



SCH-009 Alexandra Park, Hastings, Cycle scheme

East Sussex Highways

Combined Stage 1/2 Road Safety Audit

678223CH

7th October 2019



Alexandra Park, Hastings, Cycle Scheme

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Document No.: SCH-009
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Document history and status

Revision	Date	Description	By	Review	Approved
0	07/10/19	RSA 1/2	Daniel Harris	Alison Foale	Stuart Minton

Contents

1.	Introduction	1
2.	Local Alignment	2
2.1	Visibility.....	2
3.	General	3
3.1	Vertical Alignment	3
3.2	Drainage	3
3.3	Landscaping	6
3.4	Fences and restraint systems.....	10
4.	Walking, Cycling and Horse Riding	13
4.1	Cycling.....	13
5.	Traffic signs, carriageway markings and lighting	18
5.1	Traffic signs	18
5.2	Carriageway markings.....	19
5.3	Lighting.....	19
6.	Audit Team Statement	20

Appendix A. List of drawings and documents supplied

Appendix B. Location Plan

Appendix C. Key Plan

1. Introduction

This report results from a Combined Stage 1/2 Road Safety Audit (RSA) carried out on the Alexandra Park, Hastings, Cycle Scheme. The purpose of the scheme is to provide a cycle facility through Alexandra Park, which forms one of the principle routes identified in the Hastings Walking and Cycling Strategy (2014). To achieve this the proposal is to widen and convert a series of the existing footpaths through both the upper and lower parks, including a continuous section across Dordrecht Way.

The park has varying characteristics between the upper and lower sections. The lower part is flatter and provides access to the café, children's play park and scenic lakes. The upper part is much steeper and secluded, making it less likely to be used by families and children.

The RSA was carried out at the request of Ian Tingley of East Sussex Highways who also approved the Brief and Audit Team. The Audit Team membership was as follows: -

Daniel Harris BA (Hons) MCIHT MSoRSA RegRSA (IHE)
Highways England Approved Certificate of Competency
Senior Road Safety Engineer, Jacobs

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A site visit was undertaken on Thursday 26th September 2019 between 12:30 and 16:00 hours when the weather was sunny, the road and path surface was drying following earlier rain and traffic, walking and cycling conditions were light. Six cyclists were observed in the park during the audit site visit. Ian Tingley from East Sussex Highways also attended the site visit as an observer.

A Stage 1 Road Safety Audit was undertaken on a previous cycle scheme in Alexandra Park, based on a different route, in October 2015. This route was subsequently withdrawn. The proposed route alignment has not been subject to an RSA and was progressed straight to detailed design.

The brief indicated that collision data is not available within the park and that no collisions have been recorded at the junction of Dordrecht Way with St Helen's Road. No current or predicted cyclist flows were provided.

This report is presented based upon the checklist contained in Appendix B of GG 119 for Road Safety Audits. The team has examined and reported only on the road safety implications of the design and has not examined or verified the compliance of the layout to any other criteria, in accordance with GG 119.

The drawings provided as part of this Road Safety Audit are shown in the List of Drawings and Documents Supplied in Appendix A. A location plan is supplied in Appendix B.

Each of the problems identified by the Audit Team has been allocated a unique reference number and is shown on the plan extract contained within Appendix C.

2. Local Alignment

2.1 Visibility

2.1.1 Problem

Location: Throughout scheme.

Summary: Insufficient forward visibility could result in collisions between users.

Through a combination of route alignment and vegetation there are a number of locations where forward visibility along the route is restricted, resulting in insufficient stopping sight distance for cyclists. This includes the first right hand bend when approaching from Strood Road, the sharp bend section at the switchback west of the Peace Garden and the right hand bend at the western end of the boating lake. Reduced forward visibility could result in conflicts between users at these locations, resulting in pedestrian and cyclist injuries.



Recommendation:

Maximise forward visibility through the length of the scheme by cutting back the existing vegetation within the visibility splays and maintaining this as part of the park's maintenance programme.

3. General

3.1 Vertical Alignment

3.1.1 Problem

Location: Interface between the upper and lower parks

Summary: Steep gradients, barrier arrangements and surface could result in cyclists and other users losing control.

At the route interface between the upper park and lower parks the shared route is subject to very steep gradients, estimated at their maximum to be around 20%. In addition to the gradients the sections are under dense tree cover, and the upper park gradient will have a staggered barrier at its mid-point. During the site visit the sections were observed to be wet and covered with slippery foliage from trees. The Audit Team are concerned that cyclists and other users (including pedestrians, wheelchair and mobility scooter users) proceeding downhill could lose control, resulting in injuries from riders being unseated, users slipping and collisions with the staggered barriers.

Recommendation:

It is recommended that: signs are provided advising cyclists of the steep gradient and to dismount prior to the descents; flat areas of surfacing are provided in advance of the staggered barriers at the mid-point and bottom of the gradient; and that the route is regularly inspected and kept free from debris year round as part of the park's maintenance programme.

3.2 Drainage

3.2.1 Problem

Location: Throughout scheme.

Summary: Ponding water observed on the proposed route, increasing the risk of slips, trips and unseated cyclists.

At a number of locations along the proposed route ponding water was observed following rainfall prior to the site visit. The images below show ponding at the bridge near the bandstand, the path alongside the bowling green and at the switchback west of the Peace Garden. Ponding water increases the risk of pedestrians slipping/tripping and cyclists being unseated. During cold weather conditions the risk could increase if the ponding water freezes.



Recommendation:

It is recommended that suitable drainage is provided throughout the scheme to ensure that water does not pond within the shared route.

3.2.2 Problem

Location: Strood Road interface with shared path.

Summary: Blocked gully has led to a buildup of detritus and could result in ponding, increasing the risk of slips, trips and unseated cyclists.

At the interface between Strood Road and the shared route an existing gully was observed to be blocked. This has resulted in a significant buildup of detritus and mud and ponding is likely to occur during periods of sustained rainfall. Ponding water and a buildup of detritus across the path increases the risk of pedestrians slipping/tripping and cyclists being unseated. During cold weather conditions the risk could increase if the ponding water freezes.



Recommendation:

It is recommended that the existing gully and detritus buildup is cleared and that additional drainage provided if the existing system is no longer effective.

3.2.3 Problem

Location: Bethune way entrance.

Summary: Gully cover could trap bicycle wheels and unseat cyclists.

Cyclists entering the park and shared route from Bethune Way could cycle over an existing gully cover. Due to the type and orientation of the cover bicycle wheels could become trapped, resulting in cyclists being unseated.



Recommendation:

It is recommended that the existing gully cover is replaced with a cycle friendly gully grate.

3.3 Landscaping

3.3.1 Problem

Location: Throughout scheme.

Summary: Bordering vegetation encroaches across the shared route, restricting the effective width.

Throughout the park the proposed shared route is bordered by vegetation, including flower beds, shrubs, bushes and trees. During the site visit it was observed at a number of locations, including those not specified for widening, that vegetation encroaching across the footway would restrict the effective width of the proposed shared route. This could increase the risk of conflicts between users.





Recommendation:

It is recommended that all encroaching vegetation is removed and that the width of the full route is maintained year round through regular inspections and clearing as part of the park's maintenance programme.

3.3.2 Problem

Location: Shornden Wood near sign S11.

Summary: The shared route at a reduced width location is impacted by an existing tree.

The shared route east of sign S11 in Shornden Wood is 2m wide over a short length. A tree bordering the shared route reduces the width further due to low level growth. This impacts on the available width and intervisibility between users, which could increase the risk of collisions.



Recommendation:

It is recommended that the width of the shared route is maximised at this location by removing all encroaching vegetation. Ensure that the width of the full route is maintained year round through regular inspections and clearing as part of the park's maintenance programme.

3.3.3 Problem

Location: Throughout scheme.

Summary: Tree canopies overhanging the shared route could potentially unseat cyclists.

At a number of locations tree canopies overhang the proposed shared route, increasing the risk of cyclists striking low hanging branches and becoming unseated.



Recommendation:

It is recommended that low hanging branches are removed to provide a minimum headroom of 2.4m.

3.3.4 Problem

Location: Throughout scheme.

Summary: Material from adjacent banks and vegetation could result in pedestrian slips, trips and falls and unseated cyclists.

The proposed shared route is largely bordered by grass banks and vegetation including flower beds, shrubs, bushes and trees. During the site visit it was observed that loose material from adjacent banks and bordering and overhanging vegetation (needles, leaves, flowers etc.) encroaches/falls onto the paths. This increases the risk of pedestrian slips, trips and falls and unseated cyclists, particularly on steep parts of the route.

The impact of loose material from banks and vegetation is likely to increase during autumn as leaves are dropped from trees in combination with increased rainfall.



Recommendation:

It is recommended that existing loose material, needles, leaves, flowers etc. are removed from the proposed route and that the route is kept free from debris year round through regular inspections and clearing as part of the park's maintenance programme.

3.3.5 Problem

Location: Lower park.

Summary: Changes in levels at the edge of the proposed shared route could unseat cyclists.

Within the lower park section, it was observed that there are existing changes in levels where the shared route and grass verges interface. If a cyclist's wheel left the shared route at these locations, the sudden change in level, often on a muddy surface, could lead to cyclists losing control increasing the risk of unseated riders and injuries.



Recommendation:

It is recommended that level differences are removed using earthworks/top soiling along the length of the route.

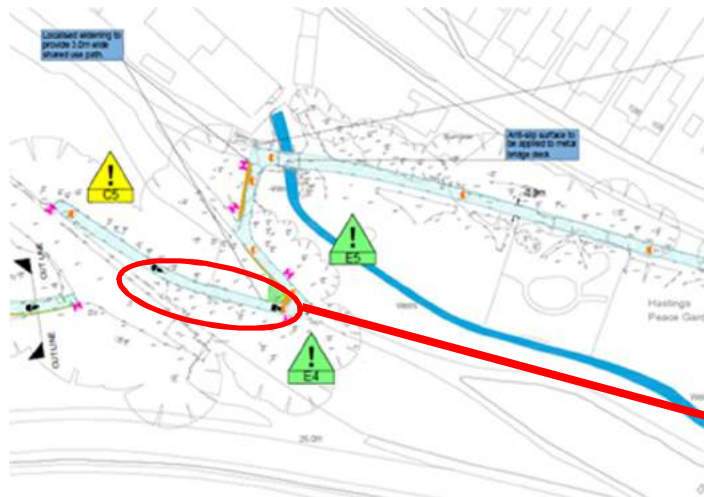
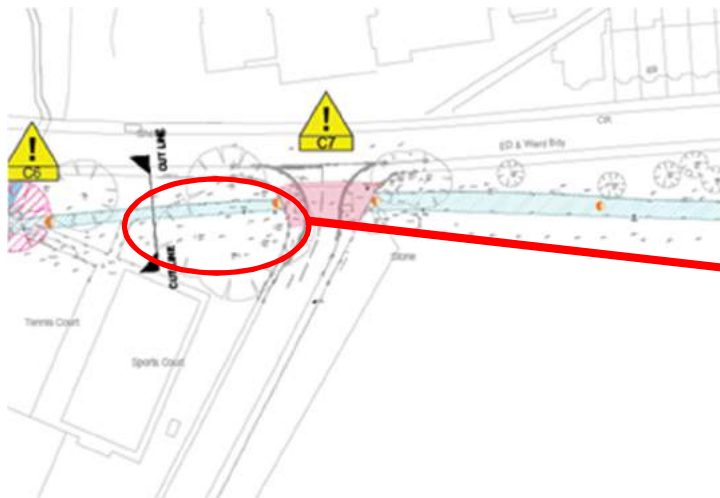
3.4 Fences and restraint systems

3.4.1 Problem

Location: West of the Dordrecht Way carriageway crossing and at the shared route switchback west of the Peace Garden.

Summary: Lack of protection of steep banks could increase the severity of injuries should a cyclist leave the shared route.

Step banks are immediately adjacent to the proposed shared route to the west of the Dordrecht Way carriageway crossing and at the shared route switchback west of the Peace Garden. The gradient of these steep banks could increase the severity of injuries to a cyclist should they leave the shared route.



Recommendation:

It is recommended that 1.4m high timber post and rail cleft fencing is provided at these locations, consistent with protection of steep banks at other locations along the route.

3.4.2 Problem

Location: Existing bridges without extended parapets.

Summary: Gaps at bridge parapets could increase the severity of injury should a cyclist leave the shared route path at these locations.

Some of the existing bridges are fitted with additional sections of extended parapet, which act as a physical barrier and guide to users, protecting them from steep drops into waterways. It was observed during the site visit that additional sections of extended parapet are omitted at other bridges along the route which could result in an increased risk of injury and severity should a cyclist leave the shared route.

A gap is also likely to be created at the stone bridge parapet when the proposed tree removal has been undertaken.



Recommendation:

It is recommended that additional sections of extended parapet are provided at all bridges with adjacent gaps/steep drops into waterways.

4. Walking, Cycling and Horse Riding

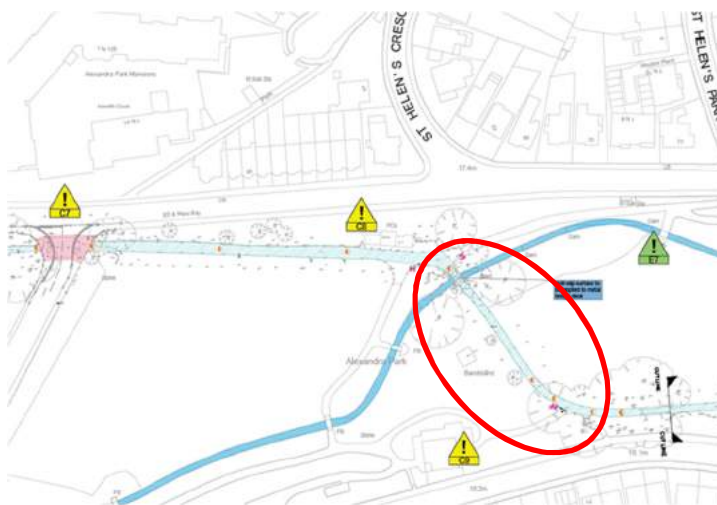
4.1 Cycling

4.1.1 Problem

Location: Shared path adjacent to the bandstand.

Summary: Longitudinal cracking in the surface could result in cyclists being unseated.

The section of shared path adjacent to the bandstand is not due to be resurfaced. During the site visit longitudinal cracking was observed in this section. The cracks were, in places, wide enough to accommodate a bicycle tyre which could trap bicycle wheels and unseat cyclists.



Recommendation:

It is recommended that the longitudinal cracks are sealed or this section resurfaced to provide a smooth, consistent surface for cyclists.

4.1.2 Problem

Location: Strood Road interface with shared route.

Summary: Utility covers could result in pedestrian slips and unseated cyclists.

At the interface between Strood Road and the shared route there are two utility covers which are likely to become slippery when wet. This increases the risk of pedestrian slips and cyclists, particularly those braking on approach to the staggered barriers, being unseated.



Recommendation:

It is recommended that the utility covers are treated so that they provide a consistent surface finish and skidding resistance to the shared route surface.

4.1.3 Problem

Location: Shared path east of the café.

Summary: Lack of contrast between the edge of route and verge could result in unseated cyclists.

The shared route to the east of the café is under dense tree cover and as a result is noticeably darker than other sections. Due to the tree cover, grass does not grow in the verge at the edge of the route. This results in a lack of contrast between the edge of route and the adjacent downhill bank, increasing the risk of cyclists leaving the route and becoming unseated. The lack of contrast is likely to be exacerbated at dusk and dark conditions.



Recommendation:

It is recommended that the edge of the route is demarcated for the section under tree cover.

4.1.4 Problem

Location: Shared path adjacent to the boating lake at the eastern end of the lower park.

Summary: Potential for bicycle pedals to strike the top of steps, resulting in unseated riders.

At the eastern end of the route two sets of steps connect the proposed shared route and a pedestrian path alongside the boating lake. The tops of the steps are vulnerable to being struck by bicycle pedals, which could result in unseated riders. The risk of strikes could increase during dusk/dark conditions as the step tops do not contrast with the route.



Recommendation:

It is recommended that demarcation around the top of the steps is provided.

4.1.5 Problem

Location: Link between the upper park and lower park.

Summary: Poor quality surface and lack of route clarity.

The shared route link between the upper and lower park crosses an ambiguous area with an unbound and poor quality surface subject to ponding. The area is used by vehicles, pedestrians and cyclists, but it is unclear who has priority. In addition, the proposed signing and markings do not provide clarity of the onward route. The combination of these problems could result in collisions between pedestrians, cyclists and vehicles.



Recommendation:

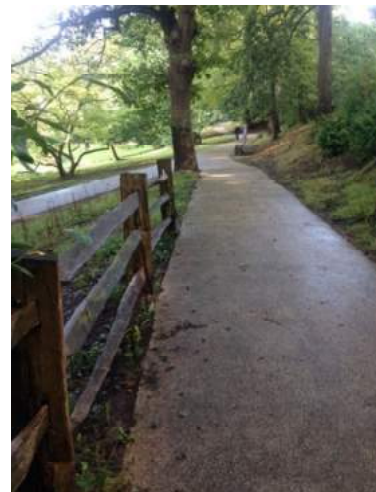
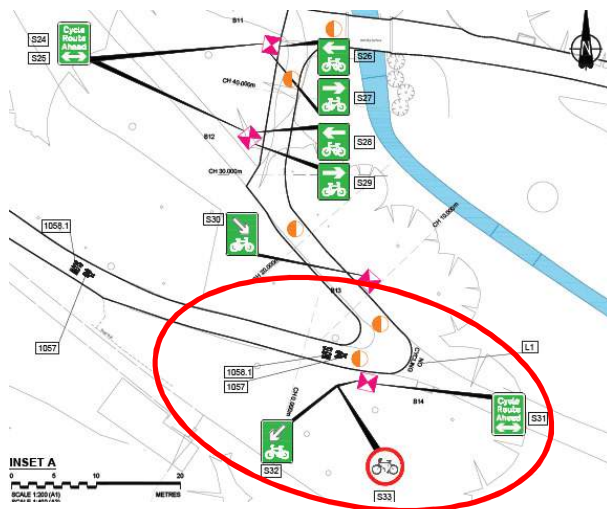
It is recommended that a surface consistent with the rest of the shared route is provided along with signs and markings to address the route ambiguity and continuity concerns.

4.1.6 Problem

Location: Switchback west of the Peace Garden.

Summary: Lack of route clarity could result in cyclists continuing away from the shared route.

At the switchback, signing is proposed. If approaching the switchback from the west the alignment of the path and conflicting signing of the onward route and 'no cycling' on the same side of the bollard could result in cyclists continuing away from the shared route on a less suitable path, increasing the risk of conflicts with pedestrians.



Recommendation:

It is recommended that the proposed signing and markings are revised to address the route ambiguity for cyclists.

5. Traffic signs, carriageway markings and lighting

5.1 Traffic signs

5.1.1 Problem

Location: Throughout scheme.

Summary: Inconsistent use of signs to reinforce the shared route.

Throughout the scheme 'cycle route ahead', 'no cycling' and 'information for cyclists' signs are used to demarcate the route and inform users of the shared route. These signs are not provided at all adjoining paths, creating confusion and increasing the likelihood that cyclists could inadvertently continue on a pedestrian only route. This could increase the risk of collisions between users.

Recommendation:

It is recommended that consistent route signage is provided at each interface between a pedestrian only footpath and the shared route.

5.1.2 Problem

Location: Throughout scheme.

Summary: Use of bronze marker plates set into the route surface could result in unseated cyclists.

Through the length of the shared route 300mm diameter bronze marker plates are proposed to be installed into the surface. The plates are positioned in the centre of the path, often coinciding with bends in the route and pinch points. Bronze plates are likely to become slippery when wet which could result in cyclists, particularly those braking and/or turning, being unseated.

Recommendation:

It is recommended that marker plates with a consistent surface finish and skidding resistance to the shared route surface are provided in locations where cyclists are not likely to be braking or turning.

5.1.3 Problem

Location: Throughout scheme.

Summary: Misleading route direction signs could result in cyclists continuing away from the shared route.

Route confirmation signs with arrows are provided throughout the scheme to help reinforce the direction of the shared route. At a number of locations (such as signs S5, S10 and S15) the orientation of the arrow and the bollard it is mounted on could result in confusion and cyclists continuing away from the shared route on a less suitable path, increasing the risk of conflicts with pedestrians.

Recommendation:

It is recommended that the orientation of the bollards and arrows on the sign faces are revised to better represent the alignment of the route.

5.1.4 Problem

Location: Dordrecht Way crossing.

Summary: Signing of the crossing could result in confusion.

Advance warning signs are proposed for the Dordrecht Way crossing on St Helen's Road. The location of these signs results in the westbound sign not being visible to approaching vehicles and the eastbound sign obscuring the existing zebra crossing beacon and pedestrian waiting area. The signs only warn of cyclists, although pedestrians also cross at this location. This could result in road users being unaware of the Dordrecht Way crossing and existing zebra crossing, increasing the potential for collisions between vehicles, pedestrians and cyclists.

Recommendation:

It is recommended that the warning signs are located with suitable forward visibility and that they are not misinterpreted for the existing zebra crossing on St Helen's Road.

5.2 Carriageway markings

5.2.1 Problem

Location: Staggered barrier arrangements.

Summary: Solar LED road studs may not be visible on approach to the staggered barrier arrangements.

Solar LED road studs are proposed to be installed on either side of the shared route on the approaches to the staggered barrier arrangements. It is unclear if the performance of these will be suitable to warn cyclists of the barrier arrangement. Performance could be impacted by tree cover and/or the studs being covered by fallen leaves or loose material from the verges.

Recommendation:

It is recommended that the suitability of the LED road studs is clarified and a suitable alternative used if necessary. Ensure the route and studs are kept free from debris year round through regular inspections and clearing as part of the park's maintenance programme.

5.3 Lighting

5.3.1 Problem

Location: Dordrecht Way crossing.

Summary: Lamp column in the middle of the footway.

On a number of drawings, a lamp column is shown in the middle of the shared footway/cycleway on the north east side of the Dordrecht Way crossing. At this location there is an increased risk of pedestrians and cyclists striking the column, resulting in injuries.


Recommendation:

It is recommended that the current location of the column, as observed on site, is retained or an alternative location at the back edge of the shared footway/cycleway.


6. Audit Team Statement

We certify that this audit has been carried out in accordance with GG 119.

Audit Team Leader

Name: Daniel Harris Signed: 
Dated: 04/10/2019
Position: Senior Road Safety Engineer
Organisation: Jacobs
Address: Burderop Park, Swindon

Audit Team Member

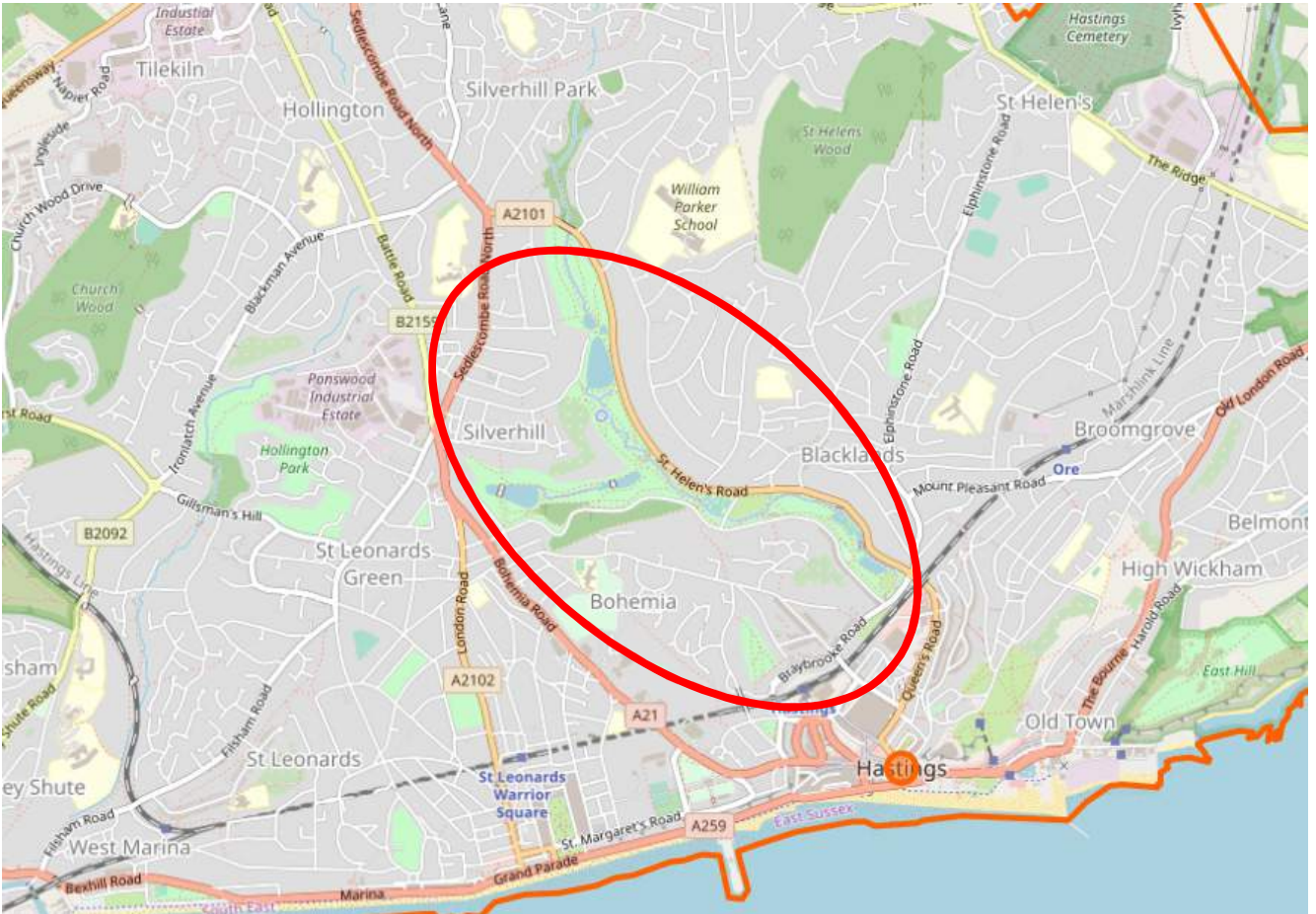
Name: Alison Foale Signed: 
Dated: 04/10/2019
Position: Senior Road Safety Engineer
Organisation: Jacobs
Address: Burderop Park, Swindon

Appendix A. List of Drawings and Documents supplied

Document/Drawing	Revision	Description
HGN-SCH0009-DR-CH-0021	P02	General Layout – Sheet 1 of 7
HGN-SCH0009-DR-CH-0022	P02	General Layout – Sheet 2 of 7
HGN-SCH0009-DR-CH-0023	P01	General Layout – Sheet 3 of 7
HGN-SCH0009-DR-CH-0024	P03	General Layout – Sheet 4 of 7
HGN-SCH0009-DR-CH-0025	P02	General Layout – Sheet 5 of 7
HGN-SCH0009-DR-CH-0026	P03	General Layout – Sheet 6 of 7
HGN-SCH0009-DR-CH-0027	P03	General Layout – Sheet 7 of 7
HGT-SCH0009-DR-CH-0008	P02	Fencing, Barriers and Earthworks Fill – Sheet 1 of 7
HGT-SCH0009-DR-CH-0009	P02	Fencing, Barriers and Earthworks Fill – Sheet 2 of 7
HGT-SCH0009-DR-CH-0010	P01	Fencing, Barriers and Earthworks Fill – Sheet 3 of 7
HGT-SCH0009-DR-CH-0011	P01	Fencing, Barriers and Earthworks Fill – Sheet 4 of 7
HGT-SCH0009-DR-CH-0012	-	Not used
HGT-SCH0009-DR-CH-0013	-	Not used
HGT-SCH0009-DR-CH-0014	-	Not used
HKF-SCH0009-DR-CH-0001	P01	Kerbing and Footways – Sheet 1 of 7
HKF-SCH0009-DR-CH-0002	P01	Kerbing and Footways – Sheet 2 of 7
HKF-SCH0009-DR-CH-0003	P01	Kerbing and Footways – Sheet 3 of 7
HKF-SCH0009-DR-CH-0004	P01	Kerbing and Footways – Sheet 4 of 7
HKF-SCH0009-DR-CH-0005	P01	Kerbing and Footways – Sheet 5 of 7
HKF-SCH0009-DR-CH-0006	P01	Kerbing and Footways – Sheet 6 of 7
HKF-SCH0009-DR-CH-0007	P01	Kerbing and Footways – Sheet 7 of 7
HKF-SCH0009-DR-CH-0008	P01	Dordrecht Way - Kerbing and Footways
HSN-SCH0009-DR-CH-0001	P02	Traffic Signs and Road Markings – Sheet 1 of 7
HSN-SCH0009-DR-CH-0002	P02	Traffic Signs and Road Markings – Sheet 2 of 7
HSN-SCH0009-DR-CH-0003	P01	Traffic Signs and Road Markings – Sheet 3 of 7
HSN-SCH0009-DR-CH-0004	P03	Traffic Signs and Road Markings – Sheet 4 of 7
HSN-SCH0009-DR-CH-0005	P02	Traffic Signs and Road Markings – Sheet 5 of 7
HSN-SCH0009-DR-CH-0006	P03	Traffic Signs and Road Markings – Sheet 6 of 7
HSN-SCH0009-DR-CH-0007	P03	Traffic Signs and Road Markings – Sheet 7 of 7
HSN-SCH0009-DR-CH-0008	P01	Traffic Signs Ref S1 and S74
HSN-SCH0009-DR-CH-0009	P01	Traffic Signs Ref S2 and S75
HSN-SCH0009-DR-CH-0010	P01	Traffic Signs – Cycle Route Ahead
HSN-SCH0009-DR-CH-0011	P01	Traffic Signs Ref S5, S10, S14, S15 and S51
HSN-SCH0009-DR-CH-0012	P01	Traffic Signs Ref S7, S8, S18, S19, S49, S54, S61 & S65
HSN-SCH0009-DR-CH-0013	P02	Traffic Signs Ref S21, S22, S27 and S29
HSN-SCH0009-DR-CH-0014	P02	Traffic Signs Ref S23, S26 and S28
HSN-SCH0009-DR-CH-0015	P01	Traffic Signs Ref S4, S41, S42 and S73
HSN-SCH0009-DR-CH-0016	P01	Traffic Signs Ref S40 and S76
HSN-SCH0009-DR-CH-0017	P01	Traffic Signs Ref S36, S38 and S43
HSN-SCH0009-DR-CH-0018	-	Not used
HSN-SCH0009-DR-CH-0019	P01	Traffic Sign Ref S37
HSN-SCH0009-DR-CH-0020	P01	Traffic Sign Ref S39
HSN-SCH0009-DR-CH-0021	P01	Traffic Sign Ref S44
HSN-SCH0009-DR-CH-0022	P01	Traffic Signs Ref No Cycling
HSN-SCH0009-DR-CH-0023	P01	Timber Bollard Types TB1, TB2 and TB3
HSN-SCH0009-DR-CH-0024	P01	Traffic Signs Ref S82, S83 and S84
HSN-SCH0009-DR-CH-0025	P01	Traffic Sign Ref S30
HSN-SCH0009-DR-CH-0026	P01	Traffic Sign Ref S32

HLG-SCH0009-DR-EO-0002	P01	Street Lighting – Column Positions and Removals – Option 2
GEN-SCH0009-DR-CH-0001	P01	Footway Construction Details Types A, B, C and D
GEN-SCH0009-DR-CH-0002	P01	Dordrecht Way Raised Table
GEN-SCH0009-DR-CH-0003	P02	Timber Post and Three Cleft Rail Fence
GEN-SCH0009-DR-CH-0004	P04	Pedestrian Barrier
Alex Park Amey RSA1-OCT 2015	003	Includes clients response and final sign off

Appendix B. Location Plan



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Appendix C. Key Plan

Issues throughout the scheme: 2.1.1, 3.2.1, 3.3.1, 3.3.3, 3.3.4, 3.3.5 (Lower Park only), 3.4.2, 5.1.1, 5.1.2, 5.1.3 and 5.2.1.

