

Natural Resources Wales

**Stephenson Street Flood Defence
Scheme, Newport, Wales**

**S38 and S278 Stage 1 Road Safety
Audit**

ARP-RP-RSA-01

Issue | 28 January 2021

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 274580-05

Ove Arup & Partners Ltd
63 St Thomas Street
Bristol BS1 6JZ
United Kingdom
www.arup.com

ARUP

Contents

	Page
Project Details	1
1 Introduction	2
1.1 Proposed Highway Scheme	2
1.2 RSA Brief, Audit Team and Scope of Audit	3
1.3 Site Visit	3
1.4 Terms of Reference	4
1.5 Previous Road Safety Audits	4
2 Items Raised in this Road Safety Audit	5
2.1 Insufficient turning space, new junction	5
2.2 Misuse of turning head	5
2.3 Obscured forward visibility on downhill bend	6
2.4 Lack of transition curves for superelevation	6
2.5 Insufficient carriageway width on bends	7
2.6 Poor forward visibility on crest curve	7
2.7 Lighting column in front of vehicle restraint barrier	8
2.8 Flat spot at access	8
2.9 Insufficient turning space, pond access	8
2.10 Lack of crossing facilities	9
2.11 Poor visibility at lay-by	9
2.12 Low point and gullies at formal road crossing	9
2.13 Long pedestrian crossing at bellmouth	10
2.14 Insufficient turning space, Hanson main access	10
2.15 Insufficient access width, Hanson access to Marshalls	10
2.16 Insufficient turning space, Marshalls site access	11
2.17 Swale and basin unprotected	11
2.18 Lack of culvert protection	12
2.19 Inadequate queueing length	12
2.20 Insufficient turning space, accesses to Marshalls site and aggregate store	13
2.21 Lack of swept path analysis, horizontal bend	13
2.22 Obscured forward visibility	14
2.23 Termination of cycle lane	14
3 Road Safety Audit Team Statement	15

Figures

Figure 1.1: Scheme Location

Figure 2: Problem Location Plan 1 of 3

Figure 3: Problem Location Plan 2 of 3

Figure 4: Problem Location Plan 3 of 3

Appendices

Appendix A

Documents and Drawings

Project Details

Project:	Stephenson St Flood Defence Scheme
Road safety audit (RSA) title:	S38 & S278 Stage 1 Road Safety Audit
Stage of audit:	1
Date of audit:	28 January 2021
Document reference and revision:	ARP-RP-RSA1 Issue
Prepared by:	Ove Arup & Partners Ltd
For:	Natural Resources Wales
On behalf of:	Newport City Council

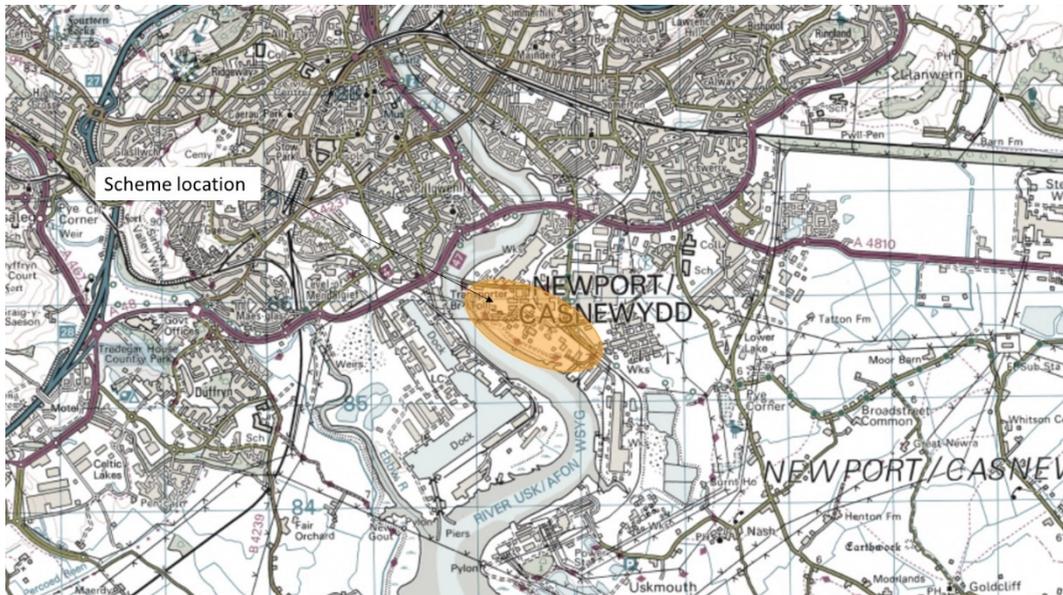
1 Introduction

1.1 Proposed Highway Scheme

1.1.1 Scheme Location

Figure 1.1 below shows the scheme location, south of Newport and near to the transporter bridge. The location of the new road is predominantly within an area currently owned by Marshalls. The site is relatively flat and open scrub land with an existing track running through it. Immediately to the south-west of the proposed road is the River Usk including Site of Special Scientific Interest (SSSI) and Special Area of Conservation (SAC) designated sites. The Wales Coast Path runs along the banks of the river.

Figure 1.1: Scheme Location



1.1.2 Scheme Description

The Stephenson Street Flood Defence Scheme will manage flood risk to the residents, businesses and infrastructure of Spytty in accordance with the Severn Estuary Strategy. The proposed highway will link two existing no through roads from the end of Corporation Road (south) to East Bank Road (north). The existing length of Corporation Road at the tie-in is not adopted; East Bank Road is an adopted highway and has a 30mph speed limit.

The defence scheme includes a flood gate at Corporation Road across the railway overbridge. When closed, the flood gate will prevent access to the Corporation Road end of the scheme, including Marshalls, Liberty Steel and Bird Port. The flood gate will be closed ahead of predicted flood events. The new link road will allow the businesses to remain operational when the flood gate is closed and also to allow a safe means of escape should the protected flood event occur.

To maintain the required flood defence level, a section of the highway will be elevated to carry it over the required flood level, which is approximately 2.5m above the surrounding ground level. The road will be constructed on embankment with the proposed flood defence walls tying-in and running alongside the embankment.

1.1.3 Scheme Objectives

The project aims to deliver a flood scheme with a standard of protection of 1:200 year tidal event with allowance for 50 years' sea level rise. This will reduce maintenance obligations and flood risk by forming permanent structures instead of installing manually/automatically operated flood defence structures.

1.2 RSA Brief, Audit Team and Scope of Audit

This RSA was undertaken in accordance with the RSA brief provided by Jamie Lancaster, the point of contact for Arup in its role as the design organisation. The RSA brief and audit team were not approved by the highway authority.

The RSA team membership was as follows:

Team leader:	Tansin Brown IEng, MICE, MCIHT (Certificate of Competency gained in March 2016)
Organisation:	Ove Arup & Partners Ltd, Bristol
Team member:	Michal Nowinski MEng, GMICE, MCIHT (Certificate of Competency gained in August 2018)
Organisation:	Ove Arup & Partners Ltd, Solihull

The RSA team identified that the brief was insufficient for their purposes and requested further information from the design organisation. The responses were:

- drawings showing earthworks and cross-sections, which were listed in the brief, weren't needed and hadn't been produced;
- two additional drawings were provided showing forward visibility and visibility splays;
- the intended use of the Hanson access to Marshalls was not confirmed.

Currently Marshalls use the existing length of Corporation Road to queue vehicles prior to entry to their site. The proposals have allowed spatial allowances for this to be undertaken within the land located between the proposed road alignment and the Marshalls site boundary. This is outside the scope of audit.

1.3 Site Visit

In response to the coronavirus (covid-19) outbreak, Wales went into full national lockdown on 20 December 2020 and England on 6 January 2021. The lockdowns are in place at the time of undertaking this RSA and all but essential travel is discouraged. Given the health risks of travelling beyond what can reasonably be considered the auditors' local areas, including use of public transport, a site visit

was deemed too risky. The design organisation kindly provided photographs and a drive-through video, and the RSA team also referenced Google Street View images.

The videos provided by the design organisation were taken at 3.00-3.15pm on 14 June 2019 and the photographs at 9.00-11.15am on 1 November 2019. It was raining during the June recordings and it can be seen that the carriageway is in a state of disrepair with potholes and poor drainage. It was dry during the November photographs but ponding on the carriageway shows that it had been raining overnight and/or earlier in the day.

1.4 Terms of Reference

The RSA team has performed their duties in accordance with the Terms of Reference set out in GG 119 *Road Safety Audit* (Revision 2, Welsh Government, January 2020) and the RSA team members meet the training and experience requirements set out therein. The RSA 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 design to any other criteria. However, to clearly explain a problem or recommendation the RSA team may occasionally refer to design standards.

All problems and recommendations identified by this RSA are referenced to the design drawings and the locations have been indicated on the figures(s) included in this report.

1.5 Previous Road Safety Audits

It is understood that no previous RSAs have been conducted on this scheme.

2 Items Raised in this Road Safety Audit

2.1 Insufficient turning space, new junction

Location:	East Bank Road chainage (ch) 0+000
Drawing(s):	274580-ARP-XX-XX-DR-CX-1130
Summary:	Turning HGVs straddle the centre lines with a risk of reversing collisions.
Problem:	<p>The swept path analysis shows that HGVs turning right into and left out of the new road would not be able to turn at the same time. Traffic data is not included in the RSA brief and, with the new road in place, traffic redistribution from Corporation Road may increase traffic flows on East Bank Road.</p> <p>Should opposing HGVs need to turn left and right at the same time, one of the HGVs would need to reverse to give the other HGV sufficient road space to make the turning manoeuvre. Reversing HGVs may collide with other road users and the risk is greater if the road is busier.</p>
Recommendation:	Enlarge the turning area so that HGVs can simultaneously turn left out of, and right into the new road.

2.2 Misuse of turning head

Location:	Existing East Bank Road
Drawing(s):	274580-ARP-XX-XX-DR-CX-1101
Summary:	Misuse of turning head leading to reversing collisions.
Problem:	<p>A turning head is proposed on the severed East Bank Road that could be used for parking and/or fly tipping, preventing a vehicle from using the turning head to turn around.</p> <p>Drivers unable to use the turning head may be forced to reverse for a significant distance and risk colliding with other road users whilst reversing.</p>
Photograph:	 <p><i>Fly-tipping is already a problem in the industrial estate</i></p>
Recommendation:	Implement parking restrictions so that the turning head is not obstructed by vehicles and remove vegetation to discourage fly-tipping.

2.3 Obscured forward visibility on downhill bend

Location:	East Bank Road on approach to T-junction with existing East Bank Road
Drawing(s):	274580-ARP-XX-XX-DR-CX-1101 274580-ARP-XX-XX-DR-CX-1120 274580-ARP-XX-XX-DR-CX-1140"
Summary:	Obscured forward visibility leading to a variety of collisions.
Problem:	<p>The proposed East Bank Road approach to the junction with the existing road is on a tight bend with a 4% downhill gradient that may promote vehicle speeds in excess of the design speed of 30mph. Details of the forward visibility show that the vehicle restraint barrier and flood defence structure would be within the visibility envelope.</p> <p>Obscured forward visibility could lead to collisions with obstructions in the carriageway ahead or sudden braking and loss of control. High vehicle speeds increase the risk of loss of control on the bend including a head-on collision should an errant vehicle stray onto the opposite side of the road. Drivers may overshoot the give way line leading to collisions with vehicles on East Bank Road.</p>
Recommendation:	Provide unobscured stopping sight distance on the downhill bend approach to the junction give way.

2.4 Lack of transition curves for superelevation

Location:	East Bank Road ch 30-130
Drawing(s):	274580-ARP-XX-XX-DR-CX-1101 274580-ARP-XX-XX-DR-CX-1102 274580-ARP-XX-XX-DR-CX-1110 274580-ARP-XX-XX-DR-CX-1111
Summary:	Adverse camber leading to HGVs over-turning.
Problem:	<p>The highway contours show that the tight bend would be superelevated on the downhill gradients of 4%. The RSA brief does not include details of the horizontal alignment but it does not appear to have any transition curves and the superelevation may differ along the length of the bend.</p> <p>The combined superelevation, downhill gradients and lack of transitions may cause adverse camber and a risk of HGVs over-turning.</p>
Recommendation:	Provide transitions between the straights and tight bend of the horizontal alignment and develop the superelevation over the lengths of transition.

2.5 Insufficient carriageway width on bends

Location:	East Bank Road ch 030-130, 230-280, 305-335 and 415-425.
Drawing(s):	274580-ARP-XX-XX-DR-CX-1101 274580-ARP-XX-XX-DR-CX-1102 274580-ARP-XX-XX-DR-CX-1130 274580-ARP-XX-XX-DR-CX-1131
Summary:	Insufficient carriageway width leading to loss of control and head-on collisions.
Problem:	The swept path analysis for the bends shows that HGVs in both directions would impinge on the centre line. The vehicle speeds used in the analysis are not stated on the drawings. Poor lane discipline and/or excess speeds may lead to vehicles straying into the opposing lane with a risk of loss of control and head-on collisions.
Recommendation:	Undertake the swept path analysis for an appropriate vehicle speed and widen the carriageway through the bend to allow sufficient clearance between opposing HGVs.

2.6 Poor forward visibility on crest curve

Location:	East Bank Road ch 0+075
Drawing(s):	274580-ARP-XX-XX-DR-CX-1101 274580-ARP-XX-XX-DR-CX-1140
Summary:	Poor forward visibility leading to a variety of collisions
Problem:	A sharp crest curve ($K = 2$) is proposed on East Bank Road on approach to the junction with the existing road. A forward visibility envelope for the vertical alignment is not included in the RSA brief. The sharp crest will limit forward visibility of the junction and give way line, resulting in late braking collisions and failure to give way collisions with vehicles on East Bank Road.
Recommendation:	Provide adequate stopping sight distance over the crest curve and on approach to the junction give way.

2.7 Lighting column in front of vehicle restraint barrier

Location:	East Bank Road ch 0+075
Drawing(s):	274580-ARP-XX-XX-DR-CX-1120
Summary:	Lighting column increasing severity if a collision occurs.
Problem:	A street lighting column is proposed at the rear of the footway on a tight bend and in front of the vehicle restraint barrier. Should a collision occur on the bend, such as loss of control, an errant vehicle may collide with the lighting column before it hits the restraint barrier. Severity data for collisions with street lighting columns is higher than that for vehicle restraint barriers.
Recommendation:	Reposition the lighting column so it is behind the vehicle restraint system.

2.8 Flat spot at access

Location:	East Bank Road ch 0+090
Drawing(s):	274580-ARP-XX-XX-DR-CX-1110
Summary:	Flat spot at access leading to loss of control.
Problem:	There is a flat spot at the access that increases the risk of standing water during rainfall. Standing water on the carriageway can lead to aquaplaning or loss of control under braking. It can also promote the formation of ice during wintry conditions.
Recommendation:	Provide adequate gradient or crossfall to drain water from the carriageway surface.

2.9 Insufficient turning space, pond access

Location:	East Bank Road ch 0+090
Drawing(s):	274580-ARP-XX-XX-DR-CX-1130
Summary:	Insufficient turning space leading to loss of control.
Problem:	The narrow carriageway width of the pond maintenance access and tight corner radii at the junction with East Bank Road reduce the available turning area. A supporting swept path analysis is not included in the RSA brief. Insufficient turning space could lead to vehicles overrunning the verge, bringing debris on to the road and leading to loss of control collisions.
Recommendation:	Demonstrate that the turning space at the junction with the new maintenance access is adequate to accommodate the appropriate design vehicle.

2.10 Lack of crossing facilities

Location:	East Bank Road ch 0+130
Drawing(s):	274580-ARP-XX-XX-DR-CX-1110
Summary:	Lack of crossing facilities leading to trips and slips.
Problem:	The footway terminates on the southern side of the road. No facilities are proposed to make it easier for pedestrians to cross the road. A lack of crossing facilities can lead to pedestrians slips/trips and injury.
Recommendation:	Provide dropped kerbs and tactile paving that make it easier for pedestrians to cross the road.

2.11 Poor visibility at lay-by

Location:	East Bank Road ch 0+150
Drawing(s):	274580-ARP-XX-XX-DR-CX-1101
Summary:	Poor forward visibility leading to turning conflicts.
Problem:	The proposed East Bank Road on approach to the lay-by is on a tight bend with a 4% downhill gradient that may promote vehicle speeds in excess of the design speed of 30mph. Details of the forward visibility envelope have not been provided to the RSA team. Inadequate forward visibility could lead to collisions between a vehicle emerging from the lay-by and oncoming traffic. High vehicle speeds downhill increase the risk of collision if the visibility is inadequate. A driver emerging from the lay-by would have to look over their shoulder to see oncoming traffic, which may compromise visibility, particularly for anyone with an upper body mobility impairment.
Recommendation:	Re-locate the lay-by to provide adequate forward visibility.

2.12 Low point and gullies at formal road crossing

Location:	East Bank Road ch 0+160
Drawing(s):	274580-ARP-XX-XX-DR-CX-1110 274580-ARP-XX-XX-DR-CX-1150
Summary:	Trip hazard caused by ponding and gullies at pedestrian crossing.
Problem:	The pedestrian crossing is located at the low point and water may pond during rainfall. Gullies are proposed on both sides of the road coincident with dropped kerbs and tactile paving that invite pedestrians to cross the road. Standing water on the carriageway can lead to pedestrian slips/trips, particularly during icy wintery conditions. Gulley gratings can present a trip hazard for pedestrians, leading to trip and fall injuries.
Recommendation:	Relocate the pedestrian crossing so it is not coincident with the low spot and associated drainage gullies.

2.13 Long pedestrian crossing at bellmouth

Location:	East Bank Road ch 0+190
Drawing(s):	274580-ARP-XX-XX-DR-CX-1101
Summary:	Long bellmouth increases the risk of a pedestrian being hit by HGV.
Problem:	<p>The main Hanson site access is about 20m across the bellmouth. From a northerly direction, pedestrians would have to cross East Bank Road (ch 130-160) and then cross the bellmouth.</p> <p>The Hanson access would cater for HGVs and pedestrians could be midway across the bellmouth when the HGV driver wishes to turn. Pedestrians could be struck by a turning HGV if the driver fails to see them.</p>
Recommendation:	Extend the footway on the far side of East Bank Road to overcome the need to cross the bellmouth at the main Hanson site access.

2.14 Insufficient turning space, Hanson main access

Location:	East Bank Road chainage 0+190
Drawing(s):	274580-ARP-XX-XX-DR-CX-1130
Summary:	Insufficient turning space leading to turning and reversing conflicts.
Problem:	<p>The swept path analysis excludes an HGV turning right into the access.</p> <p>Inadequate turning space may lead to collisions between opposing HGVs. If opposing HGVs are unable to turn at the same time, one of HGVs may need to reverse with a risk of colliding with other road users.</p>
Recommendation:	Demonstrate that the turning space at the Hanson main access is adequate to accommodate all possible HGV turning movements.

2.15 Insufficient access width, Hanson access to Marshalls

Location:	East Bank Road, chainage 0+280
Drawing(s):	274580-ARP-XX-XX-DR-CX-1101 274580-ARP-XX-XX-DR-CX-1130
Summary:	Insufficient carriageway width leading to head-on collisions.
Problem:	<p>The road markings imply that the Hanson access to Marshalls would be one-way but the swept path analysis is for two-way. The swept path analysis shows that the width of the access would be too narrow for two-way HGVs.</p> <p>Two-way HGVs would collide head-on. Avoid collision would require one of the HGVs to reverse with a risk of collision with other road users.</p>
Recommendation:	Provide sufficient road width to cater for the required manoeuvres. The road markings should be consistent with the intended use.

2.16 Insufficient turning space, Marshalls site access

Location:	East Bank Road ch 0+285
Drawing(s):	274580-ARP-XX-XX-DR-CX-1130
Summary:	HGVs straddle the centre lines with a risk of head-on collisions.
Problem:	<p>The swept path analysis shows that HGVs turning left in to and out of the access would not be able to turn at the same time. The swept path analysis excludes HGVs turning right. Traffic data is not included in the RSA brief and, with the new road in place, traffic redistribution from Corporation Road may increase traffic flows on East Bank Road.</p> <p>Should HGVs need to turn left and left out at the same time, the HGV entering the site would wait for the HGV exiting the site to clear the junction. A driver behind the waiting HGV may try and overtake and could collide with the HGV exiting the site. The risk of collision would be greater if the road is busier.</p>
Recommendation:	Enlarge the turning area so that left-turning HGVs could enter and exit the site at the same time. Demonstrate that the turning space at the access is adequate to accommodate right-turning HGVs.

2.17 Swale and basin unprotected

Location:	East Bank Road ch 0+480
Drawing(s):	274580-ARP-XX-XX-DR-CX-1102 274580-ARP-XX-XX-DR-CX-1121 274580-ARP-XX-XX-DR-CX-1151
Summary:	Lack of protection to swale and basin increases the severity of injury if collision occurs.
Problem:	<p>The proposed swale and basin are located about 20m from a bend. The invert level of the culvert under the road is 0.8m higher than mean spring high water (MSHW) and the basin is to contain permanent water depth.</p> <p>A driver losing control on the bend may enter the basin and, at worst, there is a risk of drowning.</p>
Recommendation:	Undertake a risk assessment and provide a vehicle restraint barrier if required.

2.18 Lack of culvert protection

Location:	East Bank Road ch 0+490
Drawing(s):	274580-ARP-XX-XX-DR-CX-1121 274580-ARP-XX-XX-DR-CX-1151
Summary:	Lack of culvert protection increases severity of injury if a collision occurs.
Problem:	The proposed culvert includes indicative wing walls and is located about 80m from a bend. A driver losing control on the bend and hitting a concrete wingwall could be severely injured.
Recommendation:	Undertake a risk assessment for the proposed culvert wingwalls and provide vehicle restraint if required.

2.19 Inadequate queueing length

Location:	East Bank Road ch 0+550 and 0+630
Drawing(s):	74580-ARP-XX-XX-DR-CX-1111
Summary:	Inadequate queueing space at the gates leading to collisions on East Bank Road.
Problem:	The length of queueing space between the edge of East Bank Road carriageway and the gates at the boundary appear to be shorter than a typical heavy goods vehicle (HGV). HGVs stopped at the gates at the boundary may overhang the edge of East Bank Road carriageway. Through traffic on East Bank Road may collide with the rear end of an overhanging HGV or brake suddenly to avoid collision.
Recommendation:	Reposition the gates at the boundary to increase the length of queueing space between the gate and the edge of East Bank Road carriageway to accommodate the longest vehicle expected to use the access.

2.20 Insufficient turning space, accesses to Marshalls site and aggregate store

Location:	East Bank Road ch 0+550 and 0+630
Drawing(s):	274580-ARP-XX-XX-DR-CX-1131
Summary:	HGVs straddle the centre lines with a risk of head-on collisions.
Problem:	<p>The swept path analysis shows that HGVs turning left in to and out of the new access would not be able to turn at the same time. The swept path analysis excludes HGVs turning right at the access. Traffic data is not included in the RSA brief and, with the new road in place, traffic redistribution from Corporation Road may increase traffic flows on East Bank Road.</p> <p>Should HGVs need to turn left in and left out at the same time, the HGV entering the site would wait for the HGV exiting the site to clear the junction. A driver behind the waiting HGV may try and overtake and could collide with the HGV exiting site. The risk of collision would be greater if the road is busier.</p>
Recommendation:	Enlarge the turning area so that left-turning HGVs could enter and exit at the same time. Demonstrate that the turning space at the accesses is adequate to accommodate right-turning HGVs.

2.21 Lack of swept path analysis, horizontal bend

Location:	East Bank Road ch 0+600
Drawing(s):	274580-ARP-XX-XX-DR-CX-1140
Summary:	Lack of swept path leading to front offside collisions.
Problem:	<p>The swept path analysis does not show opposing HGVs on the bend at chainage 600.</p> <p>There is a risk of front offside collisions if one or both of the opposing HGVs straddle the centre line.</p>
Recommendation:	Demonstrate that the carriageway is wide enough to accommodate opposing HGVs. If necessary, provide carriageway widening to ensure that HGVs can pass safely.

2.22 Obscured forward visibility

Location:	East Bank Road ch 0+600
Drawing(s):	274580-ARP-XX-XX-DR-CX-1102 274580-ARP-XX-XX-DR-CX-1104
Summary:	Obscured visibility leading to a variety of collisions.
Problem:	The RSA brief does not include a forward visibility envelope at chainage 0+600. There are existing trees on the inside of the bend that are outside the limits of site clearance. Inadequate forward visibility could lead to collisions with obstructions in the carriageway ahead or sudden braking and loss of control.
Recommendation:	Provide adequate stopping sight distance across the bend. The visibility envelope should be clear of any obstructions such as trees.

2.23 Termination of cycle lane

Location:	Stephenson Street
Drawing(s):	274580-ARP-XX-XX-DR-CX-1201
Summary:	Cycle lane obstructed by bioretention area leading to cyclist injury.
Problem:	The proposed bioretention areas narrow the carriageway and obstruct the westbound cycle lane. Cyclists may continue into the bioretention area causing them to fall from their bikes and sustain injury.
Recommendation:	Incorporate the cycle lane in the road markings and signage at detailed design stage.

3 Road Safety Audit Team Statement

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

We certify that the RSA team has performed its duties in accordance with GG 119.

Audit Team Leader

Name:	Tansin Brown IEng, MICE, MCIHT
Signed:	
Position:	Senior Engineer
Organisation:	Ove Arup & Partners Ltd 63 St Thomas St, Bristol BS1 6JZ
Date:	28 January 2021

Audit Team Member

Name:	Michal Nowinski MEng, GMICE, MCIHT
Signed:	
Position:	Engineer
Organisation:	Ove Arup & Partners Ltd The Arup Campus, Blythe Gate, Blythe Valley Park, Solihull B90 8A
Date:	28 January 2021

Figures

Figure 2: Problem Location Plan 1 of 3

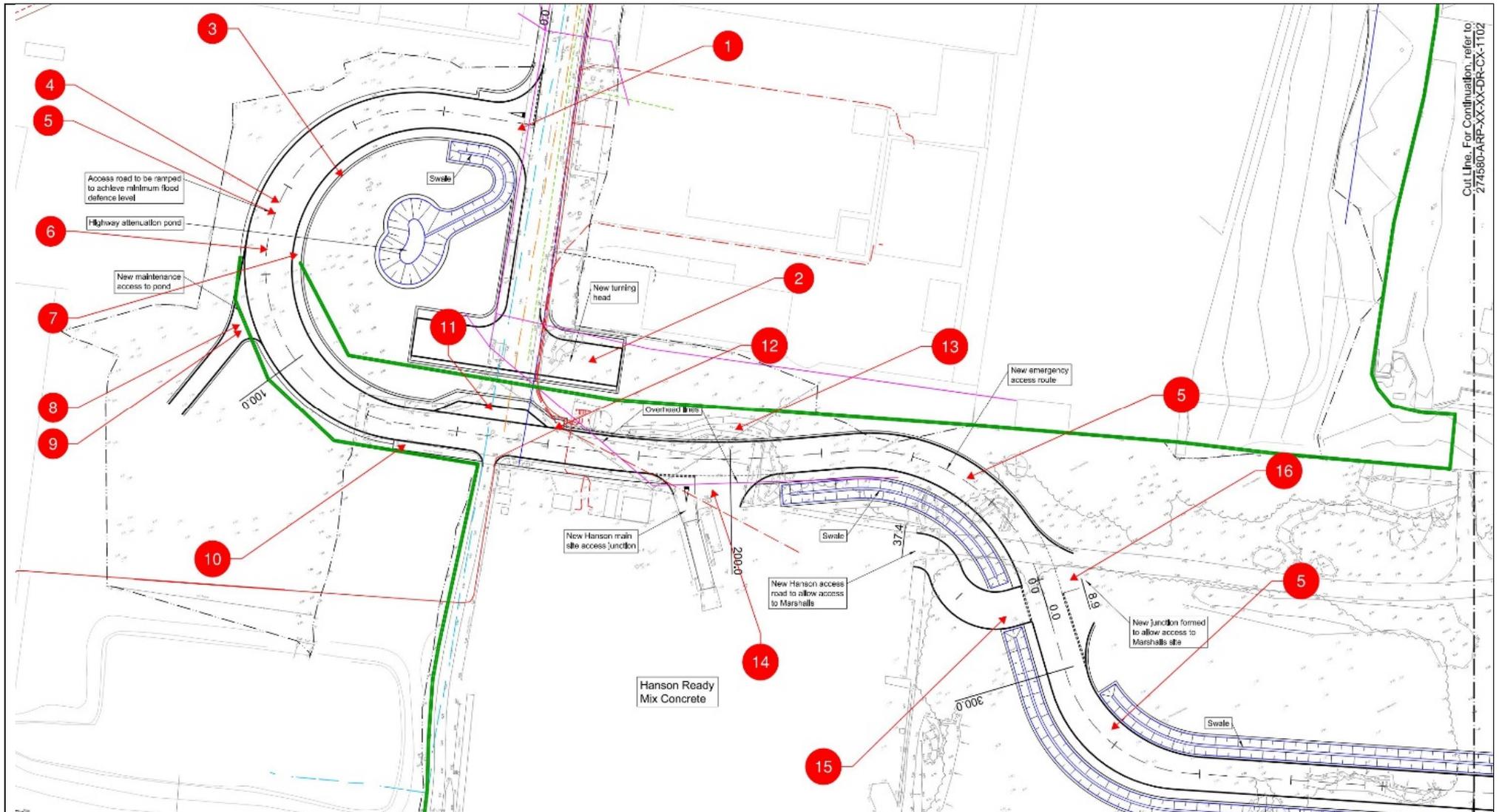


Figure 3: Problem Location Plan 2 of 3

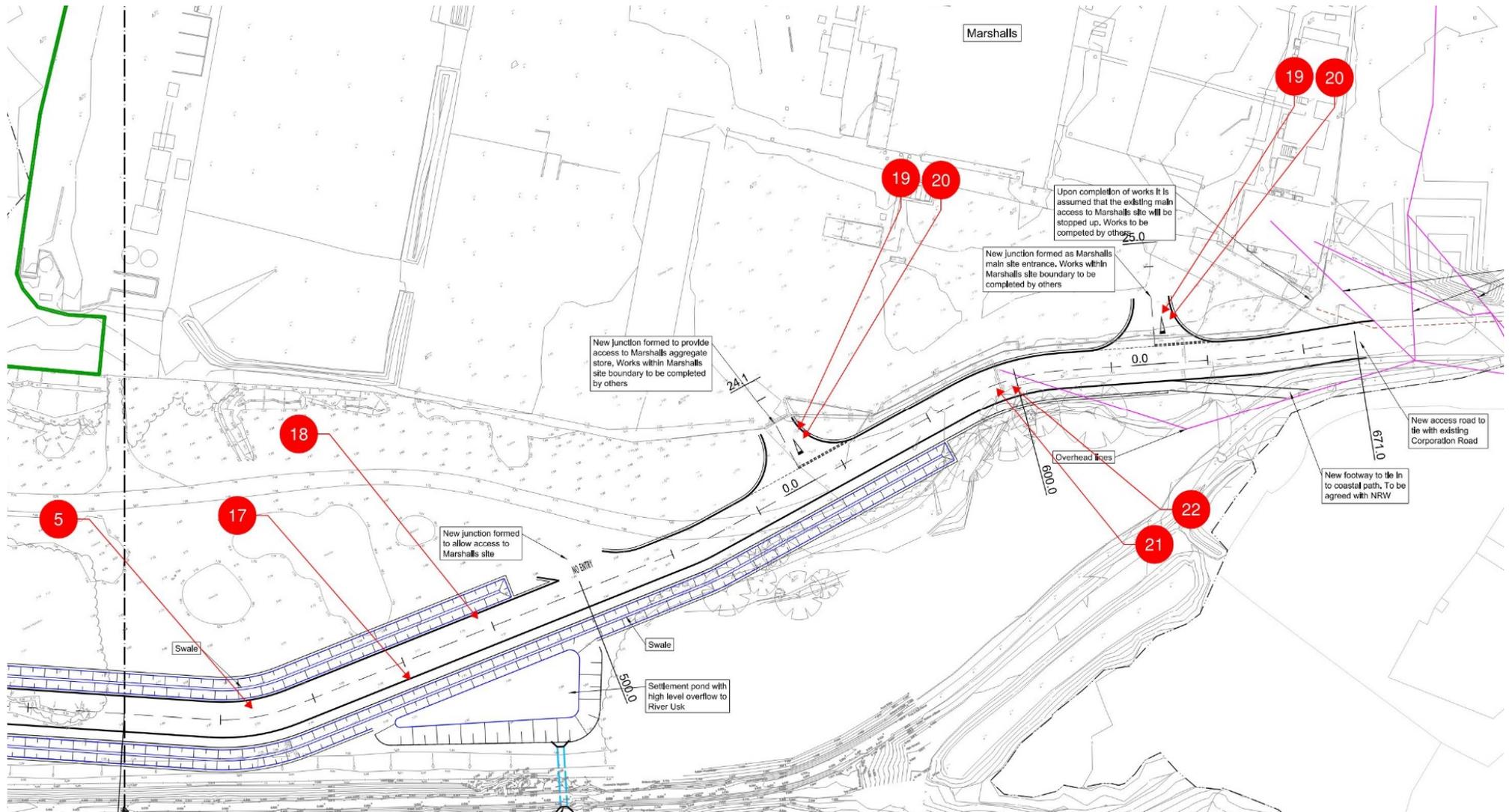
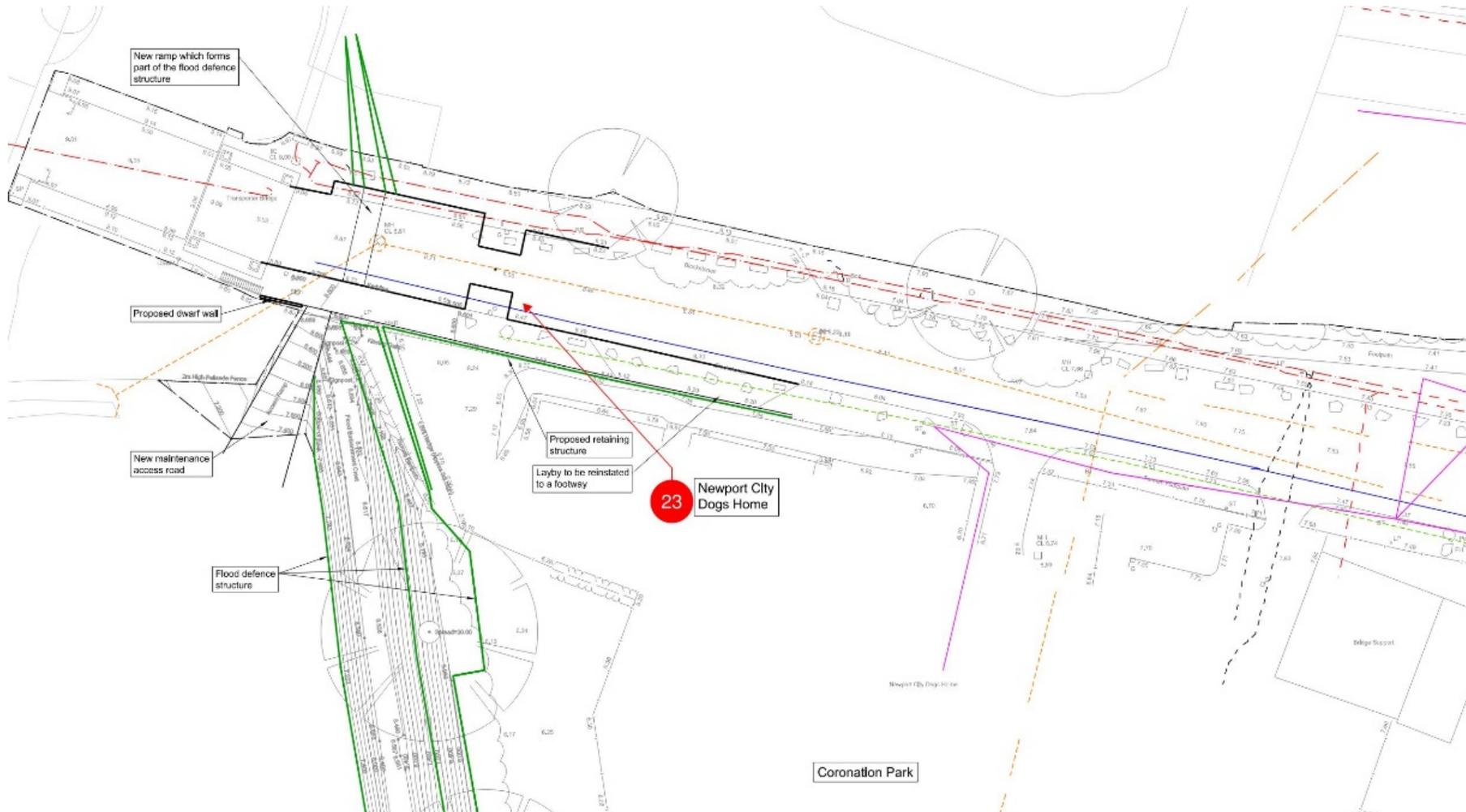


Figure 4: Problem Location Plan 3 of 3



Appendix A

Documents and Drawings

A1 List of Documents

Title	Reference	Revision/ Date
Road Safety Audit Brief	274580-00	24 November 2020

A2 List of Drawings

Title	Reference	Revision/ Date
Highway Key Plan	274580-ARP-XX-XX-DR-CX-1000	I01
East Bank Road General Arrangement and Existing Utilities Plan Sheet 1 of 2	274580-ARP-XX-XX-DR-CX-1101	I01
East Bank Road General Arrangement and Existing Services Plan Sheet 2 of 2	274580-ARP-XX-XX-DR-CX-1102	I01
East Bank Road Site Clearance Sheet 1 of 2	274580-ARP-XX-XX-DR-CX-1103	I01
East Bank Road Site Clearance Sheet 2 of 2	274580-ARP-XX-XX-DR-CX-1104	I01
East Bank Road Highway Contours Kerbing and Fencing Sheet 1 of 2	274580-ARP-XX-XX-DR-CX-1110	I01
East Bank Road Highway Contours Kerbing and Fencing Sheet 2 of 2	274580-ARP-XX-XX-DR-CX-1111	I01
East Bank Road Highway Construction Finishes Sheet 1 of 2	274580-ARP-XX-XX-DR-CX-1120	I01
East Bank Road Highway Construction Finishes Sheet 2 of 2	274580-ARP-XX-XX-DR-CX-1121	I01
East Bank Road Highway Construction Details	274580-ARP-XX-XX-DR-CX-1122	I01
East Bank Road Vehicle Swept Path Analysis Sheet 1 of 2	274580-ARP-XX-XX-DR-CX-1130	I01
East Bank Road Vehicle Swept Path Analysis Sheet 2 of 2	274580-ARP-XX-XX-DR-CX-1131	I01
East Bank Road Highway Long Sections	274580-ARP-XX-XX-DR-CX-1140	I01
East Bank Road Proposed Highway Drainage Sheet 1 of 2	274580-ARP-XX-XX-DR-CX-1150	I01
East Bank Road Proposed Highway Drainage Sheet 2 of 2	274580-ARP-XX-XX-DR-CX-1151	I01
East Bank Road Proposed Drainage Catchments	274580-ARP-XX-XX-DR-CX-1152	I01
East Bank Road Proposed Drainage Details Sheet 1 of 2	274580-ARP-XX-XX-DR-CX-1153	I01

Title	Reference	Revision/ Date
East Bank Road Proposed Drainage Details Sheet 2 of 2	274580-ARP-XX-XX-DR-CX-1154	I01
East Bank Road Visibility Splays Sheet 1 of 2	Draft 1	I01
East Bank Road Visibility Splay Sheet 2 of 2	Draft 2	I01
Stephenson Street General Arrangement and Existing Utilities Plan	274580-ARP-XX-XX-DR-CX-1201	I01
Stephenson Street Site Clearance	274580-ARP-XX-XX-DR-CX-1202	I01
Stephenson Street Highway Contours, Kerbing and Fencing and Cross Section	274580-ARP-XX-XX-DR-CX-1210	I01
Stephenson Street Highway Construction Finishes	274580-ARP-XX-XX-DR-CX-1220	I01
Stephenson Street Proposed Highway Drainage	274580-ARP-XX-XX-DR-CX-1230	I01
Marshalls Preferred Option	246344/0014	P01