

Road Safety Audit Report

Incorporating
Stage 2 Completion of Detailed Design;
Design Organisation Response to items raised.



Proposed downgrade of A350 West Ashton Road and A350 Yarnbrook Road, Trowbridge

Client:
PFA Consulting

Client reference:
P876

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Report Status 3

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Prepared by	JJF	Verified by	FB	Approved by	JJF
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1.0 PROJECT DETAILS

Report Title:	Stage 2 Road Safety Audit
Date:	July 2020
Document reference and revision:	RSA-20-044-2
Prepared by:	Fenley Road Safety Limited
On behalf of the Overseeing Organisation:	Wiltshire County Council
Design Organisation:	PFA Consulting
Project Sponsor:	CEREP III and Persimmon Homes Wessex

REV	ISSUE PURPOSE	AUTHOR	CHECKED	APPROVED	DATE
0	Stage 2 Road Safety Audit drafted for Audit Team discussions	JJF			9 th July 2020
1	Stage 2 Road Safety Audit finalised and issued to the Design Organisation	JJF	FB	JJF	22 nd July 2020
2	Stage 2 Road Safety Audit Report format amended to incorporate a row for inclusion of a Design Organisation Response in order to maintain a concise record of items raised	JJF			22 nd July 2020
3	Design Organisation Response incorporated	Chris Isherwood on behalf of PFA Consulting			14 th August 2020

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2.0 INTRODUCTION

- 2.1 This report has been prepared by Fenley Road Safety Limited and results from a Stage 2 Road Safety Audit of proposal to downgrade the existing A350 between Yarnbrook and the Jubilee Wood Scout Campsite to the southeast of Trowbridge and provide a simple priority junction in place of the existing signalled junction with Bratton Road just north of the village of West Ashton. The works are to be undertaken as part of a larger scheme to provide a Yarnbrook and West Ashton Relief Road and release a number of parcels of land for the development known as Ashton Park that is proposed to consist of 2,500 dwellings, 13.6 hectares of employment, two local centres, two primary schools and one secondary school.
- 2.2 The Audit Brief identifies that the proposals include a number of Relaxations and Departures from Standard which are summarised in the bullet points below.

Design Parameters	Clause No. Ref	Des. Min.	Abs. Min.	Design	Relaxation / Departure	Comments
A3						
Corner Radii	CD 123 Rev 1 - 5.6.1	10m	6m	10m, 10m, 6m, 3m	Relaxation	3m bell mouth restricted by existing Road Geometry at WA-ACCES
Horizontal Curvature WAROAD	CD 109 Rev 0 - Table 2.10	720m	127m	180m	Departure	Geometry restricted by existing WAR Geometry.
Vertical curvature WAROAD	CD 109 Rev 0 - Table 2.10	Crest = 17K Sag = 13K	Crest = 10K	Crest = 2K Sag = 9K, 1K, 5K	Departure	Geometry restricted by existing WAR Geometry.
Vertical curvature EXA350J	CD 109 Rev 0 - Table 2.10	Crest = 17K Sag = 13K	Crest = 10K	Crest = 9K	Departure	Geometry restricted by crossfall to existing A350 Geometry.
Gradients WAROAD	CD 109 Rev 0 - Table 5.1	6% max	8% max	9.728%, 6.690%, 12.388%, 10.411%	Departure	Geometry restricted by existing WAR Geometry.

- 2.3 The Road Safety Audit was undertaken during July 2020 in accordance with the Road Safety Audit Brief provided, on the 26th June 2020 by the Design Organisation, PFA Consulting, on behalf of the Project Sponsor, CEREP III and Persimmon Homes Wessex. The Road Safety Audit comprised of a site visit as well as an examination of the documents provided which are identified in **Appendix B1**. The Audit Team were satisfied that that the Audit Brief was sufficient for the purpose of the Audit instructed.

- 2.4 The Road Safety Audit has been undertaken by an Audit Team whose qualifications and experience accord with the requirements of GG119. The Audit Team consists of the following members:

Audit Team Leader

Jamie Fenning *BSc(Hons), MIHE, MCIHT, MSoRSA, Highways England RSA Certificate of Competency*
Road Safety / Highway Engineer

Audit Team Member

Farouk Bhatti *MCIHT*
Road Safety Auditor

- 2.5 The site visit associated with this Road Safety Audit was undertaken by the Audit Team Leader and Audit Team Member, during the early afternoon of Friday 3rd July 2020 between 2:15pm and 4:15pm. The site visit involved walking and driving around the local highway network for a 120-minute period whilst observing local infrastructure and current off-peak traffic conditions. The weather during the site visit was overcast, the road surface was dry and visibility was good. A number of pedestrians and cyclists were observed during the site visit. Vehicular traffic to include motorcycles, cars, passenger service vehicles, agricultural vehicles, light and heavy goods vehicles were also observed.
- 2.6 The terms of reference of this Road Safety Audit are as described in GG119. The scheme has been examined and this report compiled, only with regard to the safety implications for road users of the scheme as presented. It has not been examined or verified for compliance with any other standards or criteria. However, in order to clearly explain a safety problem or the recommendation to resolve a problem, the Audit Team may on occasion have referred to a design standard for information only. All comments and recommendations are referenced to the design drawings supplied with the Audit Brief and the location of road safety concerns raised have been illustrated beneath the items along with relevant photographs for clarity, where appropriate, as well as on the Location Plan attached at **Appendix A2**.

Design Organisation Response

- 2.7 In accordance with national standards, this Road Safety Audit was finalised and issued to the Design Organisation as per the Road Safety Audit Report Template within Appendix D of GG119, which can be provided upon request from either the Audit Team or Design Organisation. The format of the Audit Report was subsequently revised to incorporate these paragraphs under the sub-heading as well as sufficient space beneath the items and recommendation, within Section 4, for the inclusion of a Design Organisation Response. This is generally contained within a separate Design Organisation Response Report but is included within this document in order to maintain a single record of all problems,

recommendations and responses for the benefit of a concise Road Safety Audit trail to be held on file for Quality Assurance purposes.

2.8 The Design Organisation Response has been prepared by:

Name: Chris Isherwood

Position / Organisation: Managing Director, PFA Consulting

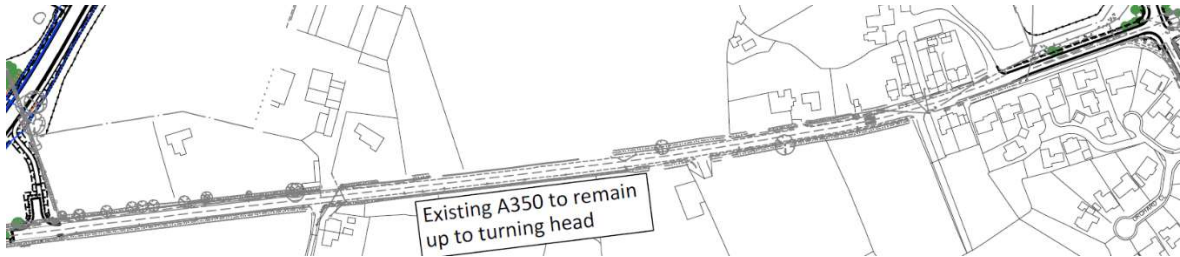
2.9 Any drawings or documents associated with the Design Organisation Response are listed at **Appendix A3**, if applicable.

3.0 ITEMS RAISED IN ANY PREVIOUS ROAD SAFETY AUDITS

- 3.1 The scheme associated with this Stage 2 Road Safety Audit was subject to a Stage 1 Road Safety Audit which was carried out by TMS Consultancy in March 2014. The following tables list the items raised in the Stage 1 Road Safety Audit.

2.4	PROBLEM
Location:	Old A350 eastern tie-in to new relief road
Summary:	Potential loss of control type vehicle collisions
	Although acknowledged that landscaping is to be provided where the existing A350 is to be diverted onto the new relief road, the type of landscaping at the eastern tie in is not known. Drivers may still 'see through' to the old alignment due to the positioning of existing lighting columns, telegraph poles and trees. This may result in loss of control, late braking and shunt type vehicle collisions.
	RECOMMENDATION:
	It should be ensured at detailed design stage that the landscaping at the break out of the old road is sufficient to mitigate against 'see through'.
2.10	OTHER ISSUES
1)	The Audit Team have considered the two options for the proposed cycle route from West Ashton to the development, and the preferred Option (marginally) despite the design constraints is Option 1. This is based on the following: - Option 1 is the most direct route from West Ashton to the employment area, if no facility is provided here the deviation of Option 2 is deemed too far for users to use, and they will end up walking/cycling in the carriageway regardless, risking conflict with road users, especially in darkness as the road will be unlit. - Although the gradient is steep between West Ashton and Roundabout 3, it is only a short link - Both cycle and pedestrian flows are expected to be low, therefore likely conflicts between pedestrians, cyclists and vehicles will also be minimal The footway / cycleway link on West Ashton Road should be segregated to separate high speed cyclists from the pedestrians.
2)	At detailed design stage, the use of passively safe street furniture such as signs and lighting columns should be considered, particularly on the sections of the relief road that are subject to a 50mph speed limit.
3)	At detailed design stage a comprehensive signage strategy should be provided to ensure that drivers familiar with the existing local road network are advised of the new routes.

4.0 ITEMS RAISED AT THIS STAGE 2 ROAD SAFETY AUDIT

B.1	LOCAL ALIGNMENT
	No road safety concerns regarding LOCAL ALIGNMENT have been raised at this Stage
B.2	GENERAL
B.2.1	PROBLEM
Location:	Old A350 west of West Ashton
Summary:	The long straight wide carriageway encourages high vehicular speeds
Acc Type:	Loss of control
The existing A350 that is subject to this Stage 2 Road Safety Audit, is straight in alignment and climbs up to Bratton Road either side of the existing signalised junction. Whilst the existing signalised junction of the A350 and Bratton Road is subject to a 40mph speed limit, the carriageway to the east is derestricted and west is subject to a 50mph speed limit. The proposals realign the A350 just to the east of Yarnbrook but retain the existing carriageway to allow access to an existing farm and a number of dwellings via Bratton Road. The Audit Team are not aware that of any proposals to amend the existing speed limits and as such, can only assume that they will remain unchanged. A long straight cul-de-sac that is 7.3 metres wide and lightly trafficked, will encourage high vehicular speeds and could be utilised for racing, raising the risk of loss of control type incidents.	
RECOMMENDATION:	
It is recommended that measures are introduced to prevent high speeds along the cul-de-sac.	
Location Plan:  	

DESIGN ORGANISATION RESPONSE provided by PFA Consulting on the 14th August 2020 following formal issue of this Stage 2 Road Safety Audit on the 22nd July 2020

This matter has been discussed in detail with Wiltshire Council (WC), including possible traffic calming schemes, but based on WC's experiences elsewhere, it is their preference that the road does not require the introduction of physical speed control measures, as through the removal of the road markings and cats eyes as proposed it will overtime achieve a more rural aspect. This preference is recorded in the design meeting notes with WC.

B.2.2 PROBLEM

Location: Bratton Road

Summary: Increased vehicular speeds are likely to be observed on approach to West Ashton

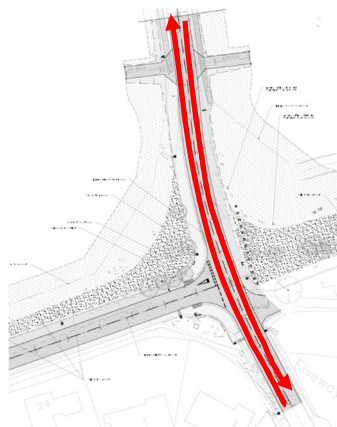
Acc Type: Side impact collisions and loss of control type incidents

Bratton Road is mostly rural in nature but passes through a number of small villages providing a link between the A350 and B3098 which connects with the A360 and A303 to the southeast. It is likely that the road is utilised by some as a cut through. At present, southbound vehicles travelling along Bratton Road on approach to West Ashton, are subject to a 50mph speed limit which reduces to 40mph in proximity to the existing signalised junction with the A350 which acts as a traffic calming feature slowing traffic on approach the village where the speed limit reduces to 30mph. The proposals remove the existing signalised junction and replace it with a simple priority junction with Bratton Road as the major road. As such, following implementation of the proposals, no measures will be present that force vehicles to slow on approach to or exiting the village and as such, the proposals could give rise to incidents resulting from inappropriate speeds to include side impact collisions when a vehicle attempts to manoeuvre out of the old A350 priority junction when it is not safe to do so or loss of control type incidents due to heavy braking and the existing vertical alignment of the Bratton Road.

RECOMMENDATION:

It is recommended that a 30mph speed limit gateway is introduced just north of the proposed simple priority junction and that street lighting is extended to an appropriate location.

Location Plan:



DESIGN ORGANISATION RESPONSE provided by PFA Consulting on the 14th August 2020 following formal issue of this Stage 2 Road Safety Audit on the 22nd July 2020

Agreed subject to TRO. The possibility of extending the 30mph and forming a 'gateway' has been agreed with WC. The 30mph 'gateway' will be where the existing 40mph starts on the north side of the junction. TRO Schedule to be revised.

B.3 JUNCTIONS

B.3.1 PROBLEM

Location: Bratton Road

Summary: Proposed priority is likely to increase speeds on approach to the junction

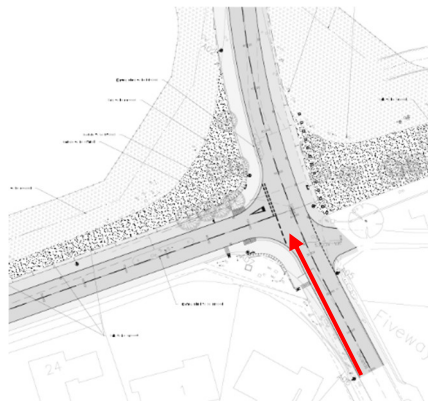
Acc Type: Heavy braking and loss of control

Bratton road is set at a down gradient from south to north on approach to and through the signalised junction with the old A350. The existing northbound approach to the signalised junction benefits from high friction surfacing that appears to be in poor condition. It is proposed to downgrade the existing A350 carriageway to the west of the Bratton Road, stop up the A350 to the east of Bratton Road and provide a simple priority junction in place of the existing signalised junction. Visibility to and from the proposed simple priority junction is of a good level, however due to the down gradient, heavy braking could give rise to skidding and loss of control type incidents.

RECOMMENDATION:

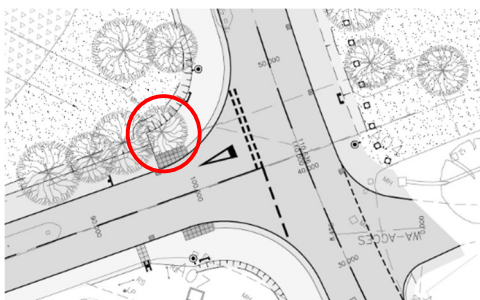
It is recommended that the northbound Bratton Road approach to the junction benefits from high frictional properties to aid braking.

Location Plan:



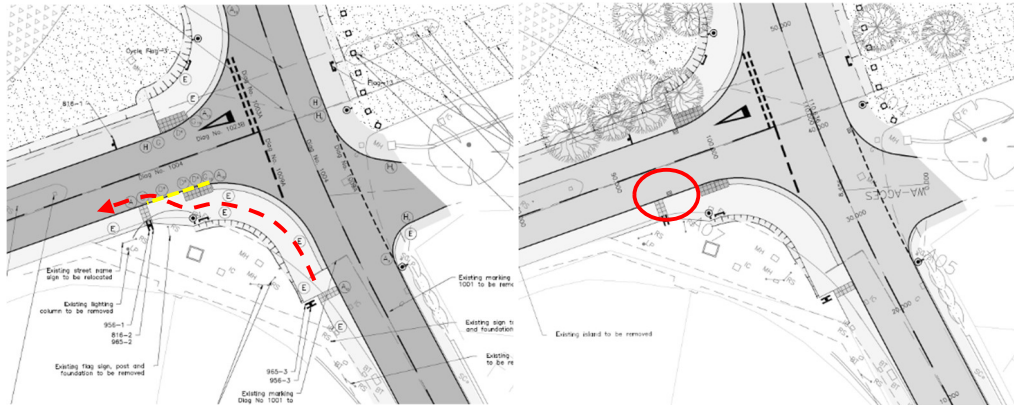
DESIGN ORGANISATION RESPONSE provided by PFA Consulting on the 14th August 2020 following formal issue of this Stage 2 Road Safety Audit on the 22nd July 2020

Agreed. HFS to be extended across width of junction or resurface with PSV68+. Resurfacing of existing HFS is a maintenance issue for WC, but will be discussed accordingly.

B.4	WALKING CYCLING AND HORSE RIDING
B.4.1	PROBLEM
Location:	Proposed West Ashton Junction
Summary:	Proposed tree located within a footway will be an obstruction
Acc Type:	Pedestrian trips / falls and cyclist loss of control
The existing A350, Yarnbrook Road carriageway accommodates a verge along the northern side with trees and other vegetation, providing a footway along to the southern side. The drawings provided with the Audit Brief, illustrate the location and details of street furniture, as well as, trees and vegetation within the proposed verges and identify that a tree is to be provided within the proposed shared footway / cycleway to the northwest of the proposed simple priority junction. A tree within a footway / cycleway is likely to cause ground heave, forming an uneven surface and increasing the likelihood of loss of control type incidents.	
RECOMMENDATION:	
It is recommended that the proposed tree is relocated away from the footway.	
Location Plan: 	
DESIGN ORGANISATION RESPONSE provided by PFA Consulting on the 14 th August 2020 following formal issue of this Stage 2 Road Safety Audit on the 22 nd July 2020	
Agreed. Drawing to be corrected.	
B.4.2	PROBLEM
Location:	Proposed West Ashton Junction
Summary:	Proposed road gully will become an obstruction to cyclists
Acc Type:	Loss of control
The existing West Ashton signalised junction accommodates a network of gullies that are situated along the channel lines. It is proposed to downgrade the old A350 West Ashton Road to form a long cul-de-sac and amend the existing signalised junction with Bratton Road, to a simple priority junction that benefits from a shared footway cycleway along the western side. The scheme drawings provided with the Audit Brief detail that the gullies within proximity of the junction are to be relocated, however, one gully is proposed to be located adjacent to the elongated dropped kerb to the southwest of the junction which allows cyclists level access between the footway cycleway and carriageway. Gullies within the path of a pedestrian or cyclist will become an obstruction and could give rise to loss of control type incidents resulting in a fall.	

RECOMMENDATION:

It is recommended that the gully is relocated or a cyclist friendly grate is provided on all gullies within a cyclist or pedestrian desire line.

Location Plan:

DESIGN ORGANISATION RESPONSE provided by PFA Consulting on the 14th August 2020 following formal issue of this Stage 2 Road Safety Audit on the 22nd July 2020

Agreed. Design to be amended.

B.4.3 PROBLEM

Location: Bratton Road, Proposed West Ashton Junction

Summary: Full height kerbs will be an obstruction to cyclists

Acc Type: Loss of control

The existing West Ashton signalised junction accommodates a footway to the southwest which wraps around the junction linking to the footway to the south and west providing pedestrian access between Yarnbrook and West Ashton. The proposals downgrade the A350 West Ashton Road and convert the existing signalised junction to a simple priority junction and accommodates an uncontrolled crossing point across the old A350 West Ashton Road linking a proposed shared footway cycleway to the north with a section of footway cycleway to the south whilst maintaining the pedestrian footway links to West Ashton and to Yarnbrook. A dropped kerb is provided where the proposed shared facility terminates and footway commences along the old A350 which allows cyclists level access to / from the carriageway, however, a cyclist is unable to access the shared surface facility from the Bratton Road carriageway without having to negotiate full height kerbs. It is likely that a northbound cyclist will bypass the shared surface facility to the southwest of the junction and attempt to gain access just north of the priority junction where full height kerbs are present which will be an obstruction, however, a northbound cyclist intending to utilise the shared facility will be required to mount full height kerbs increasing the likelihood of a loss of control type incident and fall.

RECOMMENDATION:

It is recommended that dropped kerbs are provided where appropriate, to allow cyclists level

access between a carriageway and shared facility.

Location Plan:



DESIGN ORGANISATION RESPONSE provided by PFA Consulting on the 14th August 2020 following formal issue of this Stage 2 Road Safety Audit on the 22nd July 2020

Agreed. Design to be amended.

B.5 ROAD SIGNS, CARRIAGEWAY MARKINGS AND LIGHTING

B.5.1 PROBLEM

Location: Old A350 West Ashton Road

Summary: No through road signs could become an obstruction for pedestrians and vehicles

Acc Type: Vehicle collision with street furniture

It is proposed to provide a number of warning, informative and directional road signs within the verge and footway of the old A350 West Ashton Road that is to be downgraded. The scheme drawings provided with the Audit Brief, illustrates a “No through Road” either side of the road in close to the junction with Bratton Road which are both to be mounted at a height of 1.5 metres. The sign to the north of the carriageway appears to be abutting the edge of carriageway and the sign to the south of the carriageway is situated within the footway. A road sign situated in close proximity to the path of a vehicle could give rise to vehicle collisions with the sign face and a sign face mounted at 1.5 metres along a footway would be an obstruction to pedestrians resulting in a personal injury.

RECOMMENDATION:

It is recommended that all sign faces and street furniture is at least 450mm from the channel line and at an appropriate height.

Location Plan:



DESIGN ORGANISATION RESPONSE provided by PFA Consulting on the 14th August 2020 following formal issue of this Stage 2 Road Safety Audit on the 22nd July 2020

Agreed. Design to be amended.

B.5.2 PROBLEM

Location: Old A350 West Ashton Road

Summary: No guidance is provided to identify the two-way nature of the cul-de-sac

Acc Type: Sideswipe and head-on collisions

The existing A350 that is subject to this Stage 2 Road Safety Audit, is straight and climbs up to Bratton Road either side of the existing signalised junction. The carriageway is subject to various speed limits; 40mph in proximity to the signalised junction, 50mph to the west and derestricted to the east. A road centreline is present along the carriageway which becomes solid at various locations due to the vertical alignment of the road and limited forward visibility. The proposals downgrade the existing A350 between Yarnbrook and West Ashton and stop up the section between West Ashton and the Jubilee Wood Scout Campsite to the east. The existing carriageway that is to be downgraded therefore, forms a cul-de-sac and allows access to an existing farm as well as a number of dwellings. The scheme drawings provided with the Audit Brief, identify that the road centre line and associated bifurcation arrows are to be removed. As such, no guidance will be present to ensure that vehicles travelling along the existing carriageway, will do so appropriately and may attempt to overtake where the existing vertical alignment restricts forward visibility which could give rise to head-on collisions.

RECOMMENDATION:

It is recommended that a road centre line is provided and restrictions on crossing into the opposing lane of traffic unless certain conditions are met, are retained.

Location Plan:

DESIGN ORGANISATION RESPONSE provided by PFA Consulting on the 14th August 2020 following formal issue of this Stage 2 Road Safety Audit on the 22nd July 2020

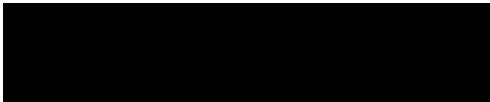
Refer to response to Problem B2.1

5.0 STAGE 2 ROAD SAFETY AUDIT TEAM STATEMENT

5.1 We certify that this Road Safety Audit has been carried out in accordance with GG119.

Audit Team Leader

Name: **Jamie Fenning** *BSc (Hons), MIHE, MCIHT, MSoRSA, HE RSA Certificate of Competency*

Signed: 

Position: Road Safety / Highway Engineer

Organisation: Fenley Road Safety Limited

Date: 22nd July 2020

Audit Team Member

Name: **Farouk Bhatti** *MCIHT*

Signed: 

Position: Road Safety Engineer

Organisation: Fenley Road Safety Limited

Date: 22nd July 2020

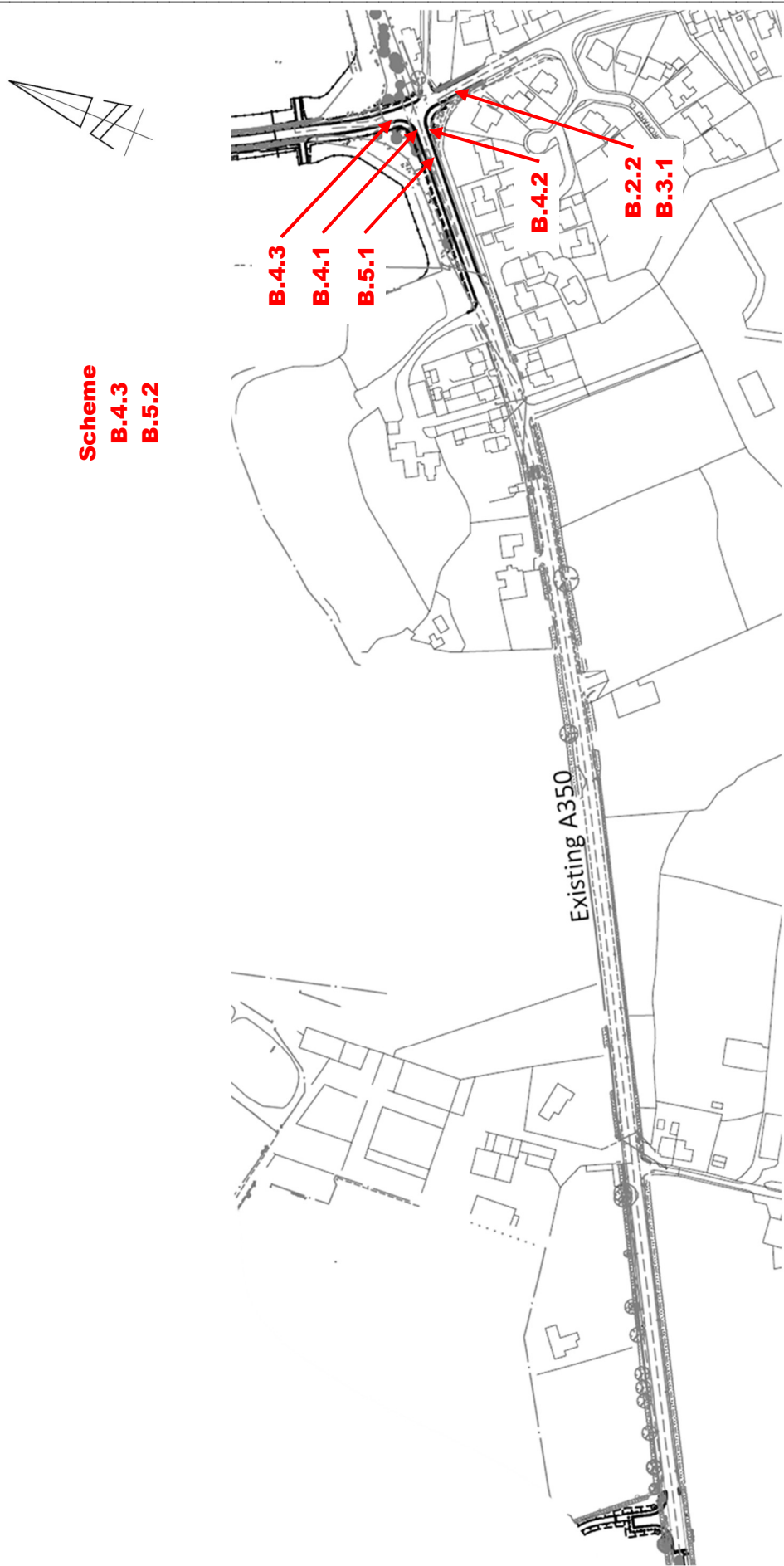
Appendix B1

Documents and Drawings provided for this Stage 2 Road Safety Audit

<u>Audit Stage</u>	<u>Doc. No.</u>	<u>Rev</u>	<u>Title</u>
Stage 2	P876-DOC09	-	Road Safety Audit Brief
	P876	-	YWARR Compliance Non-compliance Report
	P876-FN14	-	Supporting Statement to Engineering Design Compliance Report
	11403	-	TMS RSA Stage 1
	<u>Dwg No.</u>	<u>Rev</u>	<u>Title</u>
	P876/100	-	Whole Scheme Overview
	P19372-06-03	B	Existing Yarnbrook Road Crossroads Downgrade, Lighting Engineering
	P876-A1B/100	-	Area 3 Location Plan
	P876-A3/101	-	Area A3 General Arrangement Sheet 1 of 4
	P876-A3/103	-	Area A3 General Arrangement Sheet 2 of 4
	P876-A3/104	-	Area A3 General Arrangement Sheet 3 of 4
	P876-A3/105	-	Area A3 General Arrangement Sheet 4 of 4
	P876-A3/106	A	Area A3 Horizontal Geometry Sheet 1 of 2
	P876-A3/108	A	Area A3 Horizontal Geometry Sheet 2 of 2
	P876-A3/111	B	Area A3 Drainage and Contours Sheet 1 of 5
	P876-A3/113	B	Area A3 Drainage and Contours Sheet 3 of 5
	P876-A3/114	B	Area A3 Drainage and Contours Sheet 4 of 5
	P876-A3/115	B	Area A3 Drainage and Contours Sheet 5 of 5
	P876-A3/122	B	Area A3 Surface Finishes, Traffic Signs and Lighting Sheet 1 of 5
	P876-A3/123	B	Area A3 Surface Finishes, Traffic Signs and Lighting Sheet 2 of 5
	P876-A3/124	C	Area A3 Surface Finishes, Traffic Signs and Lighting Sheet 3 of 5
	P876-A3/125	B	Area A3 Surface Finishes, Traffic Signs and Lighting Sheet 4 of 5
	P876-A3/126	B	Area A3 Surface Finishes, Traffic Signs and Lighting Sheet 5 of 5
	P876-A3/134	-	Area A3 Cross Sections
	P876-A3/142	A	Area 3 Longitudinal Sections Sheet 1 of 2
	P876-A3/143	A	Area 3 Longitudinal Sections Sheet 2 of 2

Appendix B2

Item Location Plan



Appendix B3

Drawings associated with the Design Organisation Response

<u>Audit Stage</u>	<u>Drawing No.</u>	<u>Rev</u>	<u>Title</u>
Stage 2			

fenley