

Portsmouth City Council Dunsbury Hill Farm

Stage 1 Road Safety Audit

August 2011

ATKINS

Plan Design Enable

Notice

This document and its contents have been prepared and are intended solely for Portsmouth City Council's information and use in relation to the Dunsbury Hill Farm scheme.

Atkins Transport Planning & Management assumes no responsibility to any other party in respect of or arising out of or in connection with this document and/or its contents.

Document History

JOB NUMBER: 5099849.300		DOCUMENT REF: PCC - Dunsbury Hill Farm - RSA1 - Final.docx				
Revision	Purpose Description	Originated	Checked	Reviewed	Authorised	Date
-	Final	RFH	NDH	GAH	GAH	01 Sep 2011

Table of contents

Chapters	pages
1. Introduction	4
Commission and Terms of Reference	4
The Scheme	4
2. Items Raised at this Stage 1 RSA	5
3. Audit Team Statement	8
Audit Team	8

Appendices	
A. Reference material used in the Stage 1 RSA	10
B. Scheme Plans	11

1. Introduction

Commission and Terms of Reference

- 1.1. This report results from a Stage 1 Road Safety Audit (RSA) carried out on the Dunsbury Hill Farm scheme. The RSA was carried out in August 2011 for Portsmouth City Council (PCC).
- 1.2. The Audit Team membership was as follows:
 - **Audit Team Leader:** Neil Hutchings MIHE
Senior Consultant
Atkins Transport Planning & Management, Epsom
 - **Audit Team Member:** Rob Hunt BEng, MSc (Eng), CEng, MICE, MCIHT
Managing Consultant
Atkins Transport Planning & Management, Bristol
- 1.3. The desk-top element of the audit took place at the Epsom and Bristol offices of Atkins Transport Planning & Management and comprised an examination of the Stage 1 RSA Brief as provided by Steve Dimmock of the Atkins Design Team, on behalf of the client, PCC and Hampshire County Council's (HCC's) Project Sponsor, Richard Fowke. The Brief consisted of scheme drawings and supporting information. Appendix A of this report comprises a list of the drawings and material used as a point of reference during the course of the Audit.
- 1.4. A site visit during the hours of daylight on Monday 8th August 2011 was undertaken by the Audit Team, followed by a discussion of the issues noted whilst on site. The prevailing weather conditions during the site visit were dry and bright with high winds.
- 1.5. The terms of reference of the audit are as described in HD 19/03. The Audit Team has examined and reported only on the road safety implications of the scheme as presented and has not examined or verified the compliance of the designs to any other criteria.
- 1.6. Potential safety problems identified through this Stage 1 RSA are detailed in Section 2 with remedial recommendations to be considered. The locations of the issues raised are indicated on the annotated scheme plans which, together with a copy of the masterplan are reproduced in Appendix B.

The Scheme

- 1.7. Dunsbury Hill Farm comprises an extensive series of open fields enclosed within established hedgerows, lying to the west of Leigh Park residential area and to the east of the A3(M). It is bisected across the north east corner by Park Lane which leads to the north-western edge of the Leigh Park estate and also connects to the east of Waterlooville.
- 1.8. The development proposal involves the construction of a business park in two phases with an associated hotel development. The site remains key to delivering employment in the local and sub-regional areas and is seen as a potential new business gateway to south Hampshire via the A3(M) corridor.
- 1.9. The scheme as audited comprised the main development road and its interfaces with the existing road network at B2150 Hulbert Road in the west and Woolston Road in the east.

2. Items Raised at this Stage 1 RSA

- 2.1. Unless general to the scheme, the locations of the safety problems detailed in this section are indicated on the annotated scheme plans located in Appendix B of this RSA report.

PROBLEM A

Location: Proposed roundabout on B2150 Hulbert Road

Summary: High speed downhill approach to roundabout

Vehicles approaching the proposed roundabout from the A3(M) Junction 3 gyratory will be on a downhill gradient. During the site visit, the Audit Team were of the opinion that the perceived speeds of southbound vehicles appeared to be in line with the recorded 85th percentile speeds and confirmed concerns about how these users would negotiate the proposed roundabout. Specific concerns at this juncture would be vehicles losing control when entering the roundabout at high speeds or failing to stop and colliding with circulating vehicles.

RECOMMENDATION

As the design is progressed, ensure that the proposed roundabout approach and entry geometry will sufficiently and physically encourage reduced speeds. Ensure that the road layout and the presence of the new roundabout is clear to approaching drivers in terms of signing and forward visibility, to further encourage them to approach and enter the roundabout at an appropriate speed.

PROBLEM B

Location: Proposed roundabout on B2150 Hulbert Road

Summary: High speed downhill approach to dedicated left-turn lane

The dedicated left turn facility for users entering the development has a low radius and would be approached on a downhill gradient. If users are not given a clear message about the low speeds needed to travel round this bend, they will be more likely to fail to negotiate it safely. This could lead to either single vehicle loss-of-control accidents or collisions with other vehicles exiting the roundabout.

RECOMMENDATION

Ensure that the horizontal alignment of the left turn facility is smooth and that the radius does not tighten as users proceed through the bend. Ensure that any superelevation is applied smoothly through the traffic lane. Ensure that the nature and layout of this left turn facility is clearly communicated to approaching drivers.

PROBLEM C

Location: Proposed roundabout on B2150 Hulbert Road

Summary: High flows along Hulbert Road may lead to queuing and driver frustration

Hulbert Road currently appears to carry a steady flow of traffic. Once the proposed roundabout is introduced it is possible that this steady flow along Hulbert Road will be predominant and will restrict entry to the roundabout for vehicles approaching from the Dunsbury Hill Farm development. It is particularly noticeable in the PM peak future traffic flows (Figure 3.9) that only an estimated 42 vehicles would turn right into the development, thus providing few gaps between the estimated 669 vehicles continuing from north to south on Hulbert Road. This imbalance of flows could lead to queuing at the exit from the development (1015 vehicles are forecast to be exiting in the PM peak) and resulting driver frustration may increase the likelihood of drivers choosing inappropriate gaps in which to enter the roundabout. This could lead to vehicle-to-vehicle collisions in the circulatory carriageway.

RECOMMENDATION

Review the traffic turning movements at the junction and the choice of a roundabout as the method of control. Seek a solution that provides a degree of balance of priority for all arms of the junction. If queuing is expected to occur on the approach from the development, ensure that forward visibility to any traffic queues is good.

PROBLEM D

Location: Proposed roundabout on B2150 Hulbert Road

Summary: Offset roundabout may lead to problems related to vehicle paths

The proposed roundabout is offset from the existing Hulbert Road alignment. This creates a roundabout layout with arms in close proximity to each other which may compromise the achievement of appropriate approach geometry and entry path curvature. This type of layout can also lead to largely untrafficked areas of the circulatory carriageway where debris can gather and cause problems, particularly for motorcyclists and pedal cyclists.

RECOMMENDATION

Review the need for the roundabout to be offset from the Hulbert Road alignment by such a significant distance. Should this offset prove unavoidable, seek to amend the roundabout's geometry to minimise the potential for untrafficked areas within the circulatory carriageway while still ensuring that the geometry sufficiently controls entry speeds into the roundabout.

PROBLEM E

Location: Approximate Chainage 170 on MCE1 Main Development Alignment

Summary: Short straight section between two curves may present a risk of loss-of-control accidents

At Ch.170 on the development link road (master alignment string MCE1) there is a short straight section, 24m long, in between two curves (100m and 130m radii). In extremes this type of horizontal alignment can lead to problems with users, particularly motorcyclists, being caught out by the short straight when they are expecting to continue steering around a curve. This can result in users losing control and leaving the carriageway. Despite the 30mph speed limit proposed for the development it is possible that motorcyclists could be travelling in excess of the posted speed limit.

RECOMMENDATION

Amend the layout to remove the straight section, either through the use of transitions or by provision of a continuous curve.

PROBLEM F

Location: Various

Summary: Width of non-motorised user (NMU) provisions and interfaces between shared surfaces, footways and carriageways

It is acknowledged that the shared use paths would have a width of 3m through most of the scheme. However, the 2m wide connectors leading to and from crossing points may not be wide enough to comfortably accommodate a combination of cyclists, pedestrians and wheelchair users etc. and may present a risk of collisions between these users. In addition, the 2m wide bridges over the swale at various locations including at the eastbound bus stop (of Woolston Road roundabout) may present similar risks. At 2m wide the bus stop waiting areas themselves may also be too narrow to safely accommodate passengers due to commonly provided bus stop furniture (shelters, flags and bins etc.).

Furthermore, the shared use path would narrow considerably where it ties-in to the existing footway at the Woolston Road roundabout. The existing footways at this location are not wide enough to accommodate shared use.

Understandably, there are no details provided at this early stage in the design relating to the overarching cycle route strategy but it is worth noting that there are, as yet, no proposals

relating to the interfaces between shared use paths, footways and carriageways (other than at crossing locations). In particular, there is concern that in the absence of specific entry and exit ramps, cyclists would be more likely to contravene pedestrian-only surfaces and/or to use crossing points in order to join or leave the carriageways.

RECOMMENDATION

Review the NMU provisions throughout the scheme and amend as appropriate to ensure that NMUs can be comfortably and safely accommodated, particularly at connector links, bridges and where the scheme ties in to the existing network. Consider the provision of a culverted drainage solution at the eastbound bus stop such that there is no open channel for the length of the passenger waiting area. Ensure that the routes and passenger waiting areas are not obstructed by street furniture and that any bridges are sufficiently wide with appropriate parapets and surfacing.

Finally, ensure that the cyclists are afforded appropriate facilities by which to traverse between the carriageway and shared use paths.

PROBLEM G

Location: Existing Woolston Road Roundabout (western arm)

Summary: Entry geometry is unlikely to control entry speeds

The entry geometry for eastbound traffic leaving the development and entering the existing roundabout from its western arm appears unlikely to sufficiently encourage reduced entry speeds. Whilst not detailed on the drawings, it is understood that it is probable that this arm of the roundabout would only be used by buses, pedestrians and cyclists. There is still a concern however that, unless sufficient entry deflection is provided, buses entering the roundabout (or other vehicles if eventually permitted to do so) may do so faster than desired, potentially leading to collisions on the circulatory carriageway.

RECOMMENDATION

Realign the nearside kerblines and splitter island to ensure that the approach and entry geometry sufficiently encourages reduced traffic speeds.

3. Audit Team Statement

3.1. I certify that this audit has been carried out in accordance with HD 19/03.

Audit Team

Audit Team Leader

Name: Neil Hutchings, MIHE

Position: Senior Consultant

Organisation: Atkins Transport Planning & Management

Address: Woodcote Grove
Ashley Road
Epsom
Surrey
KT18 5BW

Signed:

Date:


1/9/11

Audit Team Member

Name: Rob Hunt, BEng, MSc (Eng), CEng, MICE, MCIHT

Position: Managing Consultant

Organisation: Atkins Transport Planning & Management

Address: The Hub
500 Aztec West
Park Avenue
Almondsbury
Bristol
BS32 4RZ

Appendices

A. Reference material used in the Stage 1 RSA

A.1 Documents

Background Information for Audit Brief – 04/08/11

Dunsbury Hill NMU Context Report – 21/06/11

A.2 Drawings

P-5099849-TP-GA-0001-A – General Arrangement Sheet 1 of 2 – 01/08/11

P-5099849-TP-GA-0002-A – General Arrangement Sheet 2 of 2 – 01/08/11

P-5099849-TP-LS-0001-A – Long Sections, Main Development Alignment – 01/08/11

P-5099849-TP-LS-0002-A – Long Sections, Hulbert Road Roundabout – 01/08/11

P-5099849-TP-XS-0001-A – Cross Sections, Main Dev. Alignment Sheet 1 of 2 – 01/08/11

P-5099849-TP-XS-0002-A – Cross Sections, Main Dev. Alignment Sheet 2 of 2 – 01/08/11

P-5099849-TP-XS-0003-A – Cross Sections, MCE1 Hulbert Road Roundabout – 01/08/11

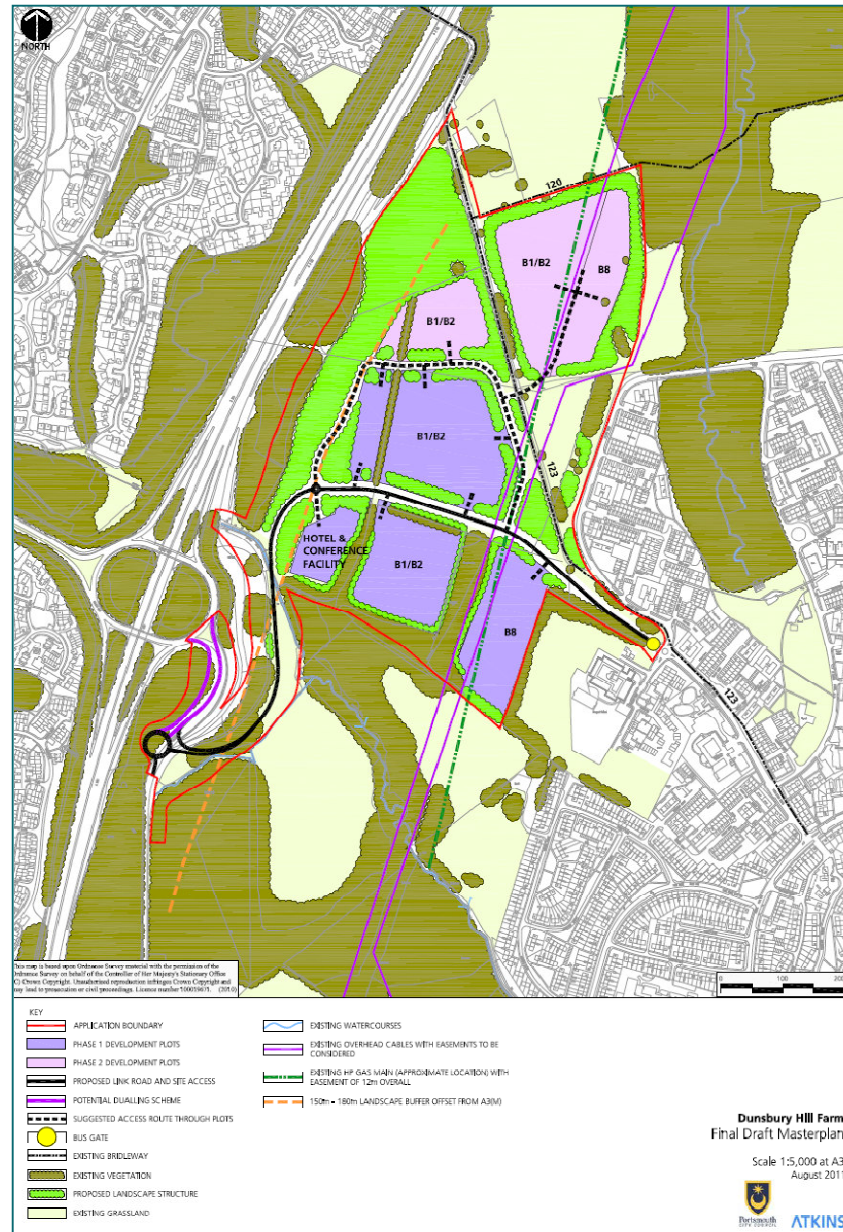
P-5099849-TP-XS-0004-A – Cross Sections, MCN1 Hulbert Road Roundabout – 01/08/11

P-5099849-TP-XS-0005-A – Cross Sections, MCS1 Hulbert Road Roundabout – 01/08/11

Dunsbury Hill Farm, Final Draft Masterplan – 01/08/11

B. Scheme Plans

B.1 The plan below is the Final Draft Masterplan which gives an overview of the scheme layout.

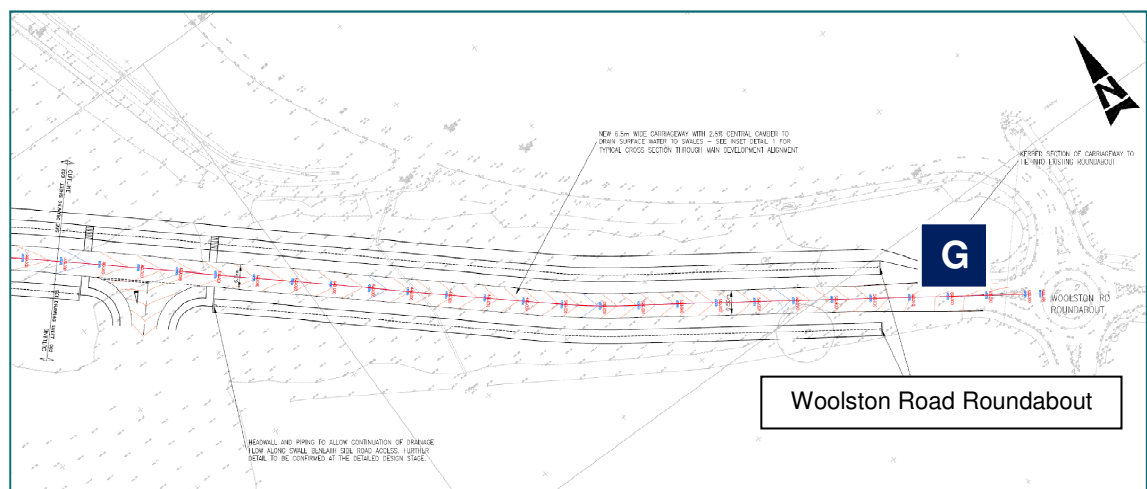
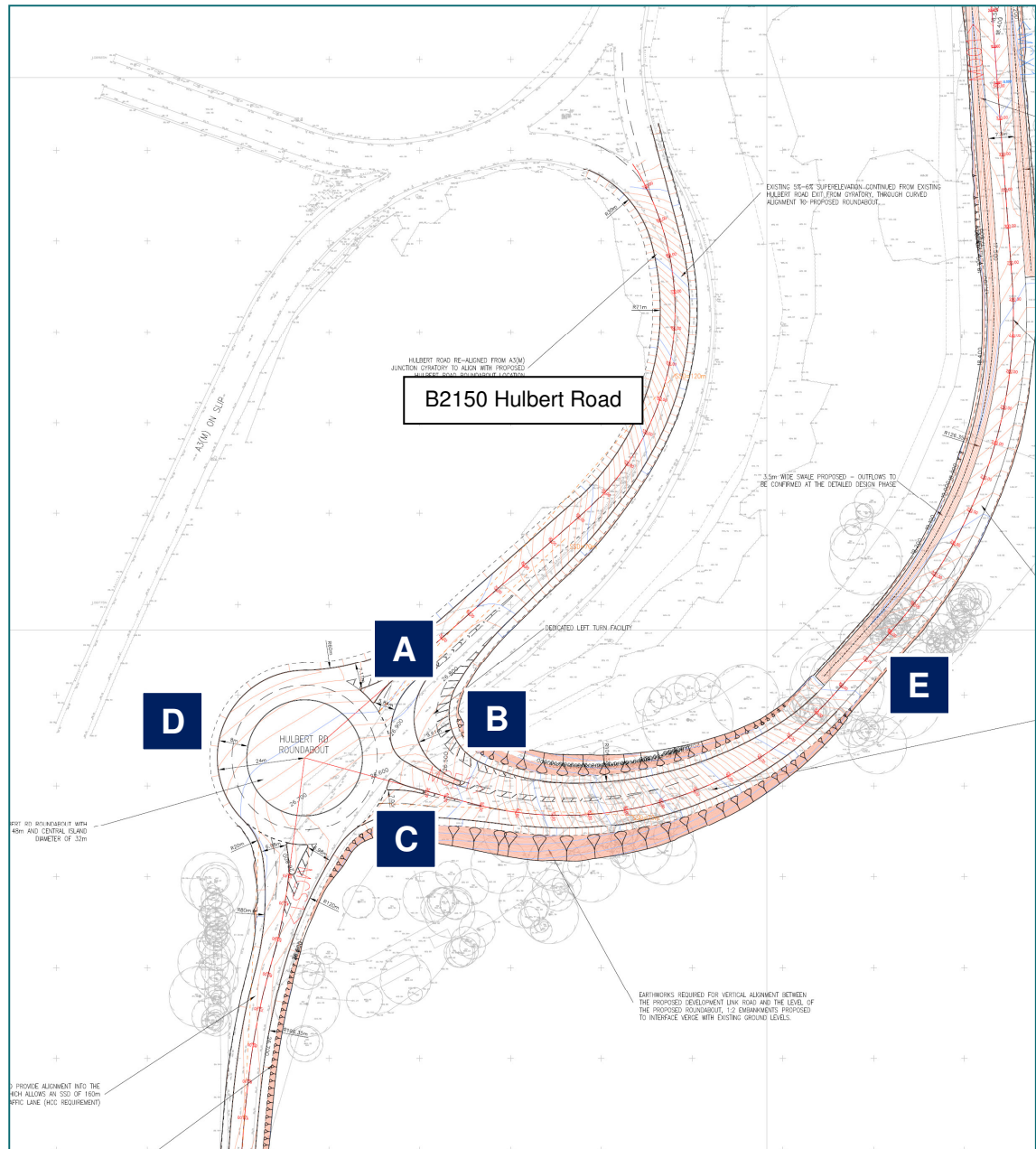


B.2 The annotated scheme plans overleaf) indicate the location of the problems identified and are cross-referenced to the index letters attributed to each in Section 2 of this Stage 1 RSA report.

B.3 The plans are not necessarily indicative of the sources from which the problems have been identified.

B.4 Problem **F** is not annotated on the plans as it is located generally throughout the scheme.

Problem Locations - Annotated Plans



Atkins Limited
Woodcote Grove
Ashley Road
Epsom
Surrey
KT18 5BW

Tel: 01372 726140
Fax: 01372 740055
info@atkinsglobal.com
www.atkinsglobal.com

© Atkins Ltd except where stated otherwise.

The Atkins logo, 'Carbon Critical Design' and the strapline
'Plan Design Enable' are trademarks of Atkins Ltd.