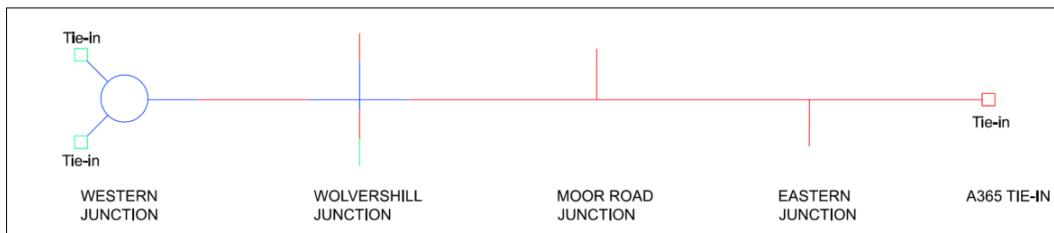


Image 2- Extent of proposed lighting along Banwell Bypass



Image 3- Extent of proposed lighting along the Southern Link

## 6.2 Banwell West Junction

6.2.1 The proposed scheme introduces a new 3 arm roundabout at this location which is classified as an area of high traffic conflict, and so should be lit to CEN Luminous intensity Class G6 in accordance with NSC's Highways electrical design guide.

6.2.2 The proposed bypass joining the northern arm of the roundabout enters a rural area of low district brightness defined as Zone E2 by NSC. NSC's Highways Electrical Design Guide recommends that street lighting should not generally be provided in these areas.

6.2.3 However, as the roundabout is a conflict area, it is proposed that the conflict area and the lead up to it be lit in the interest of safety to reduce the risk of PICs. The arrangement of this lighting will comply with BS 5489-1 Lighting of Roads and Public Amenities. PLG 02 states that the 5 second rule should be applied where no other lighting is provided other than leading to the conflict area. The 5 second rule states that there should be 5 seconds of driving distance at the expected traffic speed. At the proposed 40 mph speed limit, 89m of lighting approaching the conflict area is proposed.

6.2.4 The risk assessment for this location is provided in Appendix B

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- BNWLBP-ARP-HLG-JN\_WEST\_Z-RA-CH-000001.

### 6.3 **Wovershill Road Junction**

- 6.3.1 The mainline bypass approach to Wovershill Road signalised junction will be classified as a rural Class A road. As such, the junction is considered a conflict area in accordance with PLG 02, Section 3.2.1., and should be lit.
- 6.3.2 The minor road (Wovershill Road) approach to the junction is not a primary traffic route and is not currently a designated pedestrian route in either direction. However, NSC aspire that the route will be used for active travel along the north of the bypass and to Weston-super-Mare. As such, future conflict between motorised traffic and users of the shared use path at the junction is likely, representing a high severity risk.
- 6.3.3 Whilst it is proposed that this risk of conflict would be managed through the provision of dedicated signal-controlled crossing points within the junction, for the safety of non-motorised users the provision of lighting within the intervisibility zone of the junction is essential to mitigate the risk of collision during the hours of darkness.
- 6.3.4 As Wovershill Road Junction is located within NSC's E2 Zone of low district brightness, it is essential the required lighting provision is designed to minimise its potential environmental and visual impact upon the landscape and dark sky environment.
- 6.3.5 Consideration is to be given in detailed design to the lighting specification including colour temperature (from 4000 to 3000 kelvins), column height (from 10m to 8m) and opportunity for night time dimming regime following discussion with NSC lighting engineer to minimise the effects of the lighting design on the aforementioned environmental receptors.
- 6.3.6 The risk assessment for this location is included in this document in Appendix B - ARP-HLG-X\_WSHILL\_Z-RA-CH-000001.

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### 6.4 Moor Road to Riverside Link

- 6.4.1 Moor Road is a single-track lane which is currently unlit. This is again in an E2 Zone, where NSC advise no lighting is provided.
- 6.4.2 The majority of Riverside is unlit with existing lighting provisions 450 metres south of the proposed new link road on approach to Banwell, near Banwell FC.
- 6.4.3 Both Moor Road and Riverside are not considered primary traffic routes. Due to this it is not anticipated that significant volumes of motorised users will interact with the proposed link.
- 6.4.4 The proposed alignment provides good forward visibility to junctions with both roads, lowering the risk of accidents.
- 6.4.5 Due to the low volumes of traffic using these country roads (TD 501 Road lighting design), it is proposed that lighting is not provided at this location.
- 6.4.6 The risk assessment for the Moor Road to Riverside Link is provided in Appendix B - BNWLBP-ARP-HLG-X\_BB\_Z-RA-CH-000001.

### 6.5 Banwell East Junction

- 6.5.1 Banwell East Junction, a signalised junction, is located to the east of Banwell. It joins the proposed bypass to the existing single carriageway A368 Towerhead Road and the proposed Southern Link.
- 6.5.2 The existing A368 has no dedicated footway or cycleway provision and is subject to the national speed limit. The proposed tie-in location is outside the extents of the existing street lighting.
- 6.5.3 The Banwell East Junction provides access to the Southern link via a signalised junction. Due to the signalisation any traffic conflict is controlled. Furthermore, good forward visibility is achieved on all junction approaches. The proposed junction does not intersect any existing public rights of way. There is no

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dedicated footway or cycleway provision through the junction.

- 6.5.4 This area is defined as an E1 Zone where NSC's Highways electrical design guide states no lighting should be provided.
- 6.5.5 Due to the topology of the area this junction may be liable to valley fog. The junction will be low lying relative to Banwell woods. The woods may keep heat and cause fog to settle in the lower, colder areas. The risk associated with this could be mitigated within the specification of the class of retro reflectivity of traffic signs to ensure driver awareness of the road layout ahead.
- 6.5.6 Environmentally, this junction is sited just outside of the Mendip Hills AONB. The Banwell East Junction is sited in close proximity to horseshoe bat maternity roosts and bat foraging areas. Horseshoe bats are very averse to lit areas, lighting may lead to roost abandonment and loss of foraging areas.
- 6.5.7 Considering the above it is proposed that this junction should be unlit. The redundant associated risk of the conflict area will be mitigated by the appropriate traffic signs approaching the junction. The risk assessment for this location is provided in Appendix B - BNWLBP-ARP-HLG-JN\_EAST\_Z-RA-CH-000001.

## 6.6 The Southern Link

- 6.6.1 The Southern Link connects Banwell East Junction to the existing A371 Castle Hill at Banwell Castle, intersecting the Mendip Hills AONB. There is no proposal for the inclusion of any dedicated pedestrian or cycle provision along the mainline alignment.
- 6.6.2 Eastermead Lane would form part of a wider route from Banwell to Sandford. For this reason, it is recommended that this lighting be retained along the A368 to Eastermead Lane in accordance with section 3.1 of NSC's Highways Electrical Design guide. As there is already lighting at this location no change is proposed to the existing scenario and as such disturbance to the surrounding ecology and the AONB shall be

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minimal.

- 6.6.3 In the existing situation street lighting is provided along the A368 until the Police House as shown in Image 1, illuminating the direct access arrangement to the property. After which, the A368 is subject to national speed limit and is unlit.
- 6.6.4 Where the proposed Southern Link alignment intersects the existing A368 at Police House, it is proposed that the existing lighting should be removed from the junction with Eastermead Lane due to being sited on the boundary of the AONB. This would protect the ecological value of the surrounding area and conserve dark skies.
- 6.6.5 It is recognised that consultation with the owner/occupiers of Police House will be required regarding this matter and mitigation developed to minimise impact.
- 6.6.6 To the east of the proposed Southern Link is a horseshoe bat maternity roost. Horseshoe bats are very averse to lit areas. Potential impacts of lighting include roost disturbance and abandonment, severance and loss of foraging and commuting habitats, and a decline in the availability of airborne invertebrate prey within bat foraging habitats.
- 6.6.7 Considering the visual impact, the view of the AONB from residential properties along the A368 and Dark Lane would be compromised by the introduction of the Southern Link. Road lighting would further impact the residents and compromise their view.
- 6.6.8 Considering the above, it is proposed that the Southern Link mainline is not lit to conserve dark skies, protect the ecological value of the surrounding area and minimise impact on nearby residents. This aligns with NSC's Highways Electrical Design guide.
- 6.6.9 At the location where the Southern Link joins Castle Hill, although located within the AONB, lighting is provided in the existing situation. Due to the reduced forward visibility at this location, and the junction with other streets and private means

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of access, it is proposed the existing lighting should be retained. As the area is already lit it, there should be no further impact to the surrounding ecology and AONB.

- 6.6.10 The arrangement of this lighting will comply with BS 5489-1 Lighting of Roads and Public Amenity Areas and adequately light the conflict area to reduce the risk of PICs.
- 6.6.11 The risk assessment for the Southern Link is provided in Appendix B - BNWLBP-ARP-HLG-X\_SL\_Z-RA-CH-000001.

## 6.7 **Proposed Shared Use Path, A368 and Churchill Green (AX29/51/10 & AX14/21/20)**

- 6.7.1 The scheme proposes to improve the existing unsurfaced AX29/51/10 and AX14/21/20 Public Rights of Way (PRoW) footpaths to a 3m wide shared use path between the A368 and Churchill Green as shown in Appendix A - BNWLBP-ARP-HLG-X\_BB\_Z-DR-CH-000003. This is intended to improve active travel connections between Sandford and Churchill Academy. Along these existing PRoWs there is no lighting provision, however at the tie in location on the A368 there is existing street lighting.
- 6.7.2 The section AX29/51/10 is within the boundary of the proposed housing development 20/P/1120/OUT which if delivered would be subject to street lighting, leaving the short length of AX14/21/20 unlit.
- 6.7.3 In order to provide route continuity and an attractive alternative to other modes of transport to and from school, it is in the best interest of the local community from a personal security point of view that lighting is provided. The provision of lighting would improve the feeling of how safe an environment is and would ensure the route is fit for purpose throughout the year, in particular during winter months where the hours of darkness coincide with travel times of children to and from school. The provision of lighting is further reinforced due to there being no reasonable alternative active travel route to facilitate the school commute between Sandford and Churchill Academy & Sixth Form.

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6.7.4 There are no specific environmental designations (SPA, SAC, AONB or SSSI) within this area.

6.7.5 The risk assessment for this location is included in this document in Appendix B – BNWLBP-ARP-HLG-X\_A368WPC\_Z-RA-CH-000001.

### **6.8 Proposed Shared Use Path, East of Churchill Academy to Langford between Church Lane and Ladymead Lane (AX14/36/30, AX14/36/10, AX14/36/20 & AX14/34/10)**

6.8.1 The scheme proposes the resurfacing and upgrading of four existing sections of footpath including;

- a) Footpath AX14/36/30, an existing access track from Church Lane to farm buildings and residential property approximately 340m in length and 4m width.
- b) Footpath AX14/36/20 and Footpath AX14/36/10, unsurfaced agricultural access route, partly through woodland, approximately 315m and 40m length respectively. This section would be reconstructed to 3m width suitable for active travel.
- c) Footpath AX14/34/10, a 450m length of surfaced private access route to Ladymead Lane.

6.8.2 There is no existing street lighting along these routes, nor on those to which they connect. The PRoWs are currently rural in context, where the introduction of lighting is not considered appropriate.

6.8.3 The total length of shared use path between Church Lane and Ladymead lane is approximately 1.145km and isolated from the public highway or other notable features. It is considered due to this length and isolation the introduction of street lighting will not notably improve the perception of personal safety.

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6.8.4 Therefore, it is proposed that no lighting is provided along this particular route.

6.8.5 The risk assessment for this location is included in this document in Appendix B – BNWLBP-ARP-HLG-X\_A368WPC\_Z-RA-CH-000001.

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# 7 Conclusion

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7.1.1 The existing A371 and A368 are lit throughout Banwell, with lighting along the A368 terminating at the Police House as shown in Image 1.

## 7.2 Lighting philosophy

7.2.1 As this project is carbon led, the impact of CO2 equivalent from street lighting is considered. Minimising the extent of lighting provided will help reduce the carbon impact of the scheme and aid NSC achieve its goal of becoming carbon neutral by 2030.

7.2.2 Conserving the dark skies of the Mendip Hills AONB and minimising ecological impact by reducing light pollution is an important consideration of lighting provisions.

7.2.3 However, it is essential that this is undertaken on balance against motorised and non-motorised user safety.

## 7.3 Proposed areas of lighting

7.3.1 It is proposed that lighting be provided at the Banwell West Junction to light the conflict area and roundabout approaches to reduce the risk of PIC's.

7.3.2 Lighting shall be provided at Wolvershill Junction intervisibility zone to minimise the risk of conflict between motorised and active travel users.

7.3.3 At the A371 tie in location at Banwell Castle and on A368 until Eastermead Lane the existing lighting provision shall be retained.

7.3.4 Lighting shall be provided to the footway cycleway between A368 and Churchill Green (AX29/51/10 & AX14/21/20) to facilitate active travel to Churchill Academy from Sandford where no alternative is available.

7.3.5 The remainder of the Scheme will be unlit to minimise the

## File Note

environmental, landscape and carbon impact of the scheme.

## File Note

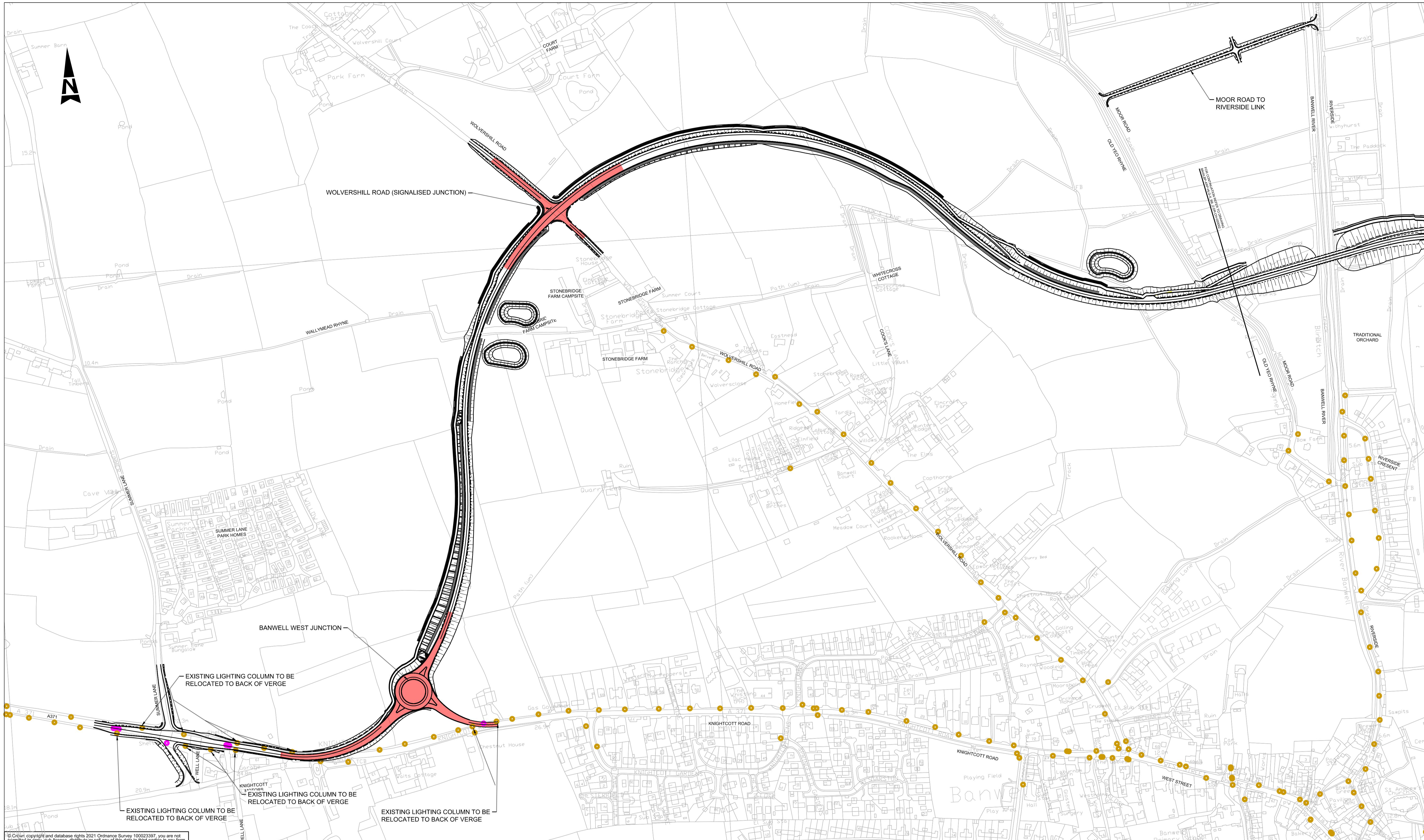
### Appendix A

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**BNWLBP-ARP-HLG-X\_BB\_Z-DR-CH-000001**

**BNWLBP-ARP-HLG-X\_BB\_Z-DR-CH-000002**

**BNWLBP-ARP-HLG-X\_BB\_Z-DR-CH-000003**



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LEGEND  
○ EXISTING LIGHTING COLUMN TO REMAIN  
○ EXISTING LIGHTING COLUMN TO BE REMOVED  
— PROPOSED ROAD LIGHTING BOUNDARY

NOTES  
1. ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.  
2. ONLY WRITTEN DIMENSIONS SHALL BE USED, DO NOT SCALE.

#### SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS (REFERENCE SHALL ALSO BE MADE TO THE DESIGN HAZARD LOG).

##### CONSTRUCTION

REF NO. | NONE

##### Maintenance / Cleaning

REF NO. | NONE

##### USE

REF NO. | NONE

##### DECOMMISSIONING / DEMOLITION

REF NO. | NONE

P01	01/12/21	FOR INFORMATION	KD	AC
P02	15/02/22	FOR ISSUE	LM	AC
P03	28/06/22	FOR PLANNING SUBMISSION	DS	GJ
			By	Chkd

Rev.	Date	Description	By	Chkd
			App'd	Auth'd

Suitability

S4

Drawing Status

FOR PLANNING APPLICATION

**GRIFFITHS**  
civil engineering and construction

**ARUP**

**TACP**

Project Title: BANWELL BYPASS AND HIGHWAY IMPROVEMENTS

Drawing Title: ROAD LIGHTING PROPOSALS SHEET 1 OF 3

Scale: 1:2500

By DS

Checked GJ

Approved TE

Authorised RW

Date 28/06/22

Date 28/06/22

Date 28/06/22

Original Size A1

Original Size A1

Original Size A1

Originator ARP

Originator ARP

Originator ARP

Volume HLG

Volume HLG

Volume HLG

Revision P03

Revision P03

Revision P03

North Somerset COUNCIL

Project BNWLBP

Project BNWLBP

Project BNWLBP

Originator ARP

Originator ARP

Originator ARP

Volume HLG

Volume HLG

Volume HLG

Revision P03

Revision P03

Revision P03

Location X\_BB\_Z

Location X\_BB\_Z

Location X\_BB\_Z

Type DR - CH - 000001

Type DR - CH - 000001

Type DR - CH - 000001





## File Note

### Appendix B - Risk Assessments

Activity / Decision		East Junction – Lighting Risk Assessment							Date: 01/02/2022
Decision Maker / Assessor		Amie Cowle							Contact Details: Arup
Ref	Hazard / Risk Description	L	S	R	Response / Control Measure	L	S	R	Details / assumptions / monitoring
1	Potential for collisions between vehicles at signalised junction due to not understanding the junction layout in hours of darkness.	3	4	12	<p>Retro-reflective Advance Directional Signing (ADS) to be provided on the approach to the junction to clarify junction layout on approach to the junction.</p> <p>Speed limit on every approach to be limited to 40mph.</p> <p>Stopping Sight Distance (SSD) requirements on the approach to a junction (1.5x SSD) is achieved. Required SSD on approach to traffic signal is achieved.</p>	2	4	8	<p>Consideration to be given for the use of sign ref 543 “Traffic signals ahead”.</p> <p>Diagram 543</p> <p>Traffic signals ahead</p> 
1	Potential for collisions between vehicles at junctions due to visibility if they are not illuminated at night.	3	4	12	<p>Stopping Sight Distance (SSD) requirements on the approach to a junction (1.5x SSD) is achieved.</p> <p>Eastbound traffic would approach on an uphill gradient which would effectively slow traffic, thereby mitigating risk of collision due to approach speed.</p>	2	4	8	<p>To further reduce the risk at the junction, the following mitigation measures are proposed:</p> <ul style="list-style-type: none"> <li>• High quality retroreflective signage, road studs and road markings</li> <li>• Dedicated off-roads routes at locations with high pedestrian and off-road traffic</li> </ul>

Activity / Decision		East Junction – Lighting Risk Assessment							Date: 01/02/2022	
Decision Maker / Assessor		Amie Cowle							Contact Details: Arup	
Ref	Hazard / Risk Description	L	S	R	Response / Control Measure	L	S	R	Details / assumptions / monitoring	
					<p>Westbound approach is downhill, but only for the distance equating to 1.5x SSD.</p> <p>Speed limit on approach to be limited to 40mph.</p> <p>Due to the wide bend of the junction and good lines of sight the likeliness of accidents at this location is reduced. Due to the reduced likeliness lighting is not justified at this location.</p>					
4	Potential for collisions between vehicles and non-motorised traffic	3	3	9	<p>There is no segregated provision for pedestrian or cycle users sat Eastern Junction.</p> <p>Depending on the direction of travel active travel users would be directed along Eastermead Lane or Castle Hill (side road) to minimise conflict at Eastern Junction.</p>	2	3	6		
5	General risk to workers and users – risk involved with the construction and maintenance in the vicinity of the junction at night	3	3	9	As 1.	2	3	6	As 1.	

Table 1: Risk Assessment Scoring Matrix

Likelihood (L) x Severity (S) = Risk Value (R)		Severity (S)				
Likelihood (L)	Minor harm; Minor damage or loss no injury	Moderate harm; slight injury or illness, moderate damage or loss	Serious harm; Serious injury or illness, substantial damage or loss	Major harm; Fatal injury, major damage or loss	Extreme harm; Multiple fatalities, extreme loss or damage	
	Very unlikely; highly improbable, not known to occur	1	2	3	4	5
	Unlikely; less than 1 per 10 years	2	4	6	8	10
	May happen; once every 5-10 years	3	6	9	12	15
	Likely; Once every 1 – 4 years	4	8	12	16	20
	Almost certain; once a year or more	5	10	15	20	25
Risk Value (R)		Required action				
Low (1-9)		Ensure assumed control measures are maintained and reviewed as necessary.				
Medium (10-19)		Additional control measures needed to reduce risk rating to a level which is equivalent to a test of “reasonably required” for the population concerned.				
High (20-25)		Activity not permitted. Hazard to be avoided or risk to be reduced to tolerable.				

The scoring matrix outlined in Table 1 is extracted from Appendix D of the DMRB Standard GG104 – Requirements for safety risk assessment (Revision 0). It provides values for likelihood and severity outcomes that may be assigned to qualitative data for the purposes of assessment.

Activity / Decision		Wolvershill Junction – Lighting Risk Assessment							Date: 01/02/2022
Decision Maker / Assessor		Amie Cowle							Contact Details: Arup
Ref	Hazard / Risk Description	L	S	R	Response / Control Measure	L	S	R	Details / assumptions / monitoring
1	Potential for collisions between vehicles at signalised junction due to not understanding the junction layout in hours of darkness.	3	4	12	<p>Retro-reflective Advance Directional Signing (ADS) to be provided on the approach to the junction to clarify junction layout on approach to the junction.</p> <p>Speed limit on every approach to be limited to 40mph.</p> <p>Stopping Sight Distance (SSD) requirements on the approach to a junction (1.5x SSD) is achieved. Required SSD on approach to traffic signal is achieved.</p> <p>Lighting to intervisibility zone to assist with navigating the junction layout</p>	2	4	8	<p>Consideration to be given for the use of sign ref 543 “Traffic signals ahead”.</p> <p>Diagram 543</p> <p>Traffic signals ahead</p> 
2	Potential for collisions between vehicles at junctions due to visibility.	3	4	8	<p>Stopping Sight Distance (SSD) requirements on the approach to a junction (1.5x SSD) is achieved.</p> <p>Speed limit on approach to be limited to 40mph.</p> <p>Due to the wide bend of the junction and good lines of sight</p>	2	4	8	<p>To further reduce the risk at the junction, the following mitigation measures are proposed:</p> <ul style="list-style-type: none"> <li>• High quality retroreflective signage, road studs and road markings</li> <li>• Dedicated off-roads routes at locations with high pedestrian and off-road traffic</li> </ul>

Activity / Decision		Wolvershill Junction – Lighting Risk Assessment							Date: 01/02/2022
Decision Maker / Assessor		Amie Cowle							Contact Details: Arup
Ref	Hazard / Risk Description	L	S	R	Response / Control Measure	L	S	R	Details / assumptions / monitoring
					<p>the likeliness of accidents at this location if reduced.</p> <p>Lighting to intervisibility zone to assist with navigating the junction layout</p>				
3	Potential for collisions between vehicles and Active Travel users crossing outside the dedicated crossing facilities and phasing at junctions.	4	3	12	<p>Whilst the risk associated with an active travel user crossing outside of the dedicated facilities cannot be eliminated, provision has been put in place to minimise the ease of doing so.</p> <p>The proposed active travel routes are proposed to be located at the edge of earthwork rather than adjacent to the carriageway to discourage active travel users from crossing the carriageway at locations other than those with dedicated facilities.</p> <p>At Wolverhill Road Junction, active travel users will only be directed towards the dedicated signal-controlled crossing points with the alignment of the footway/cycleway at the point of crossing. Tactile pavers will assist with the interpretation of</p>	3	3	9	

Activity / Decision			Wolvershill Junction – Lighting Risk Assessment						Date: 01/02/2022					
Decision Maker / Assessor			Amie Cowle						Contact Details: Arup					
Ref	Hazard / Risk Description		L	S	R	Response / Control Measure			L	S	R	Details / assumptions / monitoring		
						<p>the layout for those who are visually impaired.</p> <p>This would be complimented with directional signage on the footway/ cycleway to clearly direct active travel users to the correct crossing point suitable for their forward journey.</p> <p>The risk is further minimised by;</p> <p>Stopping Sight Distance (SSD) requirements on the approach to a junction (1.5x SSD) is achieved between pedestrian cross locations and oncoming traffic.</p> <p>Lighting to intervisibility zone to minimise the risk of non-motorised users not being seen by motorists during the hours of darkness.</p>								
3	General risk to workers and users – risk involved with the construction and maintenance in the vicinity of the junction at night	3	3	9	As 1.	2	3	6	As 1.					

Table 1: Risk Assessment Scoring Matrix

Likelihood (L) x Severity (S) = Risk Value (R)		Severity (S)				
Likelihood (L)	Minor harm; Minor damage or loss no injury	Moderate harm; slight injury or illness, moderate damage or loss	Serious harm; Serious injury or illness, substantial damage or loss	Major harm; Fatal injury, major damage or loss	Extreme harm; Multiple fatalities, extreme loss or damage	
	Very unlikely; highly improbable, not known to occur	1	2	3	4	5
	Unlikely; less than 1 per 10 years	2	4	6	8	10
	May happen; once every 5-10 years	3	6	9	12	15
	Likely; Once every 1 – 4 years	4	8	12	16	20
	Almost certain; once a year or more	5	10	15	20	25
Risk Value (R)		Required action				
Low (1-9)		Ensure assumed control measures are maintained and reviewed as necessary.				
Medium (10-19)		Additional control measures needed to reduce risk rating to a level which is equivalent to a test of “reasonably required” for the population concerned.				
High (20-25)		Activity not permitted. Hazard to be avoided or risk to be reduced to tolerable.				

The scoring matrix outlined in Table 1 is extracted from Appendix D of the DMRB Standard GG104 – Requirements for safety risk assessment (Revision 0). It provides values for likelihood and severity outcomes that may be assigned to qualitative data for the purposes of assessment.

Activity / Decision		Southern Link – Lighting Risk Assessment							Date: 01/02/2022
Decision Maker / Assessor		Amie Cowle							Contact Details: Arup
Ref	Hazard / Risk Description	L	S	R	Response / Control Measure	L	S	R	Details / assumptions / monitoring
1	Potential for collisions at the Ghost Island junction due to lack of visibility in hours of darkness.	3	4	12	<p>Retro-reflective Advance Directional Signing (ADS) to be provided on the approach to the junction to clarify junction layout on approach to the junction.</p> <p>Speed limit on every approach to be limited to 30mph.</p> <p>Stopping Sight Distance (SSD) requirements on the approach to a junction (1.5x SSD) is achieved. Required SSD on approach to traffic signal is achieved.</p>	2	3	6	<p>To further reduce the risk at the junction, the following mitigation measures are proposed:</p> <ul style="list-style-type: none"> <li>• High quality retroreflective signage, road studs and road markings</li> <li>• Dedicated off-roads routes at locations with high pedestrian and off-road traffic</li> </ul>
2	Potential for collisions between vehicles and non motorised traffic	3	3	9	<p>There is no segregated provision for pedestrian or cycle users along the Southern Link.</p> <p>Depending on the direction of travel active travel users would be directed along Eastermead Lane or Castle Hill (side road) to minimise conflict with the Southern Link Mainline</p>	2	3	6	
3	Potential for collisions when adjoining Castle Hill and the junction with The Rhodyate due to lack of visibility in hours of darkness.	4	4	16	Existing lighting provisions at the junctions to remain, lighting the conflict area.	2	3	6	As 1.

<b>Activity / Decision</b>		<b>Southern Link – Lighting Risk Assessment</b>							<b>Date: 01/02/2022</b>		
<b>Decision Maker / Assessor</b>		<b>Amie Cowle</b>							<b>Contact Details: Arup</b>		
<b>Ref</b>	<b>Hazard / Risk Description</b>	<b>L</b>	<b>S</b>	<b>R</b>	<b>Response / Control Measure</b>	<b>L</b>	<b>S</b>	<b>R</b>	<b>Details / assumptions / monitoring</b>		
					Retro-reflective Advance Directional Signing (ADS) to be provided on the approach to the junction to clarify junction layout on approach to the junction.  Speed limit on every approach to be limited to 30mph.						
4	General risk to workers and users – risk involved with the construction and maintenance in the vicinity of the junction at night	3	3	9	As 1.	2	3	6	As 1.		

Table 1: Risk Assessment Scoring Matrix

Likelihood (L) x Severity (S) = Risk Value (R)		Severity (S)				
Likelihood (L)	Minor harm; Minor damage or loss no injury	Moderate harm; slight injury or illness, moderate damage or loss	Serious harm; Serious injury or illness, substantial damage or loss	Major harm; Fatal injury, major damage or loss	Extreme harm; Multiple fatalities, extreme loss or damage	
	Very unlikely; highly improbable, not known to occur	1	2	3	4	5
	Unlikely; less than 1 per 10 years	2	4	6	8	10
	May happen; once every 5-10 years	3	6	9	12	15
	Likely; Once every 1 – 4 years	4	8	12	16	20
	Almost certain; once a year or more	5	10	15	20	25
Risk Value (R)		Required action				
Low (1-9)		Ensure assumed control measures are maintained and reviewed as necessary.				
Medium (10-19)		Additional control measures needed to reduce risk rating to a level which is equivalent to a test of “reasonably required” for the population concerned.				
High (20-25)		Activity not permitted. Hazard to be avoided or risk to be reduced to tolerable.				

The scoring matrix outlined in Table 1 is extracted from Appendix D of the DMRB Standard GG104 – Requirements for safety risk assessment (Revision 0). It provides values for likelihood and severity outcomes that may be assigned to qualitative data for the purposes of assessment.

<b>Activity / Decision</b>		<b>Moor Road to Riverside Link – Lighting Risk Assessment</b>							<b>Date: 28/06/2022</b>		
<b>Decision Maker / Assessor</b>		<b>Dominik Sikora</b>							<b>Contact Details: Arup</b>		
<b>Ref</b>	<b>Hazard / Risk Description</b>	<b>L</b>	<b>S</b>	<b>R</b>	<b>Response / Control Measure</b>	<b>L</b>	<b>S</b>	<b>R</b>	<b>Details / assumptions / monitoring</b>		
1	Potential for collisions at junctions if they are not illuminated at night.	2	4	8	<p>Moor Road is a no-through route used for local access only, doesn't provide a strategic function and as such there is a low likelihood of collision. Due to the reduced likeliness lighting is not justified at this location.</p> <p>Stopping Sight Distance (SSD) requirements on the approach to a junction (1.5x SSD) is achieved.</p>	2	4	8			
2	General risk to workers and users – risk involved with the construction and maintenance in the vicinity of the junction at night	2	4	8	As 1.	2	4	8			
3	Potential risk to Walkers, Cyclists and Horse-Rider users in shared space with motorised vehicles.	2	4	8	Moor road is frequently used by Horse Riders however that is a day time activity and the likelihood of this activity at night is very low.	2	4	8			
4											
5											
6											

Table 1: Risk Assessment Scoring Matrix

Likelihood (L) x Severity (S) = Risk Value (R)		Severity (S)				
Likelihood (L)	Minor harm; Minor damage or loss no injury	Moderate harm; slight injury or illness, moderate damage or loss	Serious harm; Serious injury or illness, substantial damage or loss	Major harm; Fatal injury, major damage or loss	Extreme harm; Multiple fatalities, extreme loss or damage	
	Very unlikely; highly improbable, not known to occur	1	2	3	4	5
	Unlikely; less than 1 per 10 years	2	4	6	8	10
	May happen; once every 5-10 years	3	6	9	12	15
	Likely; Once every 1 – 4 years	4	8	12	16	20
	Almost certain; once a year or more	5	10	15	20	25
Risk Value (R)		Required action				
Low (1-9)		Ensure assumed control measures are maintained and reviewed as necessary.				
Medium (10-19)		Additional control measures needed to reduce risk rating to a level which is equivalent to a test of “reasonably required” for the population concerned.				
High (20-25)		Activity not permitted. Hazard to be avoided or risk to be reduced to tolerable.				

The scoring matrix outlined in Table 1 is extracted from Appendix D of the DMRB Standard GG104 – Requirements for safety risk assessment (Revision 0). It provides values for likelihood and severity outcomes that may be assigned to qualitative data for the purposes of assessment.

<b>Activity / Decision</b>		<b>West Junction– Lighting Risk Assessment</b>							<b>Date: 26/11/2021</b>		
<b>Decision Maker / Assessor</b>		<b>Amie Cowle</b>							<b>Contact Details: Arup</b>		
<b>Ref</b>	<b>Hazard / Risk Description</b>	<b>L</b>	<b>S</b>	<b>R</b>	<b>Response / Control Measure</b>	<b>L</b>	<b>S</b>	<b>R</b>	<b>Details / assumptions / monitoring</b>		
1	Potential for collisions between vehicles and active traffic at roundabout due to lack of visibility in hours of darkness	3	4	12	<p>Lighting to be provided at the roundabout to light the conflict area increasing visibility.</p> <p>Retro-reflective Advance Directional Signing (ADS) to be provided on the approach to the roundabout to clarify layout on approach to the junction.</p> <p>Speed limit on every approach to be limited to 40mph.</p>	2	4	8	<p>To further reduce the risk at the junction, the following mitigation measures are proposed:</p> <ul style="list-style-type: none"> <li>• High quality retroreflective signage, road studs and road markings</li> <li>• Dedicated off-roads routes at locations with high pedestrian and off-road traffic</li> </ul>		
3	General risk to workers and users – risk involved with the construction and maintenance in the vicinity of the roundabouts at night	3	3	9	As 1.	2	3	6	As 1.		
4											
5											
6											
7											
8											
9											
10											

Table 1: Risk Assessment Scoring Matrix

Likelihood (L) x Severity (S) = Risk Value (R)		Severity (S)				
Likelihood (L)	Minor harm; Minor damage or loss no injury	Moderate harm; slight injury or illness, moderate damage or loss	Serious harm; Serious injury or illness, substantial damage or loss	Major harm; Fatal injury, major damage or loss	Extreme harm; Multiple fatalities, extreme loss or damage	
	Very unlikely; highly improbable, not known to occur	1	2	3	4	5
	Unlikely; less than 1 per 10 years	2	4	6	8	10
	May happen; once every 5-10 years	3	6	9	12	15
	Likely; Once every 1 – 4 years	4	8	12	16	20
	Almost certain; once a year or more	5	10	15	20	25
Risk Value (R)		Required action				
Low (1-9)		Ensure assumed control measures are maintained and reviewed as necessary.				
Medium (10-19)		Additional control measures needed to reduce risk rating to a level which is equivalent to a test of “reasonably required” for the population concerned.				
High (20-25)		Activity not permitted. Hazard to be avoided or risk to be reduced to tolerable.				

The scoring matrix outlined in Table 1 is extracted from Appendix D of the DMRB Standard GG104 – Requirements for safety risk assessment (Revision 0). It provides values for likelihood and severity outcomes that may be assigned to qualitative data for the purposes of assessment.

<b>Activity / Decision</b>		<b>Churchill Routes to Schools – Lighting Risk Assessment</b>							<b>Date: 11/04/2022</b>		
<b>Decision Maker / Assessor</b>		<b>Amie Cowle</b>							<b>Contact Details: Arup</b>		
<b>Ref</b>	<b>Hazard / Risk Description</b>	<b>L</b>	<b>S</b>	<b>R</b>	<b>Response / Control Measure</b>		<b>L</b>	<b>S</b>	<b>R</b>	<b>Details / assumptions / monitoring</b>	

Footway Cycleway, A368 and Churchill Green (AX29/51/10 & AX14/21/20)

	Unsurfaced public right of way resulting in slips, trips and falls.	5	2	10	Route to be surfaced and lighting to be provided to improve visibility	5	1	5			
	Route is isolated from the public highway reducing the feeling of how safe the route is in terms of personal security	4	3	12	<p>Area is not known to have a high crime or antisocial behaviour rate.</p> <p>At school times the route is likely to be well trafficked reducing the likelihood of isolation</p> <p>Lighting to be provided to improve visibility during the hours of darkness and reduce the opportunity for assailants to conceal themselves.</p> <p>AX29/51/10 coincides with proposed housing development 20/P/1120/OUT, reducing the isolation factor should this be built (although no dependent upon for scoring).</p>	4	2	8			

Proposed Footway Cycleway, East of Churchill Academy to Langford between Church Lane and Ladymead Lane (AX14/36/30, AX14/36/10, AX14/36/20 & AX14/34/10)

	Unsurfaced public rights of way and private access tracks	5	2	10	Route to be surfaced	5	1	5			
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<b>Activity / Decision</b>		<b>Churchill Routes to Schools – Lighting Risk Assessment</b>							<b>Date: 11/04/2022</b>
<b>Decision Maker / Assessor</b>		<b>Amie Cowle</b>							<b>Contact Details: Arup</b>
<b>Ref</b>	<b>Hazard / Risk Description</b>	<b>L</b>	<b>S</b>	<b>R</b>	<b>Response / Control Measure</b>	<b>L</b>	<b>S</b>	<b>R</b>	<b>Details / assumptions / monitoring</b>
	resulting in slips, trips and falls.								
	Route is isolated from the public highway reducing the feeling of how safe the route is in terms of personal security				<p>Area is not known to have a high crime or antisocial behaviour rate.</p> <p>At school times the route is likely to be well trafficked reducing the likelihood of isolation.</p> <p>The existing route via Churchill Gate Junction, Dinghurst Road and Front Street has a greater volume of passer-by traffic and therefore less isolated during winter months (hours of darkness).</p>	4	2	8	

Table 1: Risk Assessment Scoring Matrix

Likelihood (L) x Severity (S) = Risk Value (R)		Severity (S)				
Likelihood (L)	Minor harm; Minor damage or loss no injury	Moderate harm; slight injury or illness, moderate damage or loss	Serious harm; Serious injury or illness, substantial damage or loss	Major harm; Fatal injury, major damage or loss	Extreme harm; Multiple fatalities, extreme loss or damage	
	Very unlikely; highly improbable, not known to occur	1	2	3	4	5
	Unlikely; less than 1 per 10 years	2	4	6	8	10
	May happen; once every 5-10 years	3	6	9	12	15
	Likely; Once every 1 – 4 years	4	8	12	16	20
	Almost certain; once a year or more	5	10	15	20	25
Risk Value (R)		Required action				
Low (1-9)		Ensure assumed control measures are maintained and reviewed as necessary.				
Medium (10-19)		Additional control measures needed to reduce risk rating to a level which is equivalent to a test of “reasonably required” for the population concerned.				
High (20-25)		Activity not permitted. Hazard to be avoided or risk to be reduced to tolerable.				

The scoring matrix outlined in Table 1 is extracted from Appendix D of the DMRB Standard GG104 – Requirements for safety risk assessment (Revision 0). It provides values for likelihood and severity outcomes that may be assigned to qualitative data for the purposes of assessment.

## File Note

### Approvals

Revision	Status	Role	Name	Date
P04	S4	<b>Author</b>	Dominik Sikora	27/06/22
		<b>Checker</b>	Geraint Jones	28/06/22
		<b>Approver</b>	Tom Edwards	28/06/22
		<b>Authoriser</b>	Roger Walker	28/06/22