Brian Edwards, Visiting Research Fellow, The Regional History Centre, University of the West of England, Bristol, and Deputy Representative of the Avebury and Stonehenge Archaeological and Historical Research Group (ASAHRG) to the steering group of the Stonehenge, Avebury and Associated sites World Heritage Site (WHS).
Reference number: 20020830

25 September 2019

I have only belatedly been made aware of the attached documents obtained under Freedom of Information (FoI):

> Highways England's *A303 Stonehenge Stage 1 Road Safety Audit* (July 2018) and an untitled table of *Departures from Standards* (n.d.).

With only 24 hours to consider the contents I have been left wondering why these documents have not been released before now and included in the Examination documents.

I am wondering what subsequent Road Safety Audits exist, and what else of obvious relevance and import has been withheld by Highways England.

That there is to be no Vehicle Refuge within a two mile tunnel is alarming (TC/001 *Departures from Standards*), as is stretching the distance between evacuation escape routes from every 100 metres to 150 metres (TC/003 *Departures from Standards*). Undeclared assumptions being made about a Fixed Fire Fighting Strategy are not reassuring.

There is also, I note, to be a reduction in the width of the roadside verge alongside Blick Mead from an expected 2.5 metres to 1.2 metres (CH/019 *Departures from Standards*). The road impact alongside Blick Mead will include the western section of the Countess flyover and westbound slip road from Countess Roundabout. The boundary with the road at Blick Mead is formed by a 2 metre bank that includes an outfall drain which is the lowest point on the stretch of road between the flyover and Vespasian's Camp. It is therefore of concern, with a roadside safety barrier and V drainage channels incorporated within a 1.2 metre verge, that contaminates from this area with capture litter, road detritus and road salt will with regularity be readily washed into Blick Mead.

Overall it appears from a lay perspective that Highways England are prepared to cut corners on various accepted standards, including health and safety requirements within the tunnel, in order to keep the overall cost down. If Highways England is attempting to stick to a budget set by the developer's perceived value for money target, this could be interpreted as public safety being compromised by political penny pinching.

Highways England

A303 STONEHENGE
AMESBURY TO BERWICK DOWN

Stage 1 Road Safety Audit

ITS/447/2018
JULY 2018

(CONFIDENTIAL)

Highways England

A303 STONEHENGE AMESBURY TO BERWICK DOWN

Stage 1 Road Safety Audit

FINAL DOCUMENT (CONFIDENTIAL)

PROJECT NO. 70200002-142
OUR REF. NO. ITS/447/2018

DATE: JULY 2018

WSP
Knights House,
2 Parade,
Sutton Coldfield,
B72 1PH
WSP.com

QUALITY CONTROL

Issue/revision	First issue	Revision 1	Revision 2	Revision 3
Remarks	Draft	Final		
Date	04/07/18	06/07/18		
Prepared by	[redacted]	[redacted]		
Signature	[redacted]	[redacted]		
Checked by	[redacted]	[redacted]		
Signature	[redacted]	[redacted]		
Authorised by	[redacted]	[redacted]		
Signature	[redacted]	[redacted]		
Project number	70200002-142	70200002-142		
Report number	ITS/447/2018	ITS/447/2018		
File reference	As above	As above		

CONTENTS

1 INTRODUCTION

1.1.1. This report results from a Stage 1 Road Safety Audit carried out on the A303 Stonehenge Amesbury to Berwick Down on behalf of [redacted], Highways England Project Sponsor. The Road Safety Audit was carried out during June and July 2018.

1.1.2. The Road Safety Audit Team approved by [redacted], Highways England Project Sponsor was as follows:

Audit Team Leader:	[redacted] BA(hons), DipTEDM, MSoRSA, MCIHT
Audit Team Member	[redacted] FIHE, FSoRSA, RegRSA(IHE)

Both team members hold a Road Safety Certificate of Competence meeting the requirements of the European Directive 2008/96/EC and HD19/15 Annex J.

1.1.3. The audit took place in WSP offices in June and July 2018. The Road Safety Audit was undertaken in accordance with the Road Safety Audit brief provided by [redacted], the Highways England Project Sponsor.

1.1.4. The Road Safety Audit also comprised of an examination of the documents and drawings supplied to the Road Safety Audit Team, referenced in Appendix A of this report.

1.1.5. The audit team examined the information contained within the Road Safety Audit brief and requested the following information from the design team:

Post and rail fencing details – not provided and should be scrutinised during the RSA2

Lighting details within the tunnel – not provided and should be scrutinised during the RSA2

The WCHAR assessment – not provided and should be scrutinised during the RSA2

Proposed location of signal poles at Junctions – not provided and should be scrutinised during the RSA2

Proposed diversion routes - provided

The Audit Team visited the site together on 27th June 2018 between 11am and 3pm. The weather was hot with a slight breeze. The road surface was dry during the site visit. There was an average traffic flows using the A303 with no NMUs noted. Traffic was slowing and, on occasions, coming to a standstill on the A303 in the vicinity of Stonehenge. There didn't appear to be any other reason for this other than drivers looking at Stonehenge.

1.1.6. All comments and recommendations are reference to the preliminary design drawings and the locations have been indicated on the plan supplied with the Road Safety Audit Brief and are located in Appendix B.

1.1.7. The terms of reference of the Road Safety Audit are as described in the Design Manual for Roads and Bridges (DMRB) Standard HD19/15 (as amended).

1.1.8. The Road Safety 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.

1.1.9. Details of the Departures from Standard are included in Appendix C. The Road Safety Audit team have included a number of the departures from standard within the audit report where we considered there to be potential for road safety implications.

1.1.10. Audit administration

This Audit Report has been submitted to the Audit Project Sponsor as a draft for checking, consideration and approval. The Audit Project Sponsor is responsible for agreeing with the Audit Team Leader the form of the final version of the report and for instructing that the report is presented in its final form.

It is the Audit Project Sponsor's responsibility to advise the Audit Team Leader if any Problem or Recommendation is not accepted. A copy of every signed Exception Report is required by the Audit Team Leader from the Audit Project Sponsor for attachment to the master copy of the Final Audit Report.

Safety issues identified during the audit and site inspection which the Terms of Reference exclude from this report, but which the audit team wishes to draw to the attention of the Audit Project Sponsor, will be set out in a separate letter. These issues could include maintenance items and operational issues.

1.2 PURPOSE OF THE SCHEME

The purpose of the scheme (taken directly from the audit brief) comprises of a package of proposals for the A303/A30/A358 corridor to achieve an Expressway standard, improving the vital connection between the South West and London and the South East and including the upgrade of remaining single carriageway sections on the route to dual carriageway. This investment is stated a priority project in the National Infrastructure Plan and is listed within the top 40 priority infrastructure projects. The Road Investment Strategy (2015-2020) states that construction will start within this roads period (i.e. by the end of March 2020), subject to necessary approvals and value for money.

The A303 Stonehenge scheme forms a key part of the overall programme for improvement of the corridor; traffic problems on this section of the corridor are particularly acute. This section of the A303 passes directly through the Stonehenge and Amesbury UNESCO World Heritage Site - an area of 'Outstanding Universal Value' containing over 450 recorded monuments. It passes within 165 metres of the Stonehenge Monument - a globally recognisable icon of Britain which attracts 1.3m visitors each year.

The objectives for the scheme, termed the Client Scheme Requirements (CSRs):

- Transport - To create a high quality route that resolves current and predicted traffic problems and contributes towards the creation of an expressway between London and the South West.
- Economic Growth - In combination with other schemes on the route, to enable growth in jobs and housing by providing a free flowing and reliable connection between the East and the South West peninsula.
- Cultural Heritage - To contribute to the conservation and enhancement of the World Heritage Site by improving access both within and to the site.
- Environment and Community - To contribute to the enhancement of the historic landscape within the World Heritage Site, to improve biodiversity along the route and to provide a positive legacy to communities adjoining the road.

The objectives will be achieved by providing a high quality dual two lane all-purpose carriageway on the A303 trunk road between Amesbury and Berwick Down in Wiltshire. The scheme will provide for the free flow movement of vehicles by linking existing dual carriageways and providing grade separated junctions with the A345 at Countess and the A360 at Longbarrow.

The A303 will pass through a tunnel of circa 3.0km in length to reduce its impact on the Stonehenge stone circle and the wider World Heritage Site. The improvement will also include a bypass of the village of Winterbourne Stoke. Whilst not to be an expressway from its day of opening, the scheme will have regard to the emerging standards and be expressway ready.

2 PROBLEMS IDENTIFIED IN PREVIOUS ROAD SAFETY AUDITS

2.1.1. The audit team have been informed that no previous audits have taken place on this scheme.

3 PROBLEMS IDENTIFIED AT THIS STAGE 1 ROAD SAFETY AUDIT

3.1 GENERAL

3.1.1 Problem

Location: Within the Tunnel (see Appendix B)

Drawing Number: Numerous – Tunnel & Cross Passage Plans

Summary: Risk of pedestrians being struck by vehicle after breaking down within the tunnel

Detail: Within the proposed tunnel, there are a number of cross passages at regular intervals to aid in the safe passage of drivers/passengers who have either been involved in a collision or have broken down. However, there doesn't appear to be safe waiting area for pedestrians to use an emergency telephone in the event of a collision or breakdown. The pedestrian would therefore be required to wait within the tunnel, adjacent to the live running lanes whilst using the emergency telephone. The lack of a safe waiting area would increase the risk of the pedestrian being involved in a secondary collision, being struck by a passing vehicle or of their broken down vehicle being struck by another vehicle which subsequently collides with the pedestrian/s.

RECOMMENDATION

Either provide safe waiting areas for pedestrians to stand and use an emergency telephone (should they be on the nearside of the tunnel carriageway) or direct pedestrians towards the cross passages and provide safe waiting areas and emergency telephones within the cross passages.

3.1.2 Problem

Location: Various

Drawing Number: Numerous – Draft Environmental Masterplan drawings

Summary: Risk of pedestrians, Cyclists, horse riders or motorist attempting to cross the A303 at inappropriate locations.

Detail: The proposed route of the A303, dissects a number of local roads, byways and public rights of ways. Where the A303 dissects these routes, they are to be closed to all users. There is a risk that users may attempt to continue across the A303 as they are unaware of alternatives where there is a risk of collision with vehicles on the A303.

RECOMMENDATION

Provide and adequately sign diversion routes for all WCHAR routes which are to be dissected by the A303.

3.1.3 Problem

Location: Proposed changes to the Rollestone Crossroads junction (see Appendix B)

Drawing Number: HE551506-AMW-HSR-Z2_SR_B20_Z-SK_CH_0004RevP02

Summary: Reduction in visibility at junction may increase the risk of collisions.

Detail: The proposals include alterations to the Rollestone Crossroad junction, to allow effective operation when this route is required as a diversion route due to tunnel closure. The proposals include amendments to the existing crossroads and changes to priorities. However, the junction of the B3086 and Packway is now a T-junction located on a bend. On this bend, visibility when attempting to enter the main road from the side road may be restricted due to the vertical alignment of the carriageway resulting in vehicles pulling out into the path of other vehicles resulting in a T-bone type collision. Also any vehicle waiting to turn right into the side road, may be at risk of a shunt type collision due to the possible restricts of forward visibility.

RECOMMENDATION

Adequate forward visibility must be maintained throughout this junction to ensure vehicles travelling at speed are capable of stopping should a vehicle be either stationary within the carriageway or pulling out of/into the side road.

3.1.4 Problem

Location: Countess Junction WB diverge (see Appendix B)

Drawing Number: Departure from Standard ref: ML/Z4/WB/008

Summary: Reduction in visibility at junction may increase the risk of collisions.

Detail: The proposed mainline on approach to the Countess Junction westbound diverge (Lane 1) is three steps below the required stopping sight distance. There would be a risk of vehicles colliding with the rear of queuing traffic due to the reduction in stopping sight distance resulting in a shunt type collision.

RECOMMENDATION

Adequate forward visibility should be maintained throughout this junction to ensure vehicles travelling at speed are capable of stopping should another vehicle be stationary within the carriageway.

3.1.5 Problem

Location: Countess Junction EB merge (see Appendix B)

Drawing Number: Departure from Standard ref: ML/Z4/EB/015

Summary: Reduction in visibility at junction may increase the risk of collisions.

Detail: The proposed mainline on approach to Countess Junction eastbound merge (Lane 2) is three steps below the required stopping sight distance. There would be a risk of vehicles colliding with the rear of queuing traffic due to the reduction in stopping sight distance resulting in a shunt type collision.

RECOMMENDATION

Adequate forward visibility should be maintained throughout this junction to ensure vehicles travelling at speed are capable of stopping should another vehicle be stationary within the carriageway.

3.1.6 Problem

Location: Eastern Tie-in (see Appendix B)

Drawing Number: Departure from Standard ref: ML/Z4/EB/019

Summary: Reduction in visibility may increase the risk of collisions.

Detail: The proposed Eastern Tie-In is three steps below the required stopping sight distance. There would be a risk of vehicles colliding with the rear of queuing traffic due to the reduction in stopping sight distance resulting in a shunt type collision.

RECOMMENDATION

Adequate forward visibility should be maintained to ensure vehicles travelling at speed are capable of stopping should another vehicle be stationary within the carriageway.

3.1.7 Problem

Location: Countess Westbound Diverge (see Appendix B)

Drawing Number: Departure from Standard ref: JN/C00/WB/027A

Summary: Reduction in visibility may increase the risk of collisions.

Detail: The proposed Countess Westbound Diverge is three steps below the required stopping sight distance. There would be a risk of vehicles colliding with the rear of queuing traffic due to the reduction in stopping sight distance resulting in a shunt type collision.

RECOMMENDATION

Adequate forward visibility should be maintained to ensure vehicles travelling at speed are capable of stopping should another vehicle be stationary within the carriageway.

3.1.8 Problem

Location: Mainline Lay-by (maintenance hard standing 4N)

Drawing Number: Departure from Standard ref: ML/M00/LB/043

Summary: Reduction in visibility may increase the risk of collisions.

Detail: The exit visibility from the proposed lay-by does not meet requirements for major/minor junctions. Therefore should an operative or member of public stop within the layby, there would be an increased risk of a collision with approaching traffic on the A303 when exiting the layby. This could result in injuries to the occupants of the vehicles involved.

RECOMMENDATION

Adequate visibility should be maintained to ensure vehicles exiting the layby can do so with minimum risk of colliding with mainline traffic.

3.2 SIGNING

3.2.1 Problem

Location: A303 to the east of the B3083 underbridge (see Appendix B)

Drawing Number: HE551506-AMW-HSN-SW_GN_000_Z-DR-CH-1003P01

Summary: Risk of collision between emerging vehicles and vehicles on the A303

Detail: The proposed A303 carriageway includes the provision of Emergency Refuge Areas for drivers to use emergency telephones in the event of a breakdown. The emergency refuges (east and westbound carriageways) to the east of the B3083 underbridge appear to be located on a bend. There is a risk therefore that when vehicles attempt to exit the emergency refuge, the drivers' visibility will be restricted and therefore unable to see approaching vehicles. This may increase the risk of the vehicle exiting into the path of another vehicle on the A303, resulting in a collision.

RECOMMENDATION

Ensure adequate visibility is provided to allow drivers to safely re-join the A303 should they need to stop in the emergency refuges.

3.2.2 Problem

Location: A303 to the west of Green Bridge No. 1 (see Appendix B)

Drawing Number: HE551506-AMW-HSN-SW_GN_000_Z-DR-CH-1003P01

Summary: Risk of collision between emerging vehicles and vehicles on the A303

Detail: The proposed A303 carriageway includes the provision of Emergency Refuge Areas for drivers to use emergency telephones in the event of a breakdown. The emergency refuges on the westbound carriageway to the west of Green Bridge No. 1 appears to be located on the exit from a bend. There is a risk therefore that when vehicles attempt to exit the emergency refuge, the drivers' visibility will be restricted and therefore unable to see approaching vehicles. This may increase the risk of the vehicle exiting into the path of another vehicle on the A303, resulting in a collision.

RECOMMENDATION

Ensure adequate visibility is provided to allow drivers to safely re-join the A303 should they need to stop in the emergency refuges.

3.2.3 Problem

Location: A303 to the east of Green Bridge No.4 (see Appendix B)

Drawing Number: HE551506-AMW-HSN-SW_GN_000_Z-DR-CH-1006P01

Summary: Risk of collision between emerging vehicles and vehicles on the A303

Detail: The proposed A303 carriageway includes the provision of Emergency Refuge Areas for drivers to use emergency telephones in the event of a breakdown. There are a number of signs located within the highway verge downstream of the proposed emergency refuge on the eastbound carriageway to the east of Green Bridge No. 4. The signs are Lane Control x2 and a tunnel warning sign accompanied by a 'Stop when lights are lit' sign. There is a risk therefore that when vehicles attempt to exit the emergency refuge, the drivers' visibility will be restricted and therefore unable to see approaching vehicles. This may increase the risk of the vehicle exiting into the path of another vehicle on the A303, resulting in a collision.

RECOMMENDATION

Ensure the signage is located to provide adequate visibility, allowing drivers to safely re-join the A303 should they need to stop in the emergency refuges.

3.2.4 Problem

Location: Western extents of scheme (see Appendix B)

Drawing Number: HE551506-AMW-HSN-SW_GN_000_Z-DR-CH-1002P01

Summary: Risk of driver being unaware as the changes made to the A303, including the provision of the emergency refuge area.

Detail: Toward the western extent of the scheme, it is proposed for a 'New Road Layout Ahead' sign to be provided. However, the sign is not located prior to the start of the scheme extents. Therefore drivers may not be fully aware of the proposed emergency refuge area or any other proposed alterations to the carriageway in its vicinity.

RECOMMENDATION

Relocate the location of the proposed New Road Layout Sign to take into account all proposed changes to the carriageway.

3.2.5 Problem

Location: Proposed A303 signing to the west of Green Bridge No.2 (see Appendix B)

Drawing Number: HE551506-AMW-HSN-SW_GN_000_Z-DR-CH-1004P01

Summary: Potential for signing information to be missed by drivers resulting in prohibited vehicles/animals entering the tunnel.

Detail: On the A303 eastbound carriageway to the west of Green Bridge No.2, there are proposals for a large (6.7m x 5.9m) advance directional sign (ADS) and then a large (5.6m x 4.5m) Tunnel Ahead prohibited traffic sign positioned closely after. There is a risk that the large ADS will mask the information on the Tunnel Ahead prohibited traffic sign due to their close proximity to each other. This could result in drivers failing to fully comprehend the information on the prohibition sign resulting in a prohibited vehicle type, cyclist or horse rider entering the tunnel where there is a high risk of collisions with other motor vehicles.

RECOMMENDATION

Ensure adequate visibility is provided for the Tunnel ahead prohibition sign.

3.2.6 Problem

Location: A303 westbound carriageway to the west of its junction with the Countess Junction (see Appendix B)

Drawing Number: HE551506-AMW-HSN-SW_GN_000_Z-DR-CH-1008P01

Summary: Apparent sign clutter on the A303 westbound carriageway may result in drivers failing to view all the information.

Detail: On the A303 westbound carriageway to the west of its junction with the Countess Junction, there are a large quantity of signs, located within close proximity of each other. Within a relatively short distance there are the following signs:

- 'Lane Control 700yds'
- Emergency Telephone ½ mile
- Average Speed check
- A303 route confirmatory sign
- Lane control signals ahead
- Tunnel warning signage
- Lane control signals ahead

To compound this issue, the A303 bends to the left at this location thus increasing the risk of one sign or a number of the signs being masked by the previous one. If drivers fail to fully comprehend the information provided, there is an increase possibility of collisions involving the emergency refuge ahead or due to failing to realise that the tunnel may be closed and lane control is in operation.

RECOMMENDATION

Review the signage throughout this section of A303 westbound carriageway and ensure that drivers have clear visibility of all signs and that they have sufficient time to comprehend the information presented to them.

3.2.7 Problem

Location: Proposed Local diversion through Larkhill (see Appendix B)

Drawing Number: HE551506-AMW-GEN-70033915/SK028

Summary: Potential for drivers to become hesitant resulting in shunt type collisions.

Detail: The proposed local diversion (should the tunnel be closed) is to direct traffic along the A360, through Larkhill and then re-join the A303 on the A345 (and vice versa). Diamond diversion symbols are being proposed at the A303 junction at each of the diversion route, whilst no details of the signing was included in the drawings for the remainder of the diversion route. The diversion route includes a number of turning manoeuvres at junctions and failure to provide adequate diversion route signing may result in drivers becoming hesitant resulting in shunt type collisions.

RECOMMENDATION

Provide adequate diversion route signage through-out the proposed diversion route.

3.3 WALKERS, CYCLISTS AND HORSE RIDERS (WCH)

3.3.1 Problem

Location: Longbarrow Junction (see Appendix B)

Drawing Number: HE551506-AMW-ENM-SW_GN_000_z-DR-CH-1005RevP01

Summary: Potential for collisions between horse riders and vehicles.

Detail: The scheme proposes bridleway crossings over the realigned A360 south link and the Longbarrow to existing A303 link arms of the Longbarrow Junction. The proposals also show that a bridleway is proposed around part of the southern roundabout of the Longbarrow Junction, adjacent to the carriageway. There is a risk of horse becoming spooked and/or being struck by vehicles whilst attempting to cross the carriageways at this junction.

RECOMMENDATION

Ensure horse riders are provided with adequate provisions to allow the safe east-west (and vice versa) movement through the Longbarrow junction.

3.3.2 Problem

Location: Longbarrow Junction (see Appendix B)

Drawing Number: HE551506-AMW-ENM-SW_GN_000_z-DR-CH-1005RevP01

Summary: Risk of vehicles using the proposed Bridleway as a short-cut to bypass the Longbarrow junction.

Detail: The existing A360 is to be stopped up and converted into a bridleway, cycle track and private means of access. This proposed facility is to be 4 metres in width. There are accesses to this facility from the realigned A360 to the north and the realigned A360 to the south. The facility bypasses the proposed Longbarrow junction completely and there is a risk of drivers attempting to use the facility in order to bypass the Longbarrow junction. If a vehicle were to drive along this facility at high speeds there is a risk of collision with horse riders, cyclists, walkers or other vehicles.

RECOMMENDATION

Deter the ‘rat-running’ of vehicular traffic along this facility.

3.3.3 Problem

Location: Various locations throughout the scheme

Drawing Number: Various drawings affected

Summary: Failure to light underpasses may deter WCH use and/or may present risk to personal safety.

Detail: There are a number of underpasses to be created as part of this scheme where walkers, cyclist and horse riders are to use as part of their routes. Failure to adequately light these underpasses could deter WCH from using them and then seeking out an alternative, less safe route or they could present a risk to the personal safety of the users should they be un-illuminated during hours of darkness.

RECOMMENDATION

Ensure the underpasses where WCH routes pass through are adequately illuminated.

3.4 DRAINAGE

3.4.1 Problem

Location: Various locations throughout the scheme

Drawing Number: Numerous – Drainage General Arrangement drawings

Summary: Failure to adequately restrict access to drainage ponds/infiltration basins may increase risk of drowning

Detail: There are a number of balancing ponds and infiltration basins alongside the proposed route of the new A303. These ponds/basins may become full of water at times of heavy rain. Walkers may pass close to these ponds/basins and there is a risk that a walker may either inadvertently fall/slip into the water where they could drown.

RECOMMENDATION

Provide suitable fencing to help deter walkers from entering the ponds/basins and provide life saving devices along the banks/edges.

3.4.2 Problem

Location: Various locations throughout the scheme

Drawing Number: Numerous – Drainage General Arrangement drawings

Summary: Risk of vehicles unintentionally encroaching onto the drainage channels resulting in loss of control

Detail: The drainage details shows there is to be a 'V' channel covered in grass between the edge of the carriageway and the verge. If the 'V' channel is located close to the edge of the carriageway, drivers may unintentionally drift off the carriageway and into the 'V' channel which may result in the vehicle losing control.

RECOMMENDATION

Provide edge of carriageway markings, positioned a suitable distance from the edge of the carriageway, to help deter/prevent vehicles from encroaching into the 'V' channel.

3.4.3 Problem

Location: Eastern tie-in of the scheme (see Appendix B)

Drawing Number: Departures from Standards ref: ML/Z4/EB/018

Summary: Risk of vehicles unintentionally encroaching onto the drainage channels resulting in loss of control

Detail: The super elevation at the East Tie-In is proposed to be three steps below the desirable minimum. If the superelevation is insufficient, there is a greater risk of standing water on the carriageway increasing the risk of vehicle skidding on the water or ice (should it freeze). The loss of control is likely rot result in injury to the vehicle occupants or of any other vehicle involved in a collision.

RECOMMENDATION

Ensure the highway drainage is sufficient to prevent standing water on the carriageway.

3.5 ROAD RESTRAINT SYSTEMS

3.5.1 Problem

Location: Various locations throughout the scheme

Drawing Number: Numerous – Road Restraint Systems drawings

Summary: P4 road restraint terminals should be used wherever possible

Detail: The road restraint system (RRS) drawing don't appear to make reference to the type of end they are to be constructed with. If a 'ramp-end' type is used then should a vehicle lose control and strike the end of the RRS, the vehicle could be launched resulting in a higher severity of injury suffered by the vehicle occupants. If P4 terminals are used throughout the scheme where-ever possible, this risk of a vehicle being launched is mitigated/greatly reduced.

RECOMMENDATION

P4 terminal ends to be used on RRS wherever possible.

3.5.2 Problem

Location: Longbarrow Junction westbound offslip (see Appendix B)

Drawing Number: HE551506-AMW-HRR-SW_GN_000_z-DR-CH-1005P01

Summary: Potential for increase to the severity of injuries suffered to vehicle occupants/passengers

Detail: The proposed Longbarrow Junction is elevated above the level of the A303. The slip roads therefore are on embankment to bring the A303 traffic up to the level of the junction. The A303 westbound off slip to the Longbarrow junction appears to at the top of an embankment of considerable height. RRS is not being provided for this embankment and should a vehicle leave the carriageway at this location, there is a risk of the vehicle overturning and rolling down the embankment, causing serious injuries to the vehicle occupants.

RECOMMENDATION

Carry out a RRRAP assessment along the A303 westbound offslip at Longbarrow Junction.

3.5.3 Problem

Location: Longbarrow Junction eastbound onslip (see Appendix B)

Drawing Number: HE551506-AMW-HRR-SW_GN_000_z-DR-CH-1005P01

Summary: Potential for increase to the severity of injuries suffered to vehicle occupants/passengers

Detail: The proposed Longbarrow Junction is elevated above the level of the A303. The slip roads therefore are on embankment. The A303 eastbound onslip slip at the Longbarrow junction appears to at the top of an embankment of considerable height. RRS is partially being provided along the top of the embankment however there is a considerable gap in RRS between the A303 mainline carriageway and the slip road itself. Should a vehicle leave the carriageway at this location, there is a risk of the vehicle overturning and rolling down the embankment, causing serious injuries to the vehicle occupants.

RECOMMENDATION

Carry out a RRRAP assessment along the A303 eastbound on-slip at Longbarrow Junction.

3.5.4 Problem

Location: A303 eastbound carriageway to the east of Green Bridge No.4 (see Appendix B)

Drawing Number: HE551506-AMW-HRR-SW_GN_000_z-DR-CH-1005P01

Summary: Potential for increase to the severity of injuries suffered to vehicle occupants/passengers

Detail: There is proposed RRS alongside the A303 eastbound carriageway to protect vehicles from colliding with the bridge supports for Green Bridge No.4. There is a then a short gap in RRS before commencing once again to protect signs located within the verge. This short gap could present an un-necessary hazard to road users. Should a vehicle lose control at this location and leave the carriageway it may pass through the gap in RRS or strike the RRS terminal, both of which may increase the severity of any injuries suffered to the vehicle occupants.

RECOMMENDATION

Close the gap in the RRS and join the two adjacent sections together.

3.5.5 Problem

Location: A303 westbound carriageway to the west of Amesbury (Ch. 10600) (see Appendix B)

Drawing Number: HE551506-AMW-HRR-SW_GN_000_z-DR-CH-1008P01

Summary: Potential for injury to pedestrians following a break-down

Detail: Throughout the A303 on its westbound carriageway to the west of Amesbury, there is RRS proposed within the nearside verge. At the location of the Emergency Crossover there appears to be a parking area (similar to an emergency refuge area) where there is a gap in the RRS which would allow pedestrians to walk through into the adjacent fields. There is a risk of the pedestrians falling down embankments, ditches, broken manholes etc should they be encouraged to walk through onto the adjacent land.

RECOMMENDATION

Restrict public access through the RRS and into the adjacent land.

3.5.6 Problem

Location: A303 westbound carriageway adjacent to Solstice Park (see Appendix B)

Drawing Number: HE551506-AMW-HRR-SW_GN_000_z-DR-CH-1010P01

Summary: Potential for increase to the severity of injuries suffered to vehicle occupants/passengers

Detail: There is proposed RRS alongside the A303 westbound carriageway. It is unclear what this section of RRS is protecting. If unnecessary, this section of RRS could present an un-necessary hazard to road users. Should a vehicle lose control at this location and leave the carriageway it may strike the RRS terminal and increase the severity of any injuries suffered to the vehicle occupants.

RECOMMENDATION

Review the need for this section of RRS and remove if deemed unnecessary.

END OF PROBLEMS IDENTIFIED AND RECOMMENDATIONS FOR THIS STAGE 1 AUDIT

4 AUDIT TEAM STATEMENT

We certify that this audit has been carried out in accordance with HD 19/15 (as amended).

AUDIT TEAM LEADER

Name: [redacted]
Position: ITS Senior Consultant
Organisation: WSP
Address: Knights House
2 Parade
Sutton Coldfield
B72 1PH

Signed [redacted]
Date: 06/07/18

AUDIT TEAM MEMBER

Name: [redacted]
Position: ITS Principal Consultant
Organisation: WSP
Address: Knights House
2 Parade
Sutton Coldfield
B72 1PH

Signed: [redacted]
Date: 06/07/18

Appendix A

DOCUMENT LIST

DOCUMENT LIST

Documents

HE551506-AMW-GEN-SW_GN_000_Z_TN-TR-0013 Technical Note 13- Traffic Model update for the Public Consultation

HE551506-AMW-GEN-SW_GN_000_Z-RP-CH-0001 Departure from Standards Checklist

HE551506-AMW-GHS-SW_GN_000_Z-RP-ZS-0004 Safety Plan

HE551506-AMW-GEN-SW_GN_000_Z-RP-ZS-0001 Operational Concept

HE551506-AMW-GHS-SW_GN_000_Z-RP-ZS-0006 Combined Safety and Hazard Log Report SGAR 3

180410_A303_EasternPortal+Tunnel A303 Architecture Update

Drawings

Plans & Profiles HE551506-AMW-HGN-SW_GN_000_Z-DR-CH-1000

ENGINEERING PLAN & PROFILES SHEET ARRANGEMENT

HE551506-AMW-HGN-SW_GN_000_Z-DR-CH-1001 ENGINEERING PLAN & PROFILES SHEET 01

HE551506-AMW-HGN-SW_GN_000_Z-DR-CH-1002 ENGINEERING PLAN & PROFILES SHEET 02

HE551506-AMW-HGN-SW_GN_000_Z-DR-CH-1003 ENGINEERING PLAN & PROFILES SHEET 03

HE551506-AMW-HGN-SW_GN_000_Z-DR-CH-1004 ENGINEERING PLAN & PROFILES SHEET 04

HE551506-AMW-HGN-SW_GN_000_Z-DR-CH-1005 ENGINEERING PLAN & PROFILES SHEET 05

HE551506-AMW-HGN-SW_GN_000_Z-DR-CH-1006 ENGINEERING PLAN & PROFILES SHEET 06

HE551506-AMW-HGN-SW_GN_000_Z-DR-CH-1007 ENGINEERING PLAN & PROFILES SHEET 07

HE551506-AMW-HGN-SW_GN_000_Z-DR-CH-1008 ENGINEERING PLAN & PROFILES SHEET 08

HE551506-AMW-HGN-SW_GN_000_Z-DR-CH-1009 ENGINEERING PLAN & PROFILES SHEET 09

HE551506-AMW-HGN-SW_GN_000_Z-DR-CH-1016 ENGINEERING PLAN & PROFILES SHEET 16

HE551506-AMW-HGN-SW_GN_000_Z-DR-CH-1017 ENGINEERING PLAN & PROFILES SHEET 17

HE551506-AMW-HGN-SW_GN_000_Z-DR-CH-1018 ENGINEERING PLAN & PROFILES SHEET 18

HE551506-AMW-HGN-SW_GN_000_Z-DR-CH-1019 ENGINEERING PLAN & PROFILES SHEET 19

HE551506-AMW-HGN-SW_GN_000_Z-DR-CH-1020 ENGINEERING PLAN & PROFILES SHEET 20

HE551506-AMW-HGN-SW_GN_000_Z-DR-CH-1021 ENGINEERING PLAN & PROFILES SHEET 21

NMU Routes and Access Tracks

HE551506-AMW-ENM-SW_GN_000_Z-DR-CH-1000

NMU ROUTES AND ACCESS TRACKS SHEET ARRANGEMENT

HE551506-AMW-ENM-SW_GN_000_Z-DR-CH-1001 NMU ROUTES AND ACCESS TRACKS SHEET 01

HE551506-AMW-ENM-SW_GN_000_Z-DR-CH-1002 NMU ROUTES AND ACCESS TRACKS SHEET 02

HE551506-AMW-ENM-SW_GN_000_Z-DR-CH-1003 NMU ROUTES AND ACCESS TRACKS SHEET 03

HE551506-AMW-ENM-SW_GN_000_Z-DR-CH-1004 NMU ROUTES AND ACCESS TRACKS SHEET 04

HE551506-AMW-ENM-SW_GN_000_Z-DR-CH-1005 NMU ROUTES AND ACCESS TRACKS SHEET 05

HE551506-AMW-ENM-SW_GN_000_Z-DR-CH-1006 NMU ROUTES AND ACCESS TRACKS SHEET 06

HE551506-AMW-ENM-SW_GN_000_Z-DR-CH-1007 NMU ROUTES AND ACCESS TRACKS SHEET 07

HE551506-AMW-ENM-SW_GN_000_Z-DR-CH-1008 NMU ROUTES AND ACCESS TRACKS SHEET 08

HE551506-AMW-ENM-SW_GN_000_Z-DR-CH-1009 NMU ROUTES AND ACCESS TRACKS SHEET 09

HE551506-AMW-ENM-SW_GN_000_Z-DR-CH-1010 NMU ROUTES AND ACCESS TRACKS SHEET 10

HE551506-AMW-ENM-SW_GN_000_Z-DR-CH-1011 NMU ROUTES AND ACCESS TRACKS SHEET 11

HE551506-AMW-ENM-SW_GN_000_Z-DR-CH-1014 NMU ROUTES AND ACCESS TRACKS SHEET 14

HE551506-AMW-ENM-SW_GN_000_Z-DR-CH-1015 NMU ROUTES AND ACCESS TRACKS SHEET 15

Environmental Masterplan

HE551506-AMW-GEN-SW_GN_000_Z-DR-CD-0001 FIGURE 2.4A ENVIRONMENTAL MASTERPLAN

HE551506-AMW-GEN-SW_GN_000_Z-DR-CD-0002 FIGURE 2.4B ENVIRONMENTAL MASTERPLAN

HE551506-AMW-GEN-SW_GN_000_Z-DR-CD-0003 FIGURE 2.4C ENVIRONMENTAL MASTERPLAN

HE551506-AMW-GEN-SW_GN_000_Z-DR-CD-0004 FIGURE 2.4D ENVIRONMENTAL MASTERPLAN

HE551506-AMW-GEN-SW_GN_000_Z-DR-CD-0005 FIGURE 2.4E ENVIRONMENTAL MASTERPLAN

HE551506-AMW-GEN-SW_GN_000_Z-DR-CD-0006 FIGURE 2.4F ENVIRONMENTAL MASTERPLAN

HE551506-AMW-GEN-SW_GN_000_Z-DR-CD-0007 FIGURE 2.4G ENVIRONMENTAL MASTERPLAN

HE551506-AMW-GEN-SW_GN_000_Z-DR-CD-0008 FIGURE 2.4H ENVIRONMENTAL MASTERPLAN

Road Restraint Systems

HE551506-AMW-HRR-SW_GN_000_Z-DR-CH-1000

ROAD RESTRAINT SYSTEMS SHEET ARRANGEMENT KEY PLAN

HE551506-AMW-HRR-SW_GN_000_Z-DR-CH-1001 ROAD RESTRAINT SYSTEMS SHEET 01

HE551506-AMW-HRR-SW_GN_000_Z-DR-CH-1002 ROAD RESTRAINT SYSTEMS SHEET 02

HE551506-AMW-HRR-SW_GN_000_Z-DR-CH-1003 ROAD RESTRAINT SYSTEMS SHEET 03

HE551506-AMW-HRR-SW_GN_000_Z-DR-CH-1004 ROAD RESTRAINT SYSTEMS SHEET 04

HE551506-AMW-HRR-SW_GN_000_Z-DR-CH-1005 ROAD RESTRAINT SYSTEMS SHEET 05

HE551506-AMW-HRR-SW_GN_000_Z-DR-CH-1006 ROAD RESTRAINT SYSTEMS SHEET 06

HE551506-AMW-HRR- ROAD RESTRAINT SYSTEMS SHEET 07

SW_GN_000_Z-DR-CH-1007 HE551506-AMW-HRR-SW_GN_000_Z-DR-CH-1008 ROAD RESTRAINT SYSTEMS SHEET 08

HE551506-AMW-HRR-SW_GN_000_Z-DR-CH-1009 ROAD RESTRAINT SYSTEMS SHEET 09

HE551506-AMW-HRR-SW_GN_000_Z-DR-CH-1010 ROAD RESTRAINT SYSTEMS SHEET 10

Traffic Signs Layout

HE551506-AMW-HSN-SW_GN_000_Z-DR-CH-1000

TRAFFIC SIGNS LAYOUT SHEET ARRANGEMENT KEY PLAN

HE551506-AMW-HSN-SW_GN_000_Z-DR-CH-1001 TRAFFIC SIGNS LAYOUT SHEET 01

HE551506-AMW-HSN-SW_GN_000_Z-DR-CH-1002 TRAFFIC SIGNS LAYOUT SHEET 02

HE551506-AMW-HSN-SW_GN_000_Z-DR-CH-1003 TRAFFIC SIGNS LAYOUT SHEET 03

HE551506-AMW-HSN-SW_GN_000_Z-DR-CH-1004 TRAFFIC SIGNS LAYOUT SHEET 04

HE551506-AMW-HSN-SW_GN_000_Z-DR-CH-1005 TRAFFIC SIGNS LAYOUT SHEET 05

HE551506-AMW-HSN-SW_GN_000_Z-DR-CH-1006 TRAFFIC SIGNS LAYOUT SHEET 06

HE551506-AMW-HSN-SW_GN_000_Z-DR-CH-1007 TRAFFIC SIGNS LAYOUT SHEET 07

HE551506-AMW-HSN-SW_GN_000_Z-DR-CH-1008 TRAFFIC SIGNS LAYOUT SHEET 08

HE551506-AMW-HSN-SW_GN_000_Z-DR-CH-1009 TRAFFIC SIGNS LAYOUT SHEET 09

HE551506-AMW-HSN-SW_GN_000_Z-DR-CH-1010 TRAFFIC SIGNS LAYOUT SHEET 10

Technology

HE551506-AMW-HMC-SW_GN_000_Z-DR-EC-1000

SCHEME WIDE TECHNOLOGY SHEET ARRANGEMENT KEY PLAN

HE551506-AMW-HMC-SW_GN_000_Z-DR-EC-1001 SCHEME WIDE TECHNOLOGY SHEET 01

HE551506-AMW-HMC-SW_GN_000_Z-DR-EC-1002 SCHEME WIDE TECHNOLOGY SHEET 02

HE551506-AMW-HMC-SW_GN_000_Z-DR-EC-1003 SCHEME WIDE TECHNOLOGY SHEET 03

HE551506-AMW-HMC- SCHEME WIDE TECHNOLOGY SHEET 04 SW_GN_000_Z-DR-EC-1004

HE551506-AMW-HMC-SW_GN_000_Z-DR-EC-1005 SCHEME WIDE TECHNOLOGY SHEET 05

HE551506-AMW-HMC-SW_GN_000_Z-DR-EC-1006 SCHEME WIDE TECHNOLOGY SHEET 06

HE551506-AMW-HMC-SW_GN_000_Z-DR-EC-1007 SCHEME WIDE TECHNOLOGY SHEET 07

HE551506-AMW-HMC-SW_GN_000_Z-DR-EC-1008 SCHEME WIDE TECHNOLOGY SHEET 08

HE551506-AMW-HMC-SW_GN_000_Z-DR-EC-1009 SCHEME WIDE TECHNOLOGY SHEET 09

HE551506-AMW-HMC-SW_GN_000_Z-DR-EC-1010 SCHEME WIDE TECHNOLOGY SHEET 10

HE551506-AMW-HMC-Z3_GN_000_Z-DR-EC-0001

TUNNEL TECHNOLOGY 2D GEOGRAPHIC LAYOUT DRAWING SHEET 1 OF 5

HE551506-AMW-HMC-Z3_GN_000_Z-DR-EC-0002

TUNNEL TECHNOLOGY 2D GEOGRAPHIC LAYOUT DRAWING SHEET 2 OF 5

HE551506-AMW-HMC-Z3_GN_000_Z-DR-EC-0003

TUNNEL TECHNOLOGY 2D GEOGRAPHIC LAYOUT DRAWING SHEET 3 OF 5

HE551506-AMW-HMC-Z3_GN_000_Z-DR-EC-0004

TUNNEL TECHNOLOGY 2D GEOGRAPHIC LAYOUT DRAWING SHEET 4 OF 5

HE551506-AMW-HMC-Z3_GN_000_Z-DR-EC-0005

TUNNEL TECHNOLOGY 2D GEOGRAPHIC LAYOUT DRAWING SHEET 5 OF 5

HE551506-AMW-HMC-Z3_GN_000_Z-DR-EC-0007

TUNNEL TECHNOLOGY 2D GEOGRAPHIC KEY AND NOTES

Drainage

HE551506-AMW-HDG-SW-ML-M00-Z-DR-CD-0001

DRAINAGE GENERAL ARRANGEMENT MAINLINE SHEET 1

HE551506-AMW-HDG-SW-ML-M00-Z-DR-CD-0002

DRAINAGE GENERAL ARRANGEMENT MAINLINE SHEET 2

HE551506-AMW-HDG-SW-ML-M00-Z-DR-CD-0003

DRAINAGE GENERAL ARRANGEMENT MAINLINE SHEET 3

HE551506-AMW-HDG-SW-ML-M00-Z-DR-CD-0004

DRAINAGE GENERAL ARRANGEMENT MAINLINE SHEET 4

HE551506-AMW-HDG-Z4-GN-000-Z-SK-CD-0005

COUNTESS ROUNDABOUT LINEAR PONDS

PLAN AND LONGSECTION

HE551506-AMW-HDG-Z4-GN-000-Z-SK-CD-0006

COUNTESS ROUNDABOUT LINEAR PONDS CROSS SECTIONS

HE551506-AMW-HDG-SW-ML-M00-Z-DR-CD-0501 DRAINAGE CATCHMENTS MAINLINE

Tunnel

HE551506-AMW-STU-SW-GN-000_Z-DR-CT-1000

SCHEME WIDE TUNNEL & CROSS PASSAGE

PLAN AND PROFILES SHEET ARRANGEMENT

HE551506-AMW-STU-SW-GN-000_Z-DR-CT-1006

SCHEME WIDE TUNNEL & CROSS PASSAGE PLAN SHEET 6

HE551506-AMW-STU-SW-GN-000_Z-DR-CT-1007

SCHEME WIDE TUNNEL & CROSS PASSAGE PLAN SHEET 7

HE551506-AMW-STU-SW-GN-000_Z-DR-CT-1008

SCHEME WIDE TUNNEL & CROSS PASSAGE PLAN SHEET 8

HE551506-AMW-STU-Z3-ML-M00_Z-DR-CT-0001

ZONE 3 MAIN LINE TUNNELS PRIMARY LINING WITH 250 SECONDARY LINING DETAILS

HE551506-AMW-STU-Z3-ML-M00_Z-DR-CT-0052

ZONE 3 MAIN LINE TUNNELS CROSS PASSAGE OPENING SGI OPTION

Structures

HE551506-AMW-SBR-Z1_BR_B00_Z-DR-CB-1201

B3083 UNDERBRIDGE OPTION 1 - CONCRETE BOX G.A SHEET 1 OF 2

HE551506-AMW-SBR-Z1_BR_B00_Z-DR-CB-1202

B3083 UNDERBRIDGE OPTION 1 - CONCRETE BOX G.A SHEET 2 OF 2

HE551506-AMW-SBR-Z1_BR_T00_Z-DR-CB-1301

RIVER TILL VIADUCT OPTION 1 - 5 SPAN PT CONCRETE BOX GIRDER GA SHEET 1 OF 2

HE551506-AMW-SBR-Z1_BR_T00_Z-DR-CB-1302

RIVER TILL VIADUCT OPTION 1 - 5 SPAN PT CONCRETE BOX GIRDER GA SHEET 2 OF 2

HE551506-AMW-SBR-Z1_BR_T00_Z-DR-CB-1303

RIVER TILL VIADUCT OPTION 2 - 5 SPAN STEEL COMPOSITE GA SHEET 1 OF 2

HE551506-AMW-SBR-Z1_BR_T00_Z-DR-CB-1304

RIVER TILL VIADUCT OPTION 2 - 5 SPAN STEEL COMPOSITE GA SHEET 2 OF 2

HE551506-AMW-SBR-Z1_BR_YP0_Z-DR-CB-1101

PARSONAGE DOWN ACCOMMODATION BRIDGE OPTION 3 - GREEN BRIDGE G.A. SHEET 1 OF 2

HE551506-AMW-SBR-Z1_BR_YP0_Z-DR-CB-1102

PARSONAGE DOWN ACCOMMODATION BRIDGE OPTION 3 - GREEN BRIDGE G.A. SHEET 2 OF 2

HE551506-AMW-SBR-Z2_BR_L00_Z-DR-CB-1509

LONGBARROW JUNCTION OVERBRIDGE OPTION 3 - GREEN BRIDGE G.A SHEET 1 OF 2

HE551506-AMW-SBR-Z2_BR_L00_Z-DR-CB-1510

LONGBARROW JUNCTION OVERBRIDGE OPTION 3 - GREEN BRIDGE G.A SHEET 2 OF 2

HE551506-AMW-SBR-Z2_BR_YA0_Z-DR-CB-1601

LONGBARROW ACCOMODATION BRIDGE OPTION 3 - GREEN BRIDGE G.A SHEET 1 OF 2

HE551506-AMW-SBR-Z2_BR_YA0_Z-DR-CB-1602

LONGBARROW ACCOMODATION BRIDGE OPTION 3 - GREEN BRIDGE G.A SHEET 2 OF 2

HE551506-AMW-SBR-Z2_BR_YW0_Z-DR-CB-1401

WINTERBOURNE STOKE BRIDLEWAY 6B OVERBRIDGE OPTION 3 - GREEN BRIDGE G.A SHEET 1 OF 2

HE551506-AMW-SBR-Z2_BR_YW0_Z-DR-CB-1402

WINTERBOURNE STOKE BRIDLEWAY 6B OVERBRIDGE OPTION 3 - GREEN BRIDGE G.A SHEET 2 OF 2

HE551506-AMW-SBR-Z4_BR_C00_Z-DR-CB-1700

A345 COUNTESS RNDABOUT I/C BRIDGES - OPTION 1 PC BEAM PORTAL GENERAL ARRANGEMENT

HE551506-AMW-SBR-Z4_BR_C00_Z-DR-CB-1701

A345 COUNTESS RNDABOUT WEST BRIDGE - OPTION 1 PC BEAM PORTAL G.A. SHEET 1 OF 2

HE551506-AMW-SBR-Z4_BR_C00_Z-DR-CB-1702

A345 COUNTESS RNDABOUT WEST BRIDGE - OPTION 1 PC BEAM PORTAL G.A. SHEET 2 OF 2

HE551506-AMW-SBR-Z4_BR_C00_Z-DR-CB-1703

A345 COUNTESS RNDABOUT EAST BRIDGE - OPTION 1 PC BEAM PORTAL G.A. SHEET 1 OF 2

HE551506-AMW-SBR-Z4_BR_C00_Z-DR-CB-1704

A345 COUNTESS RNDABOUT EAST BRIDGE - OPTION 1 PC BEAM PORTAL G.A. SHEET 2 OF 2

Cross Sections

HE551506-AMW-HML-Z1_ML_M00_Z-SK-CH-0101 MAINLINE - CROSS SECTIONS CH. 800 & 1500

HE551506-AMW-HML-Z1_ML_M00_Z-SK-CH-0102 MAINLINE - CROSS SECTIONS CH. 2000 & 2500

HE551506-AMW-HML-Z1_ML_M00_Z-SK-CH-0103 MAINLINE - CROSS SECTIONS CH. 3000 & 3500

HE551506-AMW-HML-Z1_ML_M00_Z-SK-CH-0104 MAINLINE - CROSS SECTIONS CH. 4000 & 4500

HE551506-AMW-HML-Z1_ML_M00_Z-SK-CH-0105 MAINLINE - CROSS SECTIONS CH. 5000 & 5500

HE551506-AMW-HML-Z1_ML_M00_Z-SK-CH-0106 MAINLINE - CROSS SECTIONS CH. 5660 & 6000

HE551506-AMW-HML-Z1_ML_M00_Z-SK-CH-0107 MAINLINE - CROSS SECTIONS CH. 6500

HE551506-AMW-HML-Z1_ML_M00_Z-SK-CH-0108 MAINLINE - CROSS SECTIONS CH. 7000

HE551506-AMW-HML-Z1_ML_M00_Z-SK-CH-0109

MAINLINE - CROSS SECTIONS CH. 7400 WEST PORTAL

HE551506-AMW-HML-Z1_ML_M00_Z-SK-CH-0110 MAINLINE - CROSS SECTIONS CH. 9000 TUNNEL

HE551506-AMW-HML-Z1_ML_M00_Z-SK-CH-0111

MAINLINE - CROSS SECTIONS CH. 10420 EAST PORTAL

HE551506-AMW-HML-Z1_ML_M00_Z-SK-CH-0112 MAINLINE - CROSS SECTIONS CH. 11000

HE551506-AMW-HML-Z1_ML_M00_Z-SK-CH-0113 MAINLINE - CROSS SECTIONS CH. 11260 & 11500

HE551506-AMW-HML-Z1_ML_M00_Z-SK-CH-0114 MAINLINE - CROSS SECTIONS CH. 11780 & 12000

HE551506-AMW-HML-Z1_ML_M00_Z-SK-CH-0115

MAINLINE - CROSS SECTIONS CH. 12280 RIVER

AVON & CH. 12380 TIE-IN

Speed Limits

HE551506-AMW-HSN-SW_GN_000_Z-SK-CH-0002

PROPOSED SPEED LIMITS SKETCH SCHEME WIDE

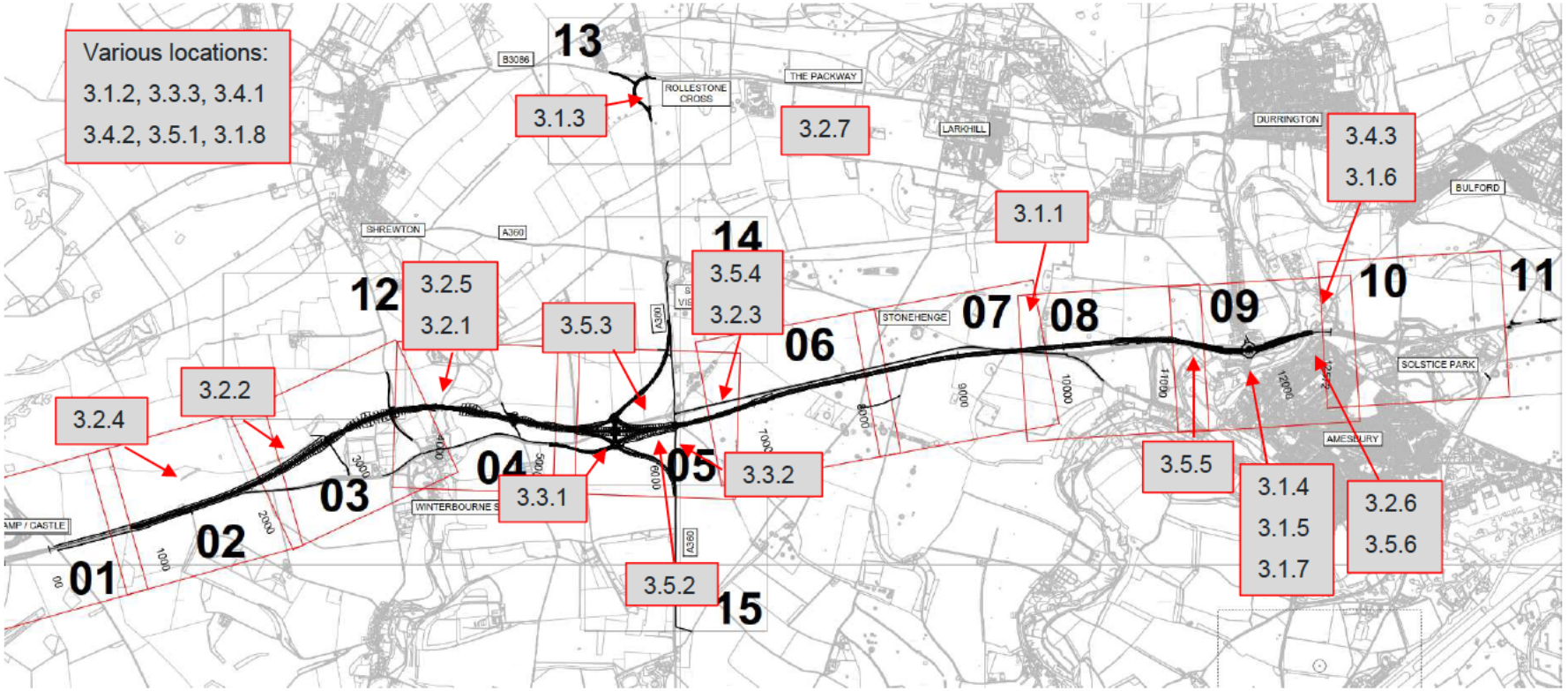
Diversion Routes

HE551506-AMW-GEN-70033915/SK028P01 FULL TUNNEL CLOSURE DIVERSION ROUTES

HE551506-AMW-HSR-Z2-SR-B20-Z-SK-CH-0004P02 ROLLESTONE CROSSROADS GHOST ISLAND OPTION 2

Appendix B

PROBLEM LOCATION PLAN


Various locations:
3.1.2, 3.3.3, 3.4.1
3.4.2, 3.5.1, 3.1.8
13
3.1.3
3.2.7
14
3.5.4
3.2.3
12
3.2.5
3.2.1
3.5.3
3.1.1
3.4.3
3.1.6
10
11
09
07
08
06
3.2.2
3.2.4
04
05
3.3.2
3.3.1
03
02
01
3.5.5
3.1.4
3.1.5
3.1.7
3.2.6
3.5.6
3.5.2
15
B3086
ROLLESTONE CROSS
THE PACKWAY
LARKHILL
DURRINGTON
BULFORD
SHREWTON
A360
STONEHENGE
SOLSTICE PARK
AMESBURY
WINTERBOURNE S
AMP / CASTLE

APPENDIX C

DEPARTURES FROM STANDARD

Geometric Departures

Ref. No	Discipline	Location	From	To	Direction	Departure Summary	Element deficient	Standard (DMRB)	HA Standard Specification	Design Provision & Comments
Mainline through Countess Junction: Vertical geometry of the mainline through Countess Junction is constrained on the east by the existing River Avon Bridge and associated existing road levels and geometry over the bridge deck. The vertical alignment also allows optimal use of the existing A303 carriageway for construction of the slip roads, thus preventing encroachment into surrounding environmentally sensitive areas.										
ML/Z4/ WB/001	Highways	Mainline on Approach Countess Junction westbound merge.	11/469	11/798	Westbound	Relaxations below Desirable Minimum for Crest Curves are not permitted within the immediate approach to junctions: (See Note 3)	Crest Curve Radius	TD9/93 Table 3	Desirable Minimum Crest K value = 182	Crest K=115 One Step Below Desirable minimum
ML/Z4/ WB/002	Highways	Mainline on Approach Countess Junction westbound merge (Lane 2)	11/590	11/798	Westbound	Relaxations below Desirable Minimum for SSD are not permitted within the immediate approach to junctions. (See Note 3)	SSD	TD9/93 Table 3	SSD=295m	SSD=215 One Step Below Desirable minimum
ML/Z4/ WB/003	Highways	Mainline on Approach Countess Junction westbound merge (Lane 1)	11/650	11/798	Westbound	Relaxations below Desirable Minimum for SSD are not permitted within immediate approach to junctions. (See Note 3)	SSD	TD9/93 Table 3	SSD=295m	SSD=215 One Step Below Desirable minimum

Ref. No	Discipline	Location	From	To	Direction	Departure Summary	Element deficient	Standard (DMRB)	HA Standard Specification	Design Provision & Comments
ML/Z4/ WB/004	Highways	Mainline on Approach Countess Junction westbound merge (Lane 2)	11/590	12/170	Westbound	Combinations of relaxations to Crest Curves and SSD are not permitted.	Combination of Crest Curve Radius and SSD	TD9/93 Table 3	Desirable Minimum Crest K value = 182 SSD=295m	Crest K=115 One Step Below Desirable minimum SSD=215m One Step Below Desirable minimum
ML/Z4/ WB/005	Highways	Mainline on Approach Countess Junction westbound merge (Lane 1)	11/650	12/255	Westbound	Combinations of relaxations to Crest Curves and SSD are not permitted.	Combination of Crest Curve Radius and SSD	TD9/93 Table 3	Desirable Minimum Crest K value = 182 SSD=295m	Crest K=115 One Step Below Desirable minimum SSD=215 One Step Below Desirable minimum
ML/Z4/ WB/006	Highways	Mainline on Approach Countess Junction westbound diverge (Lane 1)	12/143	12/160	Westbound	Relaxations below Desirable Minimum for SSD are not permitted on immediate approach to junctions. (See Note 3)	SSD	TD9/93 Table 3	SSD=295m	SSD=269m One Step Below Desirable minimum
ML/Z4/ WB/007	Highways	Mainline on Approach Countess Junction westbound diverge (Lane 2)	12/143	12/170	Westbound	Relaxations below Desirable Minimum for SSD are not permitted on immediate approach to junctions. (See Note 3)	SSD	TD9/93 Table 3	SSD=295m	SSD=260m One Step Below Desirable minimum

Ref. No	Discipline	Location	From	To	Direction	Departure Summary	Element deficient	Standard (DMRB)	HA Standard Specification	Design Provision & Comments
ML/Z4/ WB/008	Highways	Mainline on Approach Countess Junction westbound diverge (Lane 1)	12/470	12/690	Westbound	Relaxations below Desirable Minimum for SSD are not permitted on immediate approach to junctions. (See Note 3)	SSD	TD9/93 Table 3	SSD=295m	SSD=138m Three Steps Below Desirable minimum
ML/Z4/ WB/009	Highways	Mainline on Approach Countess Junction westbound diverge (Lane 2)	12/510	12/690	Westbound	Relaxations below Desirable Minimum for SSD are not permitted on immediate approach to junctions. (See Note 3)	SSD	TD9/93 Table 3	SSD=295m	SSD=225m One Step Below Desirable minimum
ML/Z4/ EB/010	Highways	Mainline on Approach Countess Junction eastbound merge (Lane 1)	11/469	11/885	Eastbound	Combinations of relaxations to Crest Curves and SSD are not permitted.	Combination of Crest Curve Radius And SSD	TD9/93 Table 3	Desirable Minimum Crest K value = 182 SSD=295m	Crest K=115 One Step Below Desirable minimum SSD=215m One Step Below Desirable minimum
ML/Z4/ EB/011	Highways	Mainline on Approach Countess Junction eastbound merge (Lane 2)	11/469	11/885	Eastbound	Combinations of relaxations to Crest Curves and SSD are not permitted.	Combination of Crest Curve Radius And SSD	TD9/93 Table 3	Desirable Minimum Crest K value = 182 SSD=295m	Crest K=115 One Step Below Desirable minimum SSD=215m One Step Below Desirable minimum

Ref. No	Discipline	Location	From	To	Direction	Departure Summary	Element deficient	Standard (DMRB)	HA Standard Specification	Design Provision & Comments
ML/Z4/ EB/012	Highways	Mainline on Approach Countess Junction eastbound merge.	11/718	12/107	Eastbound	Relaxations below Desirable Minimum for Crest Curves are not permitted within the immediate approach to junctions: (See Note 3)	Crest Curve Radius	TD9/93 Table 3	Desirable Minimum Crest K value = 182	Crest K=115 One Step Below Desirable minimum
ML/Z4/ EB/013	Highways	Mainline on Approach Countess Junction eastbound merge (Lane 1)	11/718	11/885	Eastbound	Relaxations below Desirable Minimum for SSD are not permitted on immediate approach to junctions. (See Note 3)	SSD	TD9/93 Table 3	SSD=295m	SSD=220m One Step Below Desirable minimum
ML/Z4/ EB/014	Highways	Mainline on Approach Countess Junction eastbound merge (Lane 2)	11/718	11/885	Eastbound	Relaxations below Desirable Minimum for SSD are not permitted on immediate approach to junctions. (See Note 3)	SSD	TD9/93 Table 3	SSD=295m	SSD=240m One Step Below Desirable minimum
ML/Z4/ EB/015	Highways	Mainline on Approach Countess Junction eastbound merge (Lane 2)	12/115	12/395	Eastbound	Relaxations below Desirable Minimum for SSD are not permitted on immediate approach to junctions. (See Note 3)	SSD	TD9/93 Table 3	SSD=295m	SSD=155m Three Steps Below Desirable minimum

Ref. No	Discipline	Location	From	To	Direction	Departure Summary	Element deficient	Standard (DMRB)	HA Standard Specification	Design Provision & Comments
ML/Z4/ EB/016	Highways	Mainline on Approach Countess Junction eastbound merge (Lane 1)	12/175	12/390	Eastbound	Relaxations below Desirable Minimum for SSD are not permitted on immediate approach to junctions. (See Note 3)	SSD	TD9/93 Table 3	SSD=295m	SSD=217m One Step Below Desirable minimum
Mainline, eastern tie-in point: Existing road geometry is replicated from River Avon Bridge to east tie-in point. This maximises the use of the existing structure width and maintains existing pavement thickness across bridge deck.										
ML/Z4/ WB/017	Highways	East Tie-In	12/328	12/390	Westbound	Combinations of relaxations to horizontal curvature and superelevation are not permitted.	Combination of Horizontal Curve and Superelevation	TD9/93 Table 3	Horizontal curve 1020m radius Superelevation 5%	Horizontal Curve 765m One Step Below Desirable minimum Superelevation 4.4% One Step Below Desirable minimum
ML/Z4/ EB/018	Highways	East Tie-In	12/328	12/390	Eastbound	Combinations of relaxations to horizontal curvature and superelevation are not permitted.	Combination of Horizontal Curve and Superelevation	TD9/93 Table 3	Horizontal curve 1020m radius Superelevation 5%	Horizontal Curve 765m One Step Below Desirable minimum Superelevation 2.7% Three Steps Below Desirable minimum
ML/Z4/ EB/019	Highways	East Tie-In (Lane 2)	12/330	12/390	Eastbound	Combinations of relaxations, greater than one step below desirable minimum, to horizontal curvature and SSD not permitted.	Combination of Horizontal Curve and SSD	TD9/93 Table 3	Horizontal curve 1020m radius SSD = 295m	Horizontal Curve 765m One Step Below Desirable minimum SSD=155m Three Steps Below Desirable minimum

Ref. No	Discipline	Location	From	To	Direction	Departure Summary	Element deficient	Standard (DMRB)	HA Standard Specification	Design Provision & Comments
A360 North Link Road: The new alignment ties in to the existing carriageway which has substandard geometry for a design speed of 100kph. As such full SSD is not achieved which affects visibility to an existing farm access, located at Ch. 0/280.										
SR/N00 /NB/021	Highways	A360 North Link, tie-in to existing road alignment	0/100	-0/032	Northbound	Combinations of relaxations to Crest Curves and SSD are not permitted.	Combination of Crest Curve Radius And SSD	TD9/93 Table 3	Desirable Minimum Crest K value = 100 SSD=215m	Crest K=50 Two Steps Below Desirable minimum SSD=139m Two Steps Below Desirable minimum Tie-in to existing substandard road geometry, Crest Curve Radius K=50
SR/N00 /SB/022	Highways	A360 North Link, tie-in to existing road alignment	-0/215	-0/025	Southbound	Combinations of relaxations to Crest Curves and SSD are not permitted.	Combination of Crest Curve Radius And SSD	TD9/93 Table 3	Desirable Minimum Crest K value = 100 SSD=215m	Crest K=50 Two Steps Below Desirable minimum SSD=151m Two Steps Below Desirable minimum Tie-in to existing substandard road geometry, Crest Curve Radius K=50
SR/N00 /SB/023	Highways	A360 North Link, tie-in to existing road alignment	-0/042.5	-0/025	Southbound	Relaxations below Desirable Minimum for SSD are not permitted on immediate approach to junctions. (See Note 3)	SSD	TD9/93 Table 3	SSD=215m	SSD=142m Two Steps Below Desirable minimum Tie-in to existing substandard road geometry, Crest Curve Radius K=50 Farm access at Ch. 0/280

Ref. No	Discipline	Location	From	To	Direction	Departure Summary	Element deficient	Standard (DMRB)	HA Standard Specification	Design Provision & Comments
SR/N00 /SB/024	Highways	A360 North Link, tie-in to existing road alignment	- 0/042.5	-0/100	Southbound	Relaxations below Desirable Minimum for Crest Curves are not permitted within the immediate approach to junctions: (See Note 3)	Crest Curve Radius	TD9/93 Table 3	Desirable Minimum Crest K value = 100	Crest K=50 Two Steps Below Desirable minimum Tie-in to existing substandard road geometry, Crest Curve Radius K=50 Farm access at Ch. 0/280
A360 South Link Road: Proposed horizontal geometry takes cognisance of the surrounding Oatlands Hill. The existing road has substandard geometry just beyond the south tie-in point, where this is crest curve K=30. There is an existing farm access 310m south of the new alignment tie-in point.										
SR/S00 /SB/025	Highways	A360 South Link	0/042	0/026	Southbound	Combinations of relaxations to horizontal Curves and SSD, exceeding one step below desirable minimum, are not permitted.	Combination of horizontal Curve Radius And SSD	TD9/93 Table 3	SSD One Step Below (160m) Desirable Minimum may be coincident with Horizontal curvature relaxations of one step below (720m) desirable minimum	Horizontal curve radius=360m Two Steps Below Desirable Minimum SSD=169m One Step Below Desirable Minimum
SR/S00 /SB/026	Highways	A360 South Link	0/007.5	0/000	Southbound	Relaxations below Desirable Minimum for SSD are not permitted on immediate approach to junctions. (See Note 3)	SSD	TD9/93 Table 3	SSD=215m	SSD=169m One Step Below Desirable minimum

Ref. No	Discipline	Location	From	To	Direction	Departure Summary	Element deficient	Standard (DMRB)	HA Standard Specification	Design Provision & Comments
Link to existing A303: Existing road has substandard vertical crest curve (K=40) affecting SSD to farm access 235m west of tie-in point.										
SR/A00/ WB/027	Highways	Link to existing A303, tie-in	0/011	0/000	Westbound	Relaxations below Desirable Minimum for SSD are not permitted on immediate approach to junctions. (See Note 3)	SSD	TD9/93 Table 3	SSD=215m	SSD=209m One Step Below Desirable minimum
Countess Junction: Slip road alignment is constrained by maximising use of existing A303 without encroaching outside highway boundary. As such cross section is minimized by reducing verge widths.										
ML/Z4/ EB/020	Highways	Mainline Countess Junction eastbound merge	12/395	13/228	Eastbound	Weaving Length less than minimum requirement between Countess Junction eastbound merge and Solstice Park Junction eastbound diverge.	Weaving Length	TD22/06 Para. 4.36	Weaving length = 1km	Weaving length = 833m Countess Junction eastbound merge and Solstice park Junction eastbound diverge.
JN/C00/ WB/027	Highways	Countess Westbound Diverge	0/000	0/168	Westbound	SSD for 120kph is not maintained into the diverge until the back of the diverge nose.	SSD	TD22/06 Para. 4.18	SSD=295m progressively reduced to 120m from the back of the diverge nose	SSD=160m Two steps below desirable minimum
JN/C00/ WB/027 A	Highways	Countess Westbound Diverge	-0/225	0/70	Westbound	SSD for 120kph is not maintained on approach to the diverge.	SSD	TD22/06 Para 4.18	For diverges, the SSD related to the mainline design speed must be maintained into the diverge.	SSD = 120m Three steps below desirable minimum

Ref. No	Discipline	Location	From	To	Direction	Departure Summary	Element deficient	Standard (DMRB)	HA Standard Specification	Design Provision & Comments
JN/C00/ WB/028	Highways	Countess Westbound Diverge	0/072	0/250	Westbound	Nearside Verge width does not meet required standard for single lane slip road.	Cross Section	TD27/05 Figure 4-3c	Nearside verge width =2.0m	Nearside verge width =1.2m
JN/C00/ WB/029	Highways	Countess Westbound Diverge	0/250	0/380	Westbound	Nearside Verge width does not meet required standard for two lane slip road.	Cross Section	TD27/05 Figure 4-3c	Nearside verge width =2.5m	Nearside verge width =1.2m
JN/C00/ WB/030	Highways	Countess Westbound Diverge	0/072	0/250	Westbound	Offside Verge width does not meet required standard for single lane slip road.	Cross Section	TD27/05 Figure 4-3c	Offside verge width =2.8m	Offside verge width =1.2m
JN/C00/ WB/031	Highways	Countess Westbound Diverge	0/250	0/380	Westbound	Offside Verge width does not meet required standard for two lane slip road.	Cross Section	TD27/05 Figure 4-3c	Offside verge width =2.5m	Offside verge width =1.2m
JN/C00/ WB/032	Highways	Countess Westbound Merge	0/090	0/270	Westbound	Nearside Verge width does not meet required standard for two lane slip road.	Cross Section	TD27/05 Figure 4-3c	Nearside verge width =2.5m	Nearside verge width =1.2m
JN/C00/ WB/033	Highways	Countess Westbound Merge	0/270	0/400	Westbound	Nearside Verge width does not meet required standard for single lane slip road.	Cross Section	TD27/05 Figure 4-3c	Nearside verge width =2.0m	Nearside verge width =1.2m
JN/C00/ WB/034	Highways	Countess Westbound Merge	0/000	0/270	Westbound	Offside Verge width does not meet required standard for two lane slip road.	Cross Section	TD27/05 Figure 4-3c	Offside verge width =2.5m	Offside verge width =1.2m
JN/C00/ WB/035	Highways	Countess Westbound Merge	0/270	0/305	Westbound	Offside Verge width does not meet required standard for single lane slip road.	Cross Section	TD27/05 Figure 4-3c	Offside verge width =2.8m	Offside verge width =1.2m

Ref. No	Discipline	Location	From	To	Direction	Departure Summary	Element deficient	Standard (DMRB)	HA Standard Specification	Design Provision & Comments
JN/C00/ EB/036	Highways	Countess Eastbound Diverge	0/040	0/290	Eastbound	Nearside Verge width does not meet required standard for single lane slip road.	Cross Section	TD27/05 Figure 4-3c	Nearside verge width =2.0m	Nearside verge width =1.2m
JN/C00/ EB/037	Highways	Countess Eastbound Diverge	0/290	0/330	Eastbound	Nearside Verge width does not meet required standard for two lane slip road.	Cross Section	TD27/05 Figure 4-3c	Nearside verge width =2.5m	Nearside verge width =1.2m
JN/C00/ EB/038	Highways	Countess Eastbound Diverge	0/078	0/290	Eastbound	Offside Verge width does not meet required standard for single lane slip road.	Cross Section	TD27/05 Figure 4-3c	Offside verge width =2.8m	Offside verge width =1.2m
JN/C00/ EB/039	Highways	Countess Eastbound Diverge	0/290	0/508	Eastbound	Offside Verge width does not meet required standard for two lane slip road.	Cross Section	TD27/05 Figure 4-3c	Offside verge width =2.5m	Offside verge width =1.2m
JN/C00/ EB/040	Highways	Countess Eastbound Merge	0/110	0/320	Eastbound	Nearside Verge width does not meet required standard for two lane slip road.	Cross Section	TD27/05 Figure 4-3c	Nearside verge width =2.5m	Nearside verge width =1.2m
JN/C00/ EB/041	Highways	Countess Eastbound Merge	0/320	0/360	Eastbound	Nearside Verge width does not meet required standard for single lane slip road.	Cross Section	TD27/05 Figure 4-3c	Nearside verge width =2.0m	Nearside verge width =1.2m
JN/C00/ EB/042	Highways	Countess Eastbound Merge	0/030	0/301	Eastbound	Offside Verge width does not meet required standard for two lane slip road.	Cross Section	TD27/05 Figure 4-3c	Offside verge width =2.5m	Offside verge width =1.2m

Ref. No	Discipline	Location	From	To	Direction	Departure Summary	Element deficient	Standard (DMRB)	HA Standard Specification	Design Provision & Comments
ML/M00 /LB/043	Highways	Mainline Lay-by (maintenance hard standing 4N)	5/610	5/760	Eastbound	Exit visibility from lay-by does not meet requirements for major/minor junctions.	Junction Visibility	TD69/07 Para. 3.4	295m visibility is required from lay-by to edge of running carriageway for an object height of 0.26m.	Full visibility is achieved to an object height of 1.05m.
Lay-bys: Emergency Lay-bys have their entry and exit tapers switched from that shown in TD69/07 in accordance with HE Expressway Technical Note 2016. Minimum ERA spacing is 1.6km in accordance with anticipated Expressway Standards.										
ML/M00 /LB/044	Highways	Mainline Emergency Lay-by 5S	7/055	6/250	Westbound	Separation is less than minimum requirement between lay-by and Longbarrow westbound diverge	Weaving Length	TD69/07 Para. 3.7	1km separation	805m
ML/M00 /LB/045	Highways	Mainline Emergency Lay-by 5S	7/880	7/055	Westbound	Lay-by is situated between junction advance direction sign and Longbarrow westbound diverge	Siting of Lay-by	TD69/07 Para. 3.7	Lay-bys not to be situated downstream of junction advance direction sign	Lay-by is situated 825m downstream of first (1 mile) Advance Direction Sign. *Note that HE Expressway Technical 2016 core requirements state that ERA design is to be consistent with Smart Motorways (IAN 161/15). This guidance allows ERAs to be located downstream of a primary ADS, but not a secondary ADS.*
ML/M00 /LB/046	Highways	Mainline Emergency Lay-by 5N	6/250	7/055	Eastbound	Separation is less than minimum requirement between lay-by and Longbarrow eastbound merge	Weaving Length	TD69/07 Para. 3.7	1km separation	805m

Ref. No	Discipline	Location	From	To	Direction	Departure Summary	Element deficient	Standard (DMRB)	HA Standard Specification	Design Provision & Comments
ML/M00 /LB/047	Highways	Mainline Emergency Lay-by 6N	10/485	11/030	Eastbound	Separation is less than minimum requirement between lay-by and Longbarrow eastbound diverge	Weaving Length	TD69/07 Para. 3.7	1km separation	545m
ML/M00 /LB/048	Highways	Mainline Emergency Lay-by 6N	10/225	10/485	Eastbound	Lay-by is situated between junction advance direction sign and Countess eastbound diverge	Siting of Lay-by	TD69/07 Para. 3.7	Lay-bys not to be situated downstream of junction advance direction sign	Lay-by is situated 260m downstream of second (1/2 mile) Advance Direction Sign.
ML/M00 /LB/049	Highways	Mainline Emergency Lay-by 6S	11/120	10/385	Westbound	Separation is less than minimum requirement between lay-by and Countess westbound merge	Weaving Length	TD69/07 Para. 3.7	1km separation	735m
ML/M00 /LB/050	Highways	Mainline Emergency Lay-bys	N/A	N/A	Eastbound / Westbound	Emergency lay-by entry and exit lengths tapers have been switched to accord with an Expressway.	Emergency Lay-bys	TD69/07 Para. 6.2	45m Entry Taper 25m Exit Taper	25m Entry Taper 45m Exit Taper

Notes:

1. Mainline Design Speed = 120kph
2. SSD = Stopping Sight Distance
3. Immediate Approach to Junctions:
   a) Mainline
      i. Merges: the length of carriageway from a point 1.5 x SSD (= 442.5m) upstream of the back of the merge nose to the end of the merge taper.
      ii. Diverges: the length of carriageway from a point 1.5 x SSD (= 442.5m) upstream of the start of the diverge taper to the back of diverge nose.
   b) Side Roads: the length of carriageway on the major road 1.5 x SSD (=322.5m) measured from the centreline of the minor ro

General Departures

Ref. No	Discipline	Location	From	To	Direction	Departure Summary	Element deficient	Standard (DMRB)	Standard Specification	Design Provision
Traffic Signs										
ML/M00 /TS/049	Highways	Mainline Eastbound Approach to Countess Junction	N/A	N/A	Eastbound	Overhead sign gantries are not provided on approach to tunnel prior to Longbarrow eastbound diverge	Overhead Sign Gantries	BD78/99 Figure 9.1	Gantry Lane Control Signs & VMS provided on approach to Longbarrow eastbound diverge	Verge mounted FTMS and MS4's are provided.
ML/M00 /TS/049	Highways	Mainline Westbound Approach to Countess Junction	N/A	N/A	Eastbound	Overhead sign gantries are not provided on approach to tunnel prior to Longbarrow eastbound diverge	Overhead Sign Gantries	BD78/99 Figure 9.1	Gantry Lane Control Signs & VMS provided on approach to Longbarrow eastbound diverge	Verge mounted FTMS and MS4's are provided.
ML/M00 /TS/050	Highways	Mainline Tunnel	N/A	N/A	Eastbound & Westbound	Tunnel ceiling mounted ADS are below the minimum bracketed x-height standards.	Tunnel ADS	TSRGD 2016	Min. 250mm 'x' height (bracketed)	200mm 'x' height in order to fit within the limited tunnel roof space.
ML/M00 /TS/051	Highways	Mainline Tunnel	N/A	N/A	Eastbound & Westbound	Tunnel ceiling warning repeater signs are below the minimum bracketed x-height standards	Tunnel ADS	TSRGD 2016	Min. 250mm 'x' height (bracketed)	200mm 'x' height in order to fit within the limited tunnel roof space.
ML/M00 /TS/052	Highways	Mainline Approach to Countess Junction Westbound Diverge	N/A	N/A	Westbound	Direction Sign below the bracketed x-height standards	Direction Sign	TSRGD 2016	Min. 250mm 'x' height (bracketed)	105mm 'x' height To prevent encroachment into retaining structure.
tbc	Highways	Cycle tracks adjacent to highways						IAN 195		
tbc	Highways	Cycle tracks away from highways						TA 91/05		Off-line cycle track follows topography

Knights House
2 Parade
Sutton Coldfield
B72 1PH
wsp.com

Ref. No	Location	From	To	Direction	Departure Summary	Element deficient	HA Standard (DMRB) & Specification	Design Provision & Comments	Justification / Mitigation
Mainline - Countess Junction (Design Speed: 120A)									
CH/001	Mainline on Approach Countess Junction westbound merge.	11/468	11/798	Westbound	Relaxations below Desirable Minimum for Crest Curves are not permitted within the immediate approach to junctions: (See Note 3)	Crest Curve Radius	TD9/93, Table 3 Desirable Minimum Crest K value = 182	Crest K=115 One Step Below Desirable minimum	The Countess Junction is constrained by several features, including: the existing River Avon Bridge on east (to be retained), an Ancient Woodland area on south, and the layout of the existing Countess roundabout. It is not possible to fit a fully compliant design without impacting these features. The proposed vertical alignment allows optimal use of the existing A303 carriageway for construction of new slips roads, thus preventing encroachment into surrounding environmentally sensitive areas and retaining the existing River Avon Bridge and Countess Roundabout.
CH/002	Mainline on Approach Countess Junction westbound merge	11/590	11/798	Westbound	Relaxations below Desirable Minimum for SSD are not permitted within the immediate approach to junctions. (See Note 3)	SSD	TD9/93, Table 3 SSD=295m	SSD=215 One Step Below Desirable minimum	The Countess Junction is constrained by several features, including: the existing River Avon Bridge on east (to be retained), an Ancient Woodland area on south, and the layout of the existing Countess roundabout. It is not possible to fit a fully compliant design without impacting these features. The layout of the mainline profile and the proposed widening for visibility were optimised as much as possible whilst making sure that both the existing River Avon Bridge and the Countess roundabout are retained. This results in one step below relaxation values for vertical curvature and SSD.

Ref. No	Location	From	To	Direction	Departure Summary	Element deficient	HA Standard (DMRB) & Specification	Design Provision & Comments	Justification / Mitigation
CH/003	Mainline	11/590	12/107	Westbound	Combinations of relaxations to Crest Curves and SSD are not permitted.	Combination: Crest Curve Radius & SSD	TD9/93, Table 3 Desirable Minimum Crest K value = 182 SSD=295m	Crest K=115 One Step Below Desirable minimum SSD=215m One Step Below Desirable minimum	The Countess Junction is constrained by several features, including: the existing River Avon Bridge on east (to be retained), an Ancient Woodland area on south, and the layout of the existing Countess roundabout. It is not possible to fit a fully compliant design without impacting these features. The layout of the mainline profile and the proposed widening for visibility were optimised as much as possible whilst making sure that both the existing River Avon Bridge and the Countess roundabout are retained. This results in one step below relaxation values for vertical curvature and SSD.
CH/004	Mainline on Approach Countess Junction westbound diverge	12/143	12/170	Westbound	Relaxations below Desirable Minimum for SSD are not permitted on immediate approach to junctions. (See Note 3)	SSD	TD9/93, Table 3 SSD=295m	SSD=260m One Step Below Desirable minimum	The Countess Junction is constrained by several features, including: the existing River Avon Bridge on east (to be retained), an Ancient Woodland area on south, and the layout of the existing Countess roundabout. It is not possible to fit a fully compliant design without severely impacting these features. The layout of the mainline profile and the proposed widening for visibility were optimised as much as possible whilst making sure that both the existing River Avon Bridge and the Countess roundabout are retained. This results in one step below relaxation values for vertical curvature and SSD.

Ref. No	Location	From	To	Direction	Departure Summary	Element deficient	HA Standard (DMRB) & Specification	Design Provision & Comments	Justification / Mitigation
CH/005	Mainline on Approach Countess Junction westbound diverge	12/470	12/690	Westbound	Relaxations below Desirable Minimum for SSD are not permitted on immediate approach to junctions. (See Note 3)	SSD	TD9/93, Table 3 SSD=295m	SSD=138m Three Steps Below Desirable minimum	The proposed mainline alignment ties into the existing A303 dual carriageway at Ch. 12/400. Within this area the existing Ratfyn Bridleway Overbridge crosses the A303. An associated bridge pier, protected by a steel Vehilce Restraint System (VRS), is situated within the south verge. Behind this VRS there is a steep, heavily vegetated, cutting slope at the top of which are located a number of properties. These roadside features directly obstruct driver visibility and, consequently, SSD. It is not possible to achieve compliant SSD, to remove this Departure, without adversely impacting Ratfyn Bridge and the adjacent cutting slope. Consequently the proposed south verge has been widened on approach to the carriageway tie-in point to maximise visibility. The resulting SSD values are equal or better than existing. It is anticipated that improved driver visibility, to reduce the Steps below the Desirable Minimum (SBDM) standard, can be achieved. This involves removing existing vegetation and further widening the south verge by cutting back the existing slope with aid of a retaining structure. On initial investigation these measures reduced the relaxation to 2 SBDM (1 SBDM is achieved to a greater object height of 1.05m). These design issues will be explored further during the detailed design stage, where the final residual Departure will be confirmed. (also refer to Departure CH/014)

Ref. No	Location	From	To	Direction	Departure Summary	Element deficient	HA Standard (DMRB) & Specification	Design Provision & Comments	Justification / Mitigation
CH/006	Mainline	11/469	11/885	Eastbound	Combinations of relaxations to Crest Curves and SSD are not permitted.	Combination: Crest Curve Radius & SSD	TD9/93, Table 3 Desirable Minimum Crest K value = 182 SSD=295m	Crest K=115 One Step Below Desirable minimum SSD=215m One Step Below Desirable minimum	The Countess Junction is constrained by several features, including: the existing River Avon Bridge on east (to be retained), an Ancient Woodland area on south, and the layout of the existing Countess roundabout. It is not possible to fit a fully compliant design without impacting these features. The layout of the mainline profile and the proposed widening for visibility were optimised as much as possible whilst making sure that both the existing River Avon Bridge and the Countess roundabout are retained. This results in one step below relaxation values for vertical curvature and SSD.
CH/007	Mainline on Approach Countess Junction eastbound merge	11/718	12/107	Eastbound	Relaxations below Desirable Minimum for Crest Curves are not permitted within the immediate approach to junctions: (See Note 3)	Crest Curve Radius	TD9/93, Table 3 Desirable Minimum Crest K value = 182	Crest K=115 One Step Below Desirable minimum	The Countess Junction is constrained by several features, including: the existing River Avon Bridge on east (to be retained), an Ancient Woodland area on south, and the layout of the existing Countess roundabout. It is not possible to fit a fully compliant design without impacting these features. The proposed vertical alignment allows optimal use of the existing A303 carriageway for construction of new slips roads, thus preventing encroachment into surrounding environmentally sensitive areas and retaining the existing River Avon Bridge and Countess Roundabout.

Ref. No	Location	From	To	Direction	Departure Summary	Element deficient	HA Standard (DMRB) & Specification	Design Provision & Comments	Justification / Mitigation
CH/008	Mainline on Approach Countess Junction eastbound merge	11/718	11/885	Eastbound	Relaxations below Desirable Minimum for SSD are not permitted on immediate approach to junctions. (See Note 3)	SSD	TD9/93, Table 3 SSD=295m	SSD=225m One Step Below Desirable minimum	The Countess Junction is constrained by several features, including: the existing River Avon Bridge on east (to be retained), an Ancient Woodland area on south, and the layout of the existing Countess roundabout. It is not possible to fit a fully compliant design without impacting these features. The layout of the mainline profile and the proposed widening for visibility were optimised as much as possible whilst making sure that both the existing River Avon Bridge and the Countess roundabout are retained. This results in one step below relaxation values for vertical curvature and SSD.

Ref. No	Location	From	To	Direction	Departure Summary	Element deficient	HA Standard (DMRB) & Specification	Design Provision & Comments	Justification / Mitigation
CH/009	Mainline on Approach Countess Junction eastbound merge	12/115	12/395	Eastbound	Relaxations below Desirable Minimum for SSD are not permitted on immediate approach to junctions. (See Note 3)	SSD	TD9/93, Table 3 SSD=295m	SSD=155m Three Steps Below Desirable minimum	The proposed mainline design ties into the existing A303 dual carriageway at Ch. 12/400; the existing curve radius at this point is 765m (a two steps below desirable minimum relaxation). The reduction in SSD is directly caused by the combined effect of this horizontal curve at and the existing central reserve's VRS. To remove this departure would require an increase to the curve radius and relocating the carriageway tie-in point further east, or providing substantial widening of the central reserve. This would adversely impact Ratfyn Bridge and the adjacent cutting slope. The resulting SSD values are equal or better than existing. However it is anticipated that improved visibility, to reduce the Steps below Desirable Minimum (SBDM) standard, can be achieved. This involves increasing the setback of the existing VRS within the central. On initial investigation this reduced the relaxation to 2 SBDM, with 1 SBDM achieved to a greater object height of 1.05m. These issues will be explored further during the detailed design stage where the final residual Departure will be confirmed.

Ref. No	Location	From	To	Direction	Departure Summary	Element deficient	HA Standard (DMRB) & Specification	Design Provision & Comments	Justification / Mitigation
CH/010	Mainline on Approach Countess Junction westbound diverge	12/200	12/570	Westbound	Relaxations below Desirable Minimum for Horizontal Curvature are not permitted on approach to junctions (See Note 3)	Horizontal Curvature (superelevation)	TD9/93, Table 3 Horizontal curve radius = 1020m Superelevation= 5%	Horizontal curve radius = 765m Superelevation= 4% Two Steps Below Desirable minimum	The proposed mainline design ties into the existing A303 dual carriageway at Ch 12/400; the existing curve radius at this point is 765m, with a superelevation value of 4%. The new carriageway needs to tie into existing in both line and levels. In addition, the existing River Avon Bridge (located along this curve's transition) is required to be retained; this entails matching the existing carriageway levels and crossfall as much as practicable. It is not possible to provide Desirable Minimum values of curvature without major impacts on several constraints, including the existing River Avon Bridge, highway boundary, existing footbridge and slope on south, environmentally sensitive areas, etc.
CH/011	Mainline on Approach Countess Junction eastbound merge	12/200	12/395	Eastbound	Relaxations below Desirable Minimum for Horizontal Curvature are not permitted on approach to junctions (See Note 3)	Horizontal Curvature (superelevation)	TD9/93, Table 3 Horizontal curve radius = 1020m Superelevation= 5%	Horizontal curve radius = 765m Superelevation= 4% Two Steps Below Desirable minimum	The proposed mainline design ties into the existing A303 dual carriageway at Ch 12/400; the existing curve radius at this point is 765m, with a superelevation value of 4%. The new carriageway needs to tie into existing in both line and levels. In addition, the existing River Avon Bridge (located along this curve's transition) is required to be retained; this entails matching the existing carriageway levels and crossfall as much as practicable. It is not possible to provide Desirable Minimum values of curvature without major impacts on several constraints, including the existing River Avon Bridge, highway boundary, existing footbridge and slope on south, environmentally sensitive areas, etc.

Ref. No	Location	From	To	Direction	Departure Summary	Element deficient	HA Standard (DMRB) & Specification	Design Provision & Comments	Justification / Mitigation
Countess Junction Slip Roads (Design Speed 70A)									
CH/012	Countess Junction eastbound merge	12/395	13/228	Eastbound	Weaving Length less than minimum requirement between Countess Junction eastbound merge and Solstice Park Junction eastbound diverge.	Weaving Length	TD22/06, Para. 4.36 Weaving length = 1km	Weaving length = 833m Between Countess Junction eastbound merge and Solstice park Junction eastbound diverge.	The alignments for the Countess slip roads are constrained by the existing roundabout approaches, the current highway boundary and the need to minimise encroachment into the adjacent environmentally sensitive areas. It is not possible to provide the required weaving length without pushing the eastbound merge and westbound diverge further west, which would not permit the existing Countess roundabout to be retained. Well placed and clear signage in advance of the eastbound merge could help mitigate this departure.
CH/013	Countess Junction westbound diverge	12/395	13/228	Westbound	Weaving Length less than minimum requirement between Countess Junction westbound diverge and Solstice Park Junction westbound merge	Weaving Length	TD22/06, Para. 4.36 Weaving length = 1km	Weaving length = 876m Between Countess Junction westbound diverge and Solstice park Junction westbound merge	The alignments for the Countess slip roads are constrained by the existing roundabout approaches, the current highway boundary and the need to minimise encroachment into the adjacent environmentally sensitive areas. It is not possible to provide the required weaving length without pushing the eastbound merge and westbound diverge further west, which would not permit the existing Countess roundabout to be retained. Well placed and clear signage in advance of the westbound diverge could help mitigate this departure.

Ref. No	Location	From	To	Direction	Departure Summary	Element deficient	HA Standard (DMRB) & Specification	Design Provision & Comments	Justification / Mitigation
CH/014	Countess Westbound Diverge	-0/445	0/072	Westbound	SSD for 120kph is not maintained on into diverge on approach to diverge taper.	SSD	TD22/06, Para 4.18 For diverges, the SSD related to the mainline design speed must be maintained into the diverge	SSD = 126m Three steps below desirable minimum Ch -0/445 = Start of SSD review Ch -0/150 = Start of taper Ch. 0/000 = Start of nose Ch 0/072 = Back of nose	The proposed westbound diverge taper commences at Mainline Ch 12/365. The proposed mainline alignment ties into the existing A303 dual carriageway at Ch. 12/400. Within this area the existing Ratfyn Bridleway Overbridge crosses the A303. An associated bridge pier, protected by a steel Vehicle Restraint System (VRS), is situated within the south verge. Behind this VRS there is a steep, heavily vegetated, cutting slope at the top of which are located a number of properties. These roadside features directly obstruct driver visibility and, consequently, SSD. It is not possible to achieve compliant SSD, to remove this Departure, without adversely impacting Ratfyn Bridge and the adjacent cutting slope. Consequently the proposed south verge has been widened on approach to the carriageway tie-in point to maximise visibility. The resulting SSD values are equal or better than existing. It is anticipated that improved driver visibility, to reduce the Steps below the Desirable Minimum (SBDM) standard, can be achieved. This involves removing existing vegetation and further widening the south verge by cutting back the existing slope with aid of a retaining structure. On initial investigation these measures reduced the relaxation to 2 SBDM (1 SBDM is achieved to a greater object height of 1.05m). These design issues will be explored further during the detailed design stage, where the final residual Departure will be confirmed. (also refer to Departure CH/005)

Ref. No	Location	From	To	Direction	Departure Summary	Element deficient	HA Standard (DMRB) & Specification	Design Provision & Comments	Justification / Mitigation
CH/015	Countess Westbound Diverge	0/072	0/168	Westbound	SSD values are lower than those required for the slip road from the back of the diverge nose	SSD	TD22/06, Para. 4.18, Figure 4/3A SSD=295m from the back of the diverge nose, progressively reduced to 120m	SSD=160m Two steps below desirable minimum Ch -0/150 = Start of taper Ch. 0/000 = Start of nose Ch 0/072 = Back of nose	The alignments for the Countess slip roads are constrained by the existing roundabout approaches, the current highway boundary and the need to minimise encroachment into the adjacent environmentally sensitive areas. SSD on the slip road is affected by the crest curve located immediately beyond the back of nose. A crest K value of 60 was used to maximise visibility as much as possible (desirable minimum K= 30). A larger curve would not permit the alignment to tie into the existing approach road without affecting the existing roundabout.
CH/016	Countess Eastbound Diverge	-0/325	-0/215	Eastbound	SSD for 120kph is not maintained on into diverge on approach to diverge taper.	SSD	TD22/06, Para 4.18 For diverges, the SSD related to the mainline design speed must be maintained into the diverge	SSD = 249m One steps below desirable minimum Ch -0/445 = Start of SSD review Ch -0/150 = Start of taper Ch. 0/000 = Start of nose Ch 0/078 = Back of nose	Vehicles looking at the taper from the mainline nearside lane experience a localised reduction of SSD as the sight lines start to move towards the diverge taper. This is caused by the combined effect of the direction of the proposed horizontal curve, the applied superelevation and the proposed crest of K=198 at this location (note this value is larger than the desirable minimum required in TD9). Larger values of radii for the proposed horizontal curve cannot be fitted without adversely affecting the succeeding curve on east and thus the proposed layout for the Countess Junction. Likewise, the vertical curve at this location is constrained by the required profile of the Countess fly-over on east, and the minimum cover height required for the tunnel on west. A desirable minimum SSD of 295m is maintained in both proposed mainline lanes at all times along this length.

Ref. No	Location	From	To	Direction	Departure Summary	Element deficient	HA Standard (DMRB) & Specification	Design Provision & Comments	Justification / Mitigation
CH/017	Countess Westbound Diverge	0/072	0/250	Westbound	Nearside verge width does not meet required minimum standard.	Cross Section	TD27/05, Figure 4-3c Nearside verge width for one lane slip =2.0m Nearside verge width for two lanes slip =2.5m	Nearside verge width =1.2m	The cross sections for the slip roads are constrained by the existing roundabout approaches, the current highway boundary and adjacent environmentally sensitive areas. A verge of 1.2m was used to reduce the footprint of the slip roads in order to minimise the impacts on the adjacent land. This verge width still provides enough space for possible installation of safety barrier, with compliant set-back and working width values (note W1 was assumed). Note that safety barriers on these verges do not obstruct SSD.
CH/018	Countess Westbound Diverge	0/072	0/380	Westbound	Offside verge width does not meet required minimum standard.	Cross Section	TD27/05, Figure 4-3c Offside verge width for one lane slip =2.8m Offside verge width for two lanes slip =2.5m	Offside verge width =1.2m	The cross sections for the slip roads are constrained by the existing roundabout approaches, the current highway boundary and adjacent environmentally sensitive areas. A verge of 1.2m was used to reduce the footprint of the slip roads in order to minimise the impacts on the adjacent land. This verge width still provides enough space for possible installation of safety barrier, with compliant set-back and working width values (note W1 was assumed). Note that safety barriers on these verges do not obstruct SSD.

Ref. No	Location	From	To	Direction	Departure Summary	Element deficient	HA Standard (DMRB) & Specification	Design Provision & Comments	Justification / Mitigation
CH/019	Countess Westbound Merge	0/090	0/400	Westbound	Nearside verge width does not meet required minimum standard.	Cross Section	TD27/05, Figure 4-3c Nearside verge width for one lane slip =2.0m Nearside verge width for two lanes slip =2.5m	Nearside verge width =1.2m	The cross sections for the slip roads are constrained by the existing roundabout approaches, the current highway boundary and adjacent environmentally sensitive areas. A verge of 1.2m was used to reduce the footprint of the slip roads in order to minimise the impacts on the adjacent land. This verge width still provides enough space for possible installation of safety barrier, with compliant set-back and working width values (note W1 was assumed). Note that safety barriers on these verges do not obstruct SSD.
CH/020	Countess Westbound Merge	0/000	0/305	Westbound	Offside verge width does not meet required minimum standard.	Cross Section	TD27/05, Figure 4-3c Offside verge width for one lane slip =2.8m Offside verge width for two lanes slip =2.5m	Offside verge width =1.2m	The cross sections for the slip roads are constrained by the existing roundabout approaches, the current highway boundary and adjacent environmentally sensitive areas. A verge of 1.2m was used to reduce the footprint of the slip roads in order to minimise the impacts on the adjacent land. This verge width still provides enough space for possible installation of safety barrier, with compliant set-back and working width values (note W1 was assumed). Note that safety barriers on these verges do not obstruct SSD.

Ref. No	Location	From	To	Direction	Departure Summary	Element deficient	HA Standard (DMRB) & Specification	Design Provision & Comments	Justification / Mitigation
CH/021	Countess Eastbound Diverge	0/040	0/330	Eastbound	Nearside verge width does not meet required minimum standard.	Cross Section	TD27/05, Figure 4-3c Nearside verge width for one lane slip =2.0m Nearside verge width for two lanes slip =2.5m	Nearside verge width =1.2m	The cross sections for the slip roads are constrained by the existing roundabout approaches, the current highway boundary and adjacent environmentally sensitive areas. A verge of 1.2m was used to reduce the footprint of the slip roads in order to minimise the impacts on the adjacent land. This verge width still provides enough space for possible installation of safety barrier, with compliant set-back and working width values (note W1 was assumed). Note that safety barriers on these verges do not obstruct SSD.
CH/022	Countess Eastbound Diverge	0/078	0/508	Eastbound	Offside verge width does not meet required minimum standard.	Cross Section	TD27/05, Figure 4-3c Offside verge width for one lane slip =2.8m Offside verge width for two lanes slip =2.5m	Offside verge width =1.2m	The cross sections for the slip roads are constrained by the existing roundabout approaches, the current highway boundary and adjacent environmentally sensitive areas. A verge of 1.2m was used to reduce the footprint of the slip roads in order to minimise the impacts on the adjacent land. This verge width still provides enough space for possible installation of safety barrier, with compliant set-back and working width values (note W1 was assumed). Note that safety barriers on these verges do not obstruct SSD.

Ref. No	Location	From	To	Direction	Departure Summary	Element deficient	HA Standard (DMRB) & Specification	Design Provision & Comments	Justification / Mitigation
CH/023	Countess Eastbound Merge	0/110	0/360	Eastbound	Nearside verge width does not meet required minimum standard.	Cross Section	TD27/05, Figure 4-3c Nearside verge width for one lane slip =2.0m Nearside verge width for two lanes slip =2.5m	Nearside verge width =1.2m	The cross sections for the slip roads are constrained by the existing roundabout approaches, the current highway boundary and adjacent environmentally sensitive areas. A verge of 1.2m was used to reduce the footprint of the slip roads in order to minimise the impacts on the adjacent land. This verge width still provides enough space for the installation of safety barriers if needed, with compliant set-back and working width values (note W1 was assumed). Note that safety barriers on these verges do not obstruct SSD.
CH/024	Countess Eastbound Merge	0/030	0/301	Eastbound	Offside Verge width does not meet required standard for two lane slip road.	Cross Section	TD27/05, Figure 4-3c Offside verge width =2.5m	Offside verge width =1.2m	The cross sections for the slip roads are constrained by the existing roundabout approaches, the current highway boundary and adjacent environmentally sensitive areas. A verge of 1.2m was used to reduce the footprint of the slip roads in order to minimise the impacts on the adjacent retaining wall. This verge width still provides enough space for the installation of safety barriers if needed, with compliant set-back and working width values (note W1 was assumed). Note that safety barriers on these verges do not obstruct SSD.

Ref. No	Location	From	To	Direction	Departure Summary	Element deficient	HA Standard (DMRB) & Specification	Design Provision & Comments	Justification / Mitigation
Lay-bys:									
CH/032	Mainline maintenance hard standing	5/720	5/820	Eastbound	Exit visibility from this maintenance hardstanding does not meet requirements for major/minor junctions. Lay-bys	Junction Visibility	TD69/07, Para. 3.4 295m visibility is required from lay-by to edge of running carriageway for an object height of 0.26m.	125m exit visibility to a 0.26m object height. 3 steps below desirable minimum. Desirable visibility of 295m is achieved to an object height of 1.05m.	This maintenance hard standing is required for operational purposes only, including preparing for contraflow. Driver exit visibility, looking back towards approaching traffic, to a 0.26m object height is obscured by the adjacent upstream VRS. The maintenance hardstanding is situated on the inside of a horizontal curve at Longbarrow Junction adjacent to the junction overbridge. In order to achieve desired visibility, an increased set-back of the VRS in the nearside verge adjacent to the overbridge would be required. However, as this VRS passes under the overbridge and maintains the structure free zone, any increased set-back would require an increase of bridge span. Desirable minimum exit visibility is achieved to a 1.05m object height which will enable drivers' exiting the maintenance hard standing to have full visibility of approaching traffic. Additionally, this hardstanding is constructed with reinforced grass and not intended for public use. As such it shall only be used by trained maintenance operatives. Approaching driver visibility to the maintenance hard standing achieves the required standard.

Ref. No	Location	From	To	Direction	Departure Summary	Element deficient	HA Standard (DMRB) & Specification	Design Provision & Comments	Justification / Mitigation
CH/033	Mainline Emergency Area	6/160	7/060	Westbound	Separation is less than minimum requirement between lay-by and Longbarrow westbound diverge	Weaving Length	TD69/07, Para. 3.7 1km separation is required between a lay-by and a grade separated junction.	900m	This emergency area provides an immediate refuge after exiting the tunnel which aids safe tunnel operation. The lay-by is signed to standard identifying it as an emergency area. The emergency area will be used less frequently as it is not provided for parking / resting.
CH/034	Mainline Emergency Area	6/160	7/060	Westbound	Lay-by is situated between junction Advance Direction Sign and Longbarrow westbound diverge	Siting of Lay-by	TD69/07, Para. 3.7 Lay-bys not be sited between a junction advance direction sign and the junction diverge.	Lay-by is situated 720m downstream of first (1 mile) Advance Direction Sign.	This emergency area provides an immediate refuge after exiting the tunnel which aids safe tunnel operation. The lay-by and 1/2 mile Advance Direction Sign will both be visible on the approach view. The lay-by is also signed to standard identifying it as an emergency area aiding in the mitigation against anyone confusing with a slip road diverge. Additionally, the emergency area will be used less frequently as it is not provided for parking / resting.

Ref. No	Location	From	To	Direction	Departure Summary	Element deficient	HA Standard (DMRB) & Specification	Design Provision & Comments	Justification / Mitigation
CH/035	Mainline Emergency Area	7/160	7/060	Westbound	Exit visibility from lay-by does not meet requirements for major/minor junctions	Junction Visibility	TD69/07, Para. 3.4 295m visibility is required from lay-by to edge of running carriageway for an object height of 0.26m.	145m exit visibility to a 0.26m object height. 3 steps below desirable minimum. Desirable visibility of 295m is achieved to an object height of 1.05m.	This emergency lay-by is situated immediately on westbound exit from the tunnel portal. Driver exit visibility, looking back towards approaching traffic, to a 0.26m object height is obscured by an adjacent upstream VRS in the nearside verge. In order to achieve desired visibility, an increased set-back of the VRS would be required. However, as this VRS maintains the structure free zone of the tunnel portal, any increased set-back would increase the width of the portal span and associated retained cutting section. Desirable minimum exit visibility is achieved to a 1.05m object height which will enable drivers' exiting the lay-by to have full visibility of approaching traffic. Additionally, the emergency lay-by is signed to desirable standards identifying it as an emergency area and will be monitored by tunnel operations team. This emergency area will be used infrequently and will not encourage general parking or use as a rest area.
CH/036	Mainline Emergency Area	7/060	7/160	Eastbound	Separation is less than minimum requirement between lay-by and Longbarrow eastbound merge	Weaving Length	TD69/07, Para. 3.7 1km separation is required between a lay-by and a grade separated junction.	900m	This emergency area provides an immediate refuge prior to entering the tunnel which aids safe tunnel operation. The lay-by also provides access to parking used for entrance the tunnel services buildings. The lay-by is signed to standard identifying it as an emergency area. The emergency area will be used less frequently as it is not provided for parking / resting for the public. The parking facility at this area is only for use of staff accessing the tunnel services building who will trained skilled operatives.

Ref. No	Location	From	To	Direction	Departure Summary	Element deficient	HA Standard (DMRB) & Specification	Design Provision & Comments	Justification / Mitigation
CH/037	Mainline Emergency Area	10/485	11/030	Eastbound	Separation is less than minimum requirement between lay-by and Longbarrow eastbound diverge	Weaving Length	TD69/07, Para. 3.7 1km separation is required between a lay-by and a grade separated junction.	480m	This emergency area provides an immediate refuge after exiting the tunnel which aids safe tunnel operation. The lay-by is signed to standard identifying it as an emergency area. The emergency area will be used less frequently as it is not provided for parking / resting.
CH/038	Mainline Emergency Area	10/225	10/485	Eastbound	Lay-by is situated between junction advance direction sign and Countess eastbound diverge	Siting of Lay-by	TD69/07, Para. 3.7 Lay-bys not be sited between a junction advance direction sign and the junction diverge.	Lay-by is situated 250m downstream of second (1/2 mile) Advance Direction Sign.	This emergency area provides an immediate refuge after exiting the tunnel which aids safe tunnel operation. The lay-by is signed to standard identifying it as an emergency area aiding in the mitigation against anyone confusing with a slip road diverge. Additionally, the emergency area will be used less frequently as it is not provided for parking / resting.
CH/039	Mainline Emergency Area	11/120	10/385	Westbound	Separation is less than minimum requirement between lay-by and Countess westbound merge	Weaving Length	TD69/07, Para. 3.7 1km separation is required between a lay-by and a grade separated junction.	540m	This emergency area provides an immediate refuge prior to entering the tunnel which aids safe tunnel operation. The lay-by also provides access to parking used for entrance the tunnel services buildings. The lay-by is signed to standard identifying it as an emergency area. The emergency area will be used less frequently as it is not provided for parking / resting for the public. The parking facility at this area is only for use of staff accessing the tunnel services building who will trained skilled operatives.
CH/040	Mainline Emergency Areas (Total of10 no. within the Scheme)	N/A	N/A	Eastbound / Westbound	Emergency area entry and exit lengths tapers have been switched.	Emergency area tapers	TD69/07, Para. 6.2 45m Entry Taper 25m Exit Taper	25m Entry Taper 45m Exit Taper	These lay-by tapers have been switched in accordance with the Expressway Technical Note – March 2016. This switch provides future provision for Expressway upgrade.

AECOM + mace + WSP

Notes:

1. Mainline Design Speed = 120kph
2. SSD = Stopping Sight Distance
3. Immediate Approach to Junctions:
   a) Mainline
      i. Merges: the length of carriageway from a point 1.5 x SSD (= 442.5m) upstream of the back of the merge nose to the end of the merge taper.
      ii. Diverges: the length of carriageway from a point 1.5 x SSD (= 442.5m) upstream of the start of the diverge taper to the back of diverge nose.
   b) Side Roads: the length of carriageway on the major road 1.5 x SSD (=322.5m) measured from the centreline of the minor road.
4. Road geometry and SSD relevant for the existing carriageway has been assessed beyond the tie-in point of the new road realignment for a distance equivalent to the SSD for the associated design speed.
5. Diverge SSD is assessed from a point equivalent to the mainline SSD (295m) upstream from the start of the diverge taper.

Ref. No	Location	From	To	Direction	Departure Summary	Element deficient	HA Standard (DMRB) & Specification	Design Provision & Comments	Justification / Mitigation
TS/001	Mainline Approach to Longbarrow Junction Westbound Diverge	N/A	N/A	Westbound	Final Advance Direction Sign is below the recommended and bracketed allowable x-height standards	Advance Direction Sign	TSRGD 2016 and LTN 1/94 Appendix A Min. 250mm 'x' height (recommended - bracketed)	105mm 'x' height to prevent encroachment into retaining structure.	The nearside verge widths within the World Heritage Site are constrained by the retained cut. Due to the environmentally sensitive area the retained cut is not to be widened at this location. A compliant to standard ½ mile Advance Direction Sign has been provided. Additionally, the Final Advance Direction sign has the full visibility. In detailed design the signing strategy is to be reviewed with number of destinations to be confirmed. With use destination abbreviations a compliant x-height of 250mm may be achieved.

Ref. No	Location	From	To	Direction	Departure Summary	Element deficient	HA Standard (DMRB) & Specification	Design Provision & Comments	Justification / Mitigation
RRS/001	Countess Junction: Westbound Merge offside verge on exit from Countess Roundabout.	N/A	N/A	Westbound	Length of Road Restraint System is below the recommended minimum length of full height safety barrier	Road Restraint System	DMRB TD19/06 Table 3-1	14.3m length available including addition of bespoke terminals due to space constraints.	The offside verge space is limited due to existing constraints of the land available at Countess roundabout and the road geometry. Due to the low speeds of vehicles exiting Countess roundabout the risk, and associated severity, of hitting a reduced length barrier is low. Barrier specification will be explored further during the detailed design stage, where the final magnitude of any residual Departure will be determined. At this stage barrier manufacturers could also provide additional information regarding bespoke systems and tested lengths.

Ref. No	Location	From	To	Direction	Departure Summary	Element deficient	HA Standard (DMRB) & Specification	Design Provision & Comments	Justification / Mitigation
In Tunnel:									
TT/001					Removed				
TT/002	Mainline	7200	10500	both	X height of VMS is less than what the following standards require which is: TD33/05 – 300mm; TR2516 – 320mm (if message is repeated); TAL 01/15 – 300mm Note these x heights are required for the 5 words allowed for in the current design based on what is used in Hindhead tunnel	Tunnel VMS	TR 2516B Table 3.3 TD 33/05 DfT TAL 01/15	210mm X height is achievable in order to fit within limited tunnel space. This is based on a 1 x 24 VMS.	Signs repeated approximately every 400m. Message length & format is being re-considered and may allow larger x height.
TT/003					Removed				

Ref. No	Location	From	To	Direction	Departure Summary	Element deficient	HA Standard (DMRB) & Specification	Design Provision & Comments	Justification / Mitigation
TT/004	Mainline	7200	10500	both	Use of MIDAS and spacing within a tunnel. 9.83 The Overseeing Organisation shall be consulted regarding the deployment of MIDAS at non-motorway tunnels. 9.85 Vehicle detection loops may be provided within the tunnel and beyond the exit of the tunnel for 100m. Spacing of the loops is usually at 50m intervals.	Spacing of MIDAS in the tunnel	BD78/99	MIDAS proposed at approximately 500m spacing through the tunnel for congestion detection. MIDAS is also proposed at the same spacing outside the tunnel for incident and congestion detection.	Other types of Automatic Incident Detection is to be provided within tunnel. MIDAS is proposed for congestion management.
TT/005	Mainline	7200	10500	both	Use of software interlocking on portal / lane control signals	Portal / Lane Control Signals	BD78/99 9.78	Software interlocking can be provided safely and will provide more flexibility, reliability and quicker repair times	Software will be developed using dependable principles and following principles of IEC 61508
TT/006	Mainline	7200	10500	both	Not providing smoke control telephones or maintenance phones with emergency telephones	Smoke control telephones, Maintenance telephones	BD78/99 9.25	Maintenance telephones will be provided within an equipment panel in each cross passageway and TSB equipment room.	Requirement for maintenance phones and smoke control phones with emergency telephones has not been identified by the TDSCG. Emergency telephones will be housed in Emergency Points and could be used if required to contact operators (very low usage expected). Maintenance telephones in each cross passageway are adjacent to local fan controls. Smoke control panels in the TSBs will be fitted with maintenance telephones.

Ref. No	Location	From	To	Direction	Departure Summary	Element deficient	HA Standard (DMRB) & Specification	Design Provision & Comments	Justification / Mitigation
TT/007	Mainline	7200	10500	both	Not providing maintenance phones within Emergency Points	Maintenance telephones	BD78/99 9.37	Maintenance telephones will be provided within an equipment panel in each cross passageway and TSB equipment rooms	Requirement for maintenance phones in Emergency Points has not been identified. Emergency telephones will be housed in Emergency Points and could be used by maintenance staff if if required to contact operators (very low usage expected). Alternatively maintenance phones are available in cross passageways and radio or mobile telephones could be used by maintenance staff.
TT/008	Mainline	7200	10500	both	Providing vehicle headway detection, signing or enforcement	Enforcement of vehicle headway	EU Directive and RTSR	Live vehicle headway measurement and enforcement is not deemed necessary	Currently there is no suitable enforcement system that has Home Office approval
TT/009	Mainline	7200	10500	both	Unable to achieve minimum 1.5m lateral clearance to signs and indicators as required by TD33/05 11.2 & Table 4	Lateral clearance to equipment	TD 33/05	Unable to achieve clearances due to limitations of tunnel bore size.	Equipment is to be located outside the kinematic envelope

Ref. No	Location	From	To	Direction	Departure Summary	Element deficient	HA Standard (DMRB) & Specification	Design Provision & Comments	Justification
S/001	Parsonage Down Land Bridge	2+830	2+870	N/A	The use of lightweight fill to alleviate permanent loading effects from landscape bunds	Superstructure	MCDHW Specification Series 600	The MCDHW Specification Series 600 does not cover lightweight fill material.	The use of lightweight fill will reduce the intensity of permanent load to be accommodated within the structure design.
S/002	B3083 Shrewton Road Underbridge	3+440	3+460	N/A	The use of lightweight fill to alleviate permanent loading effects from landscape bunds	Superstructure	MCDHW Specification Series 600	The MCDHW Specification Series 600 does not cover lightweight fill material.	The use of lightweight fill will reduce the intensity of permanent load to be accommodated within the structure design.
S/003	Winterbourne Stoke Land Bridge	4+630	4+670	N/A	The use of lightweight fill to alleviate permanent loading effects from landscape bunds	Superstructure	MCDHW Specification Series 600	The MCDHW Specification Series 600 does not cover lightweight fill material.	The use of lightweight fill will reduce the intensity of permanent load to be accommodated within the structure design.
S/004	A360 Longbarrow Junction Overbridge	6+190	6+250	N/A	The use of lightweight fill to alleviate permanent loading effects from landscape bunds	Superstructure	MCDHW Specification Series 600	The MCDHW Specification Series 600 does not cover lightweight fill material.	The use of lightweight fill will reduce the intensity of permanent load to be accommodated within the structure design.
S/005	Longbarrow Land Bridge	6+420	6+560	N/A	The use of lightweight fill to alleviate permanent loading effects from landscaping	Superstructure	MCDHW Specification Series 600	The MCDHW Specification Series 600 does not cover lightweight fill material.	The use of lightweight fill will reduce the intensity of permanent load to be accommodated within the structure design.
S/006	Tunnel Portals	7+200 10+400	7+400 10+485	N/A	The use of lightweight fill to alleviate permanent loading effects from landscaping	Superstructure	MCDHW Specification Series 600	The MCDHW Specification Series 600 does not cover lightweight fill material.	The use of lightweight fill will reduce the intensity of permanent load to be accommodated within the structure design.

Ref. No	Location	From	To	Direction	Departure Summary	Element deficient	HA Standard (DMRB) & Specification	Design Provision & Comments	Justification
TC/001	A303 Stonehenge Tunnel	7+200	10+485	N/A	A Vehicle Refuge will not be provided in the tunnel as this will require significant excavation outside of the protection of the segmental tunnel lining.	Tunnel	DMRB VoL 2 Special Structures: Part 9: BD 78/99: Design of Road Tunnels: Cl 3.13	BD 78/99 allows the need for a Vehicle Refuge in the tunnel needs to be balanced against the operational needs.	A GD04 Assessment has concluded that Vehicle Refuges are not required.
TC/002	A303 Stonehenge Tunnel	7+200	10+485	N/A	A Hard Strip width will not be provided in the tunnel.	Tunnel	DMRB VoL 2 Special Structures: Part 9: BD 78/99: Design of Road Tunnels: Cl 4.28	The need for a Hard Strip in the tunnel shall be subject to a cost benefit study.	A GD04 Assessment has concluded that a Hard Strip is not required.
TC/003	A303 Stonehenge Tunnel	7+200	10+485	N/A	Evacuation Cross Passage spacing may be increased to a maximum 150m centres.	Tunnel	DMRB VoL 2 Special Structures: Part 9: BD 78/99: Design of Road Tunnels: Cl 3.16	BD 78/99 requires the provision of Escape Routes at nominal 100m centres as per the current design provision. The departure is sought on the assumption that Fixed Fire Fighting Strategy (FFFS) will be provided.	Pedestrian Escape Modelling has been undertaken to confirm the viability of increasing Cross-passage spacing with the current Ventilation Strategy. Discussions with TDSCG indicate support for this with the provision of FFFS. The need for FFFS is being confirmed, particularly in light of the poor Emergency Services response time in the event of a tunnel incident.
TC/004	A303 Stonehenge Tunnel	7+200	10+485	N/A	Tunnel Geometry is based on Maintained Headroom to Overbridges and not the New Construction Headroom.	Tunnel	DMRB VoL 2 Special Structures: Part 9: BD 78/99: Design of Road Tunnels: Cl 4.29. DMRB Vol 6 Road Geometry: Section 1 Links: Part 2: TD 27/05: Cross-sections and Headrooms Cl 6.1.3.	Clearance in tunnel 5.35m based on: • 5.03M+S (0.07M) TD 27/05 Table 6.2 • 0.25M additional allowance for vertical clearance BD 78/99 Cl 4.25	Carriageway maintenance will be via inlay and not overlay. Details of Over-height Vehicle Detection are in abeyance but will be implemented to prevent such vehicles entering the tunnel.

Ref. No	Location	From	To	Direction	Departure Summary	Element deficient	HA Standard (DMRB) & Specification	Design Provision & Comments	Justification
A360 North Link Road (Design Speed: 100A)									
LR/001	A360 North Link, tie-in to existing road alignment	0/100	0/000	Northbound	Combinations of relaxations to Crest Curves and SSD are not permitted.	Combination of Crest Curve Radius And SSD	TD9/93, Table 3 Desirable Minimum Crest K value = 100 SSD=215m	Crest K=50 Two Steps Below Desirable minimum SSD=139m Two Steps Below Desirable minimum Tie-in to existing substandard road geometry, Crest Curve Radius K=50	The new alignment ties in to the existing carriageway which has substandard geometry for a design speed of 100kph. As such full SSD is not achieved which affects visibility to an existing farm access, located at Ch. 0/280. In order to increase visibility, the length of the vertical curve would need to be increased significantly to flatten the existing crest, resulting in the tie-in point moving almost to the next junction, and requiring substantial cuttings, which would also affect the farm access. The proposed SSD is slightly better than existing.
LR/002	A360 North Link, tie-in to existing road alignment	-0/043	0/100	Southbound	Relaxations below Desirable Minimum for Crest Curves are not permitted within the immediate approach to junctions: (See Note 3)	Crest Curve Radius	TD9/93, Table 3 Desirable Minimum Crest K value = 100	Crest K=50 Two Steps Below Desirable minimum Tie-in to existing substandard road geometry, Crest Curve Radius K=50 Farm access at Ch. 0/280	The new alignment ties in to the existing carriageway which has substandard geometry for a design speed of 100kph. If a compliant crest curve of K=100 is used, the curve length would be increased significantly, resulting in the tie-in point moving almost to the next junction, and requiring substantial cuttings, which would also affect the existing farm access. This would have a major impact on RLB and costs

Ref. No	Location	From	To	Direction	Departure Summary	Element deficient	HA Standard (DMRB) & Specification	Design Provision & Comments	Justification
A360 South Link Road (Design Speed: 100A)									
LR/003	A360 South Link	0/042	0/026	Southbound	Combinations of relaxations to horizontal Curves and SSD, exceeding one step below desirable minimum, are not permitted.	Combination of horizontal Curve Radius and SSD	TD9/93, Table 3 SSD One Step Below (160m) Desirable Minimum may be coincident with Horizontal curvature relaxations of one step below (720m) desirable minimum	Horizontal curve radius=360m Two Steps Below Desirable Minimum SSD=169m One Step Below Desirable Minimum	The proposed horizontal geometry is constrained by the position of the proposed Longbarrow Junction (limited space for the entry to the five-arm south roundabout) and the surrounding Oatlands Hill, which is a sensitive area. The 360m horizontal radius is required for a smooth alignment between the south roundabout and existing A360, whilst minimising impacts on Oatlands Hill; a larger radius would not be achievable without the need to extend the alignment much further south. The existing road has substandard geometry just beyond the south tie-in point, with a crest curve of K=30. There is an existing farm access 310m south of the new alignment tie-in point. If a compliant crest curve of K=100 is used, the curve length would be increased significantly, resulting in the tie-in point moving closer to the farm access, and requiring substantial cuttings. This would have a substantial impact on RLB and costs.

Ref. No	Location	From	To	Direction	Departure Summary	Element deficient	HA Standard (DMRB) & Specification	Design Provision & Comments	Justification
LR/004	A360 South Link	0/008	-0/070	Southbound	Relaxations below Desirable Minimum for SSD are not permitted on immediate approach to junctions. (See Note 3)	SSD	TD9/93, Table 3 SSD=215m	SSD=169m One Step Below Desirable minimum Existing farm access 310m south of the new alignment tie-in point.	The new alignment ties in to the existing carriageway which has substandard geometry for a design speed of 100kph, with a crest curve of K=30 just beyond the tie-in point. As such full SSD is not achieved. In order to increase visibility, the length of the vertical curve would need to be increased significantly to flatten the existing crest, resulting in the tie-in point moving closer to the farm access, and requiring substantial cuttings. This would have a substantial impact on RLB and costs. The proposed SSD values at this location will be equal to existing.

Ref. No	Location	From	To	Direction	Departure Summary	Element deficient	HA Standard (DMRB) & Specification	Design Provision & Comments	Justification
Link to existing A303 (Design Speed: 100A)									
LR/005	Link to existing A303, tie-in	0/011	0/000	Westbound	Relaxations below Desirable Minimum for SSD are not permitted on immediate approach to junctions. (See Note 3)	SSD	TD9/93, Table 3 SSD=215m	SSD=209m One Step Below Desirable minimum Existing farm access 235m west of new road alignment tie-in point.	The new alignment ties into the existing carriageway which has substandard geometry for a design speed of 100kph, with a crest curve of K=40 about 50m beyond the tie-in point. As such full SSD is not achieved which affects visibility to an existing farm access, located 235m west of the tie-in point. In order to increase visibility, the length of the vertical curve would need to be increased significantly to flatten the existing crest, resulting in the tie-in point moving further west and encroaching with the existing farm access, as well as requiring substantial cuttings. This would have a substantial impact on RLB and costs. The proposed SSD values at this location will be equal to existing.

Ref. No	Location	From	To	Direction	Departure Summary	Element deficient	HA Standard (DMRB) & Specification	Design Provision & Comments	Justification
B3083 (Design Speed: 85A)									
LR/006	B3083 on approach to minor junction	N/A	N/A	Southbound	Relaxations below Desirable Minimum for Crest Curves are not permitted within the immediate approach to junctions: (See Note 3)	Crest Curve Radius	TD9/93, Table 3 Desirable Minimum Crest K value = 55	Crest K=17 Two Steps Below Desirable minimum	The proposed B3083 design ties into the existing ground at approximately chainage 200m. At this tie in point, the existing B3083 consists of a vertical crest (K of 11). A compliant vertical crest would require the carriageway to be lowered by up to 3m. Given the negative environmental and economic impacts associated with a compliant design; it is considered that the proposed departure offers a consistent level of service to that of existing.
LR/007	B3083 on approach to minor junction	N/A	N/A	Southbound	Relaxations below Desirable Minimum for SSD are not permitted on immediate approach to junctions. (See Note 3)	SSD	TD9/93, Table 3 SSD=160m	SSD=70m (up to) Three Steps Below Desirable minimum	The shortfall in SSD occurs as a direct consequence of the sub-standard vertical curve. To achieve desirable minimum SSD, a compliant vertical crest is to be provided. However, this would require the carriageway to be lowered by up to 3m. Given the negative environmental and economic impacts associated with a compliant design; it is considered that the proposed departure offers a consistent level of service to that of existing.

Ref. No	Location	From	To	Direction	Departure Summary	Element deficient	HA Standard (DMRB) & Specification	Design Provision & Comments	Justification
LR/008	B3083 on approach to minor junction	N/A	N/A	Northbound/ Southbound	Combinations of relaxations to Crest Curves and SSD are not permitted.	Combination of Crest Curve Radius and SSD	TD9/93, Table 3 Desirable Minimum Crest K value = 55 SSD=160m	Crest K=17 Two Steps Below Desirable minimum SSD=70m (up to) Up to three Steps Below Desirable minimum	To achieve desirable minimum SSD, a compliant vertical crest is to be provided. However, this would require the carriageway to be lowered by up to 3m. Given the negative environmental and economic impacts associated with a compliant design; it is considered that the proposed departure offers a consistent level of service to that of existing.
LR/009	B3083	N/A	N/A	Northbound/ Southbound	Relaxation of up to three steps below Desirable Minimum for SSD exceeds the two steps permitted for design speed (85kph band A)	SSD	TD9/93, Table 3 SSD=160m	SSD=70m (up to) Three Steps Below Desirable minimum	The shortfall in SSD occurs as a direct consequence of the sub-standard vertical curve. To achieve desirable minimum SSD, a compliant vertical crest is to be provided. However, this would require the carriageway to be lowered by up to 3m. Given the negative environmental and economic impacts associated with a compliant design; it is considered that the proposed departure offers a consistent level of service to that of existing.

Ref. No	Location	From	To	Direction	Departure Summary	Element deficient	HA Standard (DMRB) & Specification	Design Provision & Comments	Justification
LR/010	B3083	N/A	N/A	Northbound/ Southbound	Non-standard cross-section	Proposed highway cross-section	TD27 S2	5.5m carriageway, 1.5m verges	The existing B3083 is a non-standard TD27 cross-section, given the anticipated traffic flows, it is considered a full TD27 cross-section would not be appropriate. The proposed realigned section maintains the existing cross section widths throughout.
WCHR Routes									
LR/011	NMU route near Parsonage Down (north of proposed A303)	N/A	N/A	Westbound/ Eastbound	Proposed gradient to follow existing, of which has a gradient greater than 5%	Gradient	IAN195 5% Max gradient	Gradient greater than 5%	The proposed NMU route follows the existing ground, it is considered that a compliant design would require the NMU route to be raised and located on an embankment. Any works required to remove this departure would unreasonably increase the footprint of the NMU route and subsequently increase the overall cost of the scheme.
LR/012	NMU route near Parsonage Down (south of proposed A303)	N/A	N/A	Westbound/ Eastbound	Proposed gradient to follow existing, of which has a gradient greater than 5%	Gradient	IAN195 5% Max gradient	Gradient greater than 5%	The proposed NMU route follows the existing ground, it is considered that a compliant design would require the NMU route to be raised and located on an embankment. Any works required to remove this departure would unreasonably increase the footprint of the NMU route and subsequently increase the overall cost of the scheme.

Ref. No	Location	From	To	Direction	Departure Summary	Element deficient	HA Standard (DMRB) & Specification	Design Provision & Comments	Justification
LR/013	WSTO6B	N/A	N/A	Northbound/ Southbound	WSTO6B gradient greater than 5%	Gradient	IAN195 5% Max gradient	Current design at 10% gradient	The WSTO6B route crosses the proposed A303. The existing gradient to the north of the A303 is steeper than 5%. A proposed 10% gradient has been applied to the design to tie in with existing ground, thereby reducing the overall NMU footprint. Any works required to remove this departure would unreasonably increase the footprint of the NMU route and subsequently increase the overall cost of the scheme.
LR/014	NMU route east of Winterbourne Stoke	N/A	N/A	Westbound/ Eastbound	Proposed gradient to follow existing A303, of which has a gradient greater than 5%	Gradient	IAN195 5% Max gradient	Gradient greater than 5%	Proposed NMU route follows the A303 geometry, it is considered that a compliant design would require the NMU route to be raised/lowered. Any works required to remove this departure would unreasonably increase the footprint of the NMU route and subsequently increase the overall cost of the scheme.
LR/015	NMU route on A360 (various locations)	N/A	N/A	Northbound/ Southbound	Proposed gradient to follow existing A360, of which has a gradient greater than 5%	Gradient	IAN195 5% Max gradient	Gradient greater than 5%	Proposed NMU route follows the A360 geometry, it is considered that a compliant design would require the NMU route to be raised/lowered. Any works required to remove this departure would unreasonably increase the footprint of the NMU route and subsequently increase the overall cost of the scheme.

Ref. No	Location	From	To	Direction	Departure Summary	Element deficient	HA Standard (DMRB) & Specification	Design Provision & Comments	Justification
LR/016	NMU route on A303 near Stonehenge	N/A	N/A	Westbound/ Eastbound	Proposed gradient to follow existing A303, of which has a gradient greater than 5%	Gradient	IAN195 5% Max gradient	Gradient greater than 5%	Proposed NMU route follows the A303 geometry, it is considered that a compliant design would require the NMU route to be raised/lowered. Any works required to remove this departure would unreasonably increase the footprint of the NMU route and subsequently increase the overall cost of the scheme.
LR/017	Various	N/A	N/A	N/A	Minimum route widths for NMUs may not be achieved	Widths	IAN195 Table 2.2.11 Specifies that a 2-way cycle track should be 4.0m minimum when peak flows exceed 150 (per hour)	A width of 3m is used for the majority of proposed 2-way cycletrack. This is compliant with flows less than 150 per hour	The cycle flows are unknown, however they are anticipated to be less than 150 per hour. Once flows are confirmed, it is considered that this departure may not be necessary.
LR/018	Various	N/A	N/A	N/A	NMU routes on road will not meet IAN 195	Mainline speed limit etc	IAN195 Table 2.2.2 provides minimum provision for cycle routes, based on speed limits and AADT.	Motor traffic flows and speed limits to be confirmed. Current proposals include sections of on-carriageway routes	Anticipated motor traffic flows for on-carriageway cycle route anticipated to be low. The provision of a cycle lane would require carriageway widening and vegetation clearance, it is considered that this unnecessarily increases the environmental and economic impact on the scheme.

Ref. No	Location	From	To	Direction	Departure Summary	Element deficient	HA Standard (DMRB) & Specification	Design Provision & Comments	Justification
Main Line from Solstice Park to Double Hedges Merge									
LR/019	Mainline nearside verge, existing direct field access.	13/780	13/830	Eastbound	Insufficient upstream/downstream distance between Solstice Park eastbound merge and existing direct field access.	Minimum distance between successive junctions not in accordance to standards	TD 22/06 Chapter 4 Para 4.36 & 4.38 TD 69/07 Chapter 3 Para 3.6 & 3.7 TD 41/95 Chapter 1 & 2 Para 1.7 & 2.5 Depending on which DMRB standard Solstice Park Grade separated Junction was designed in accordance with, junction spacing/weaving should be either 1 km or 3.75V (@450m)	Recommendation to close existing direct field access, TD 41/95 Chapter 1 Para 1.7 states:- Limiting direct access remains a prime objective of the Overseeing Organisations.	The existing A303 corridor has many junction's lay-by's and side accesses through this section that in combination constitute Departures from Standards. The primary purpose of the trunk road is to provide safe movement, the justification to limit the number of direct accesses is a primary safety objective. Mitigation not to remove side access would provide a level of service to that of existing. Environmental impact: - it is not anticipated to have any effect.
LR/020	Mainline nearside verge, existing lay-by.	13/780	14/000	Eastbound	Insufficient upstream/downstream distance between Solstice Park eastbound merge and existing lay-by	Minimum distance between successive junctions not in accordance to standards	TD 22/06 Chapter 4 Para 4.36 & 4.38 TD 69/07 Chapter 3 Table 3-2 & Para 3.6 & 3.7 Recommended lay-by spacing 2.5km, both upstream and downstream spacing to Amesbury Road diverge and Solstice Park Grade Separated Junction < 3.75V (@450m)	Recommendation to close existing eastbound lay-by, Solstice Park provides safe egress/access to the strategic route network and can be considered a suitable alternative lay-by area.	The existing A303 corridor has many junction's lay-by's and side accesses through this section that in combination constitute Departures from Standards. The primary purpose of the trunk road is to provide safe movement, the justification to limit the number of direct accesses is a primary safety objective. Mitigation not to close the layby would provide a level of service to that of existing. Environmental impact: - it is not anticipated to have any effect.

Ref. No	Location	From	To	Direction	Departure Summary	Element deficient	HA Standard (DMRB) & Specification	Design Provision & Comments	Justification
LR/021	Mainline eastbound Amesbury Road diverge.	13/780	14/300	Eastbound	Insufficient downstream distance between Solstice Park eastbound merge, and Amesbury Road eastbound diverge	Minimum distance between successive junctions not in accordance to standards	TD 22/06 Chapter 4 Para 4.36 & 4.38 TD 69/07 Chapter 3 Para 3.7 TD 41/95 Chapter 1 & 2 Para 1.7 & 2.5 Downstream spacing to lay-by, direct field access and Solstice Park Grade Separated Junction < 3.75V (@450m)	Recommendation to close existing direct field access and eastbound lay-by (Ch 14000) on approach to improved Amesbury Road eastbound diverge.	The existing A303 corridor has many junction's lay-by's and side accesses through this section that in combination constitute Departures from Standards. The primary purpose of the trunk road is to provide safe movement, the justification to limit the number of direct accesses is a primary safety objective. Mitigation not to remove side access would provide a level of service to that of existing. Environmental impact: - it is not anticipated to have any effect.
LR/022	Mainline eastbound Double Hedges merge.	13/780	13/830	Eastbound	Insufficient upstream/downstream distance between Solstice Park eastbound merge and existing direct field access.	Minimum distance between successive junctions not in accordance to standards	TD 22/06 Chapter 4 Para 4.36 & 4.38 TD 69/07 Chapter 3 Para 3.6 & 3.7 TD 41/95 Chapter 1 & 2 Para 1.7 & 2.5 Upstream spacing to lay-by, direct field access < 3.75V (@450m)	Recommendation to close existing eastbound lay-by (Ch 15500) and direct access following Double Hedges merge.	The existing A303 corridor has many junction's lay-by's and side accesses through this section that in combination constitute Departures from Standards. The primary purpose of the trunk road is to provide safe movement, the justification to limit the number of direct accesses is a primary safety objective. Mitigation not to close the layby would provide a level of service to that of existing. Environmental impact: - it is not anticipated to have any effect.

Ref. No	Location	From	To	Direction	Departure Summary	Element deficient	HA Standard (DMRB) & Specification	Design Provision & Comments	Justification
Amesbury Road Diverge									
LR/023	Mainline eastbound carriageway, lanes 1 & 2	14/150	14/390	Eastbound	Existing A303 mainline cross section below minimum standards.	Nearside/offside hard strips below minimum widths.	TD 27/05 Chapter 4 Para 4.13.3 & Fig 4-3a 1.0m hard strips	Existing mainline hard strips appear < 0.3m, Amesbury Road diverge ties into substandard mainline cross section. In the absence of 3D topographical survey in this area it has not been possible to establish Stopping Sight Distances, additional departures may be required under TD 9, TD 22, TD 42, TD 69 – to be identified at detailed design. Assumption that junction visibility requirements may be acquired under section 142 of the Highways Act across the adjoining field boundary	Without major carriageway reconstruction over the entire length where hard strips are <0.3m it is not possible to provide a compliant mainline D2AP cross section. Justification, improvements to existing junction geometry and safety tie into existing main line geometry hence inherited departures.

Ref. No	Location	From	To	Direction	Departure Summary	Element deficient	HA Standard (DMRB) & Specification	Design Provision & Comments	Justification
Double Hedges									
LR/024	Mainline eastbound carriageway, lanes 1 & 2	14/930	15/250	Eastbound	Existing A303 mainline cross section below minimum standards.	Nearside/offside hard strips below minimum widths.	TD 27/05 Chapter 4 Para 4.13.3 & Fig 4-3a 1.0m hard strips	Existing mainline hard strips appear < 0.3m, Double Hedges Merge ties into substandard mainline cross section. In the absence of 3D topographical survey in this area it has not been possible to establish Stopping Sight Distances, additional departures may be required under TD 9, TD 22, TD 42, TD 69 – to be identified at detailed design. Assumption that junction visibility requirements may be acquired under section 142 of the Highways Act across the adjoining field boundary	Without major carriageway reconstruction over the entire length where hard strips are <0.3m it is not possible to provide a compliant mainline D2AP cross section. Justification, improvements to existing junction geometry and safety tie into existing main line geometry hence inherited departures.
Allington Track (Design Speed: 60B)									
LR/025	Allington Track	N/A	N/A	Westbound/ Eastbound	Non-standard cross-section	Proposed highway cross-section	TD27 S2	5.5m carriageway, 0.5m verges	The existing Allington Track is a non-standard TD27 cross-section, given the anticipated traffic flows, it is considered a full TD27 cross-section would not be appropriate. The proposed road maintains a 5.5m width throughout, with curve widening applied where required.

Ref. No	Location	From	To	Direction	Departure Summary	Element deficient	HA Standard (DMRB) & Specification	Design Provision & Comments	Justification
ME/001	A303 Stonehenge Tunnel	7+200	10+485	Eastbound and Westbound	A Fixed Fire Fighting System (FFFS) is provided within the tunnels. However DMRB BD78/99 states that automatic fire extinguishing systems are not considered suitable for the traffic space.	Tunnel M&E	DMRB Vol. 2 Special Structures: Part 9: BD 78/99: Design of Road Tunnels: Cl 8.55	A Fixed Fire Fighting System (FFFS) will be provided within the traffic space. The provision of FFFS is in keeping with international best practice and a cost effective active fire protection measure.	A series of safety and cost benefit assessments have been undertaken and presented that support the inclusion of FFFS on safety and cost grounds.