

CORMAC

Withiel HGV Route Feasibility Study

Design Feasibility Report

Consultancy | Engineering Design Group

Infra22-085-CSL-GEN-SW994653-RP-CH-0001



PART OF THE
CORSERV GROUP
A CORNWALL
COUNCIL COMPANY



www.corma ltd.co.uk

Issue & Revision Record						
Revision	Date	Originator	Checked	Authorised	Purpose of Issue	Nature of Change
P01	03.02.23	AP	AC	CS	Feasibility	

CORMAC

If you would like this report in another format, please contact

Prepared by
Engineering Design Group
Western Group Centre
Radnor Road
Scorrier
Redruth
TR16 5EH

CORMAC Solutions Ltd

Head Office
 Higher Trenant Road
 Wadebridge
 Cornwall
 PL27 6TW

Tel: 01872 323 313

Email: customerrelations@cormacltd.co.uk
www.cormacltd.co.uk/

This document has been prepared for the titled project or named part thereof and should not be relied upon or used for any other project without an independent check being carried out as to its suitability and prior written authority of Cormac Solutions Ltd being obtained. Cormac Solutions Ltd accepts no responsibility or liability for the consequences of this document being used for a purpose other than the purposes for which it was commissioned. Any person using or relying on the document for such other purposes agrees, and will by such use or reliance be taken to confirm his agreement to indemnify Cormac Solutions Ltd for all loss or damage resulting therefrom. Cormac Solutions Ltd accepts no responsibility or liability for this document to any party other than the person by whom it was commissioned.

- Page Left Intentionally Blank -

CONTENTS

1	INTRODUCTION	1
1.1	Scheme background	1
1.2	Study area	1
2	EXISTING CONDITIONS	5
2.1	Current speed limits and data	5
2.2	Collision data	5
2.3	Existing road network and traffic data	7
2.4	Existing restrictions and signing	9
3	DESIGN METHODOLOGY	12
4	PROPOSED STRATEGY	13
4.1	Option 1- TRO and weight prohibition signing with HGV turning point	13
4.2	Option 2 – Advisory signage and signing strategy	18
5	COST ESTIMATION AND KEY RISKS	19
6	CONCLUSION AND RECOMMENDATIONS	20
7	APPENDICES	21
7.1	Appendix A – 2019 Traffic count	21
7.2	Appendix B - Drawings 0001-0004	23
7.3	Appendix C – Evidence	25

- Page Left Intentionally Blank -

DRAWINGS

INFRA085-CSL-GEN-SW994653-DE-CH-0001

INFRA085-CSL-GEN-SW994653-DE-CH-0002

INFRA085-CSL-GEN-SW994653-DE-CH-0003

INFRA085-CSL-GEN-SW994653-DE-CH-0004

- Page Left Intentionally Blank -

1 Introduction

1.1 Scheme background

- 1.1.1 As part of the Community Network Panel Highway Scheme Programme of work, Cormac Infrastructure Design has been commissioned to undertake a feasibility study. This study is to review opportunities for alleviating ongoing concerns, in relation to Heavy Goods Vehicles (HGVs) using roads that are unsuitable for large vehicles, in Withiel Parish and the wider local rural highway network.
- 1.1.2 The Residents' Association of Withiel have raised concerns that HGVs are causing a safety issue in the villages of Withiel and Ruthernbridge. These HGVs are also reported to have caused damage to properties within the villages and the surrounding lanes. During the site visit in September of 2022 there was evidence of these issues. There has also been photographic evidence of HGVs being stuck provided by the parish council (Appendix C).
- 1.1.3 The local member and CNP on behalf of The Resident's Association have requested a feasibility study to look into possible actions to deter unnecessary HGVs from entering the villages and surrounding narrow lanes.
- 1.1.4 The aims of this feasibility study are:
- To review existing HGV issues and local highway network
 - To identify potential options to direct HGVs on more suitable routes.
 - To identify possible options to stop damage to the listed bridge at Ruthernbridge.

1.2 Study area

- 1.2.1 The study areas of Withiel and Ruthernbridge are located between Wadebridge to the north and Victoria (Victoria A30 Services) to the south (Figure 1.1) and Bodmin to the east.

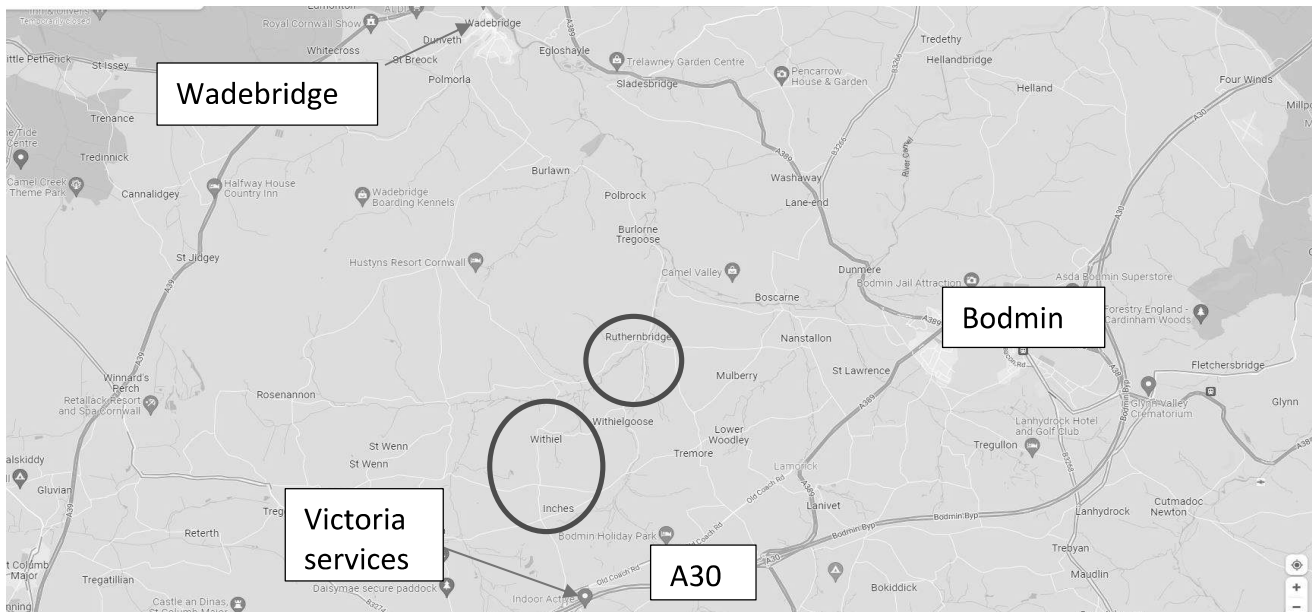


Figure 1.1 – Map of study areas

1.2.2 The study will investigate and propose possible options relating to two zones as listed below:

- Zone 1: Ruthernbridge
- Zone 2: Withiel

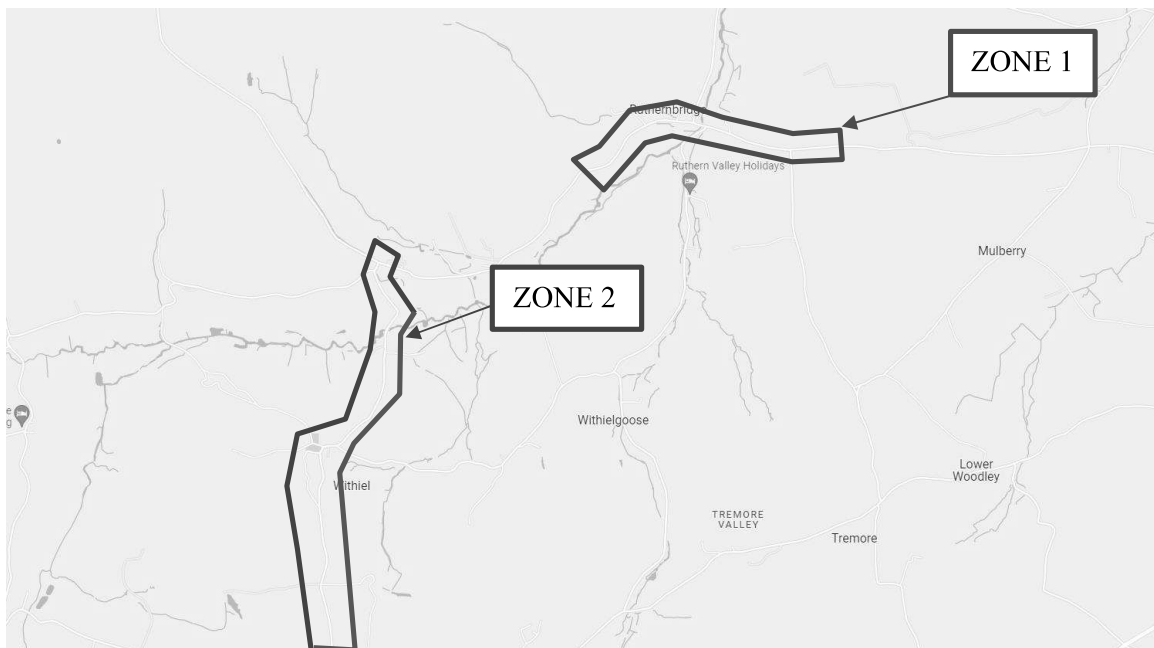


Figure 1.2 - Study area locations

1.2.3 Zone 1: Ruthernbridge

Ruthernbridge is a small rural village located within the parish of Withiel. It is centred around an early 15th-century bridge (Figure 1.3). Historic England has it listed as a scheduled monument. The bridge has a width of 2.36m at its central point. The village has a main C class road, that runs from west to east through the village.



Figure 1.3 –Scheduled monument Ruthernbridge (Google Streetview , 2010)

1.2.4 Zone 2: Withiel

Withiel is a rural village located to the southwest of Ruthernbridge, linked by narrow lanes. There is a 12% incline on the southern side of the of the village when leaving the village and travelling south (figure 1.4).



Figure 1.4 – South Exit to village travelling southbound (Google Streetview , 2010)

- 1.2.5 There is a valley located to the north of the village. As a result of the topography, both northbound and southbound vehicles travelling through the village must negotiate steep gradients. Within Withiel village there is a Grade 1 listed church, attached to a Grade 2 listed church wall (Figure 1.5) , the road width at this location is 2.9m. There is damage to the existing Grade 2 listed Church wall. This damage has most likely occurred as a result of the wall being struck by a large vehicle.



Figure 1.5 – Withiel Church and Grade 2 listed wall. South entrance to village travelling northbound (Google Streetview, 2010)

2 Existing Conditions

2.1 Current speed limits and data

2.1.1 Throughout both Withiel and Ruthernbridge there is a 30mph speed limit.

2.1.2 There are no RadarClass speed monitoring surveys within the study areas.

2.2 Collision data

2.2.1 A search of Cornwall Council's Highway Collision data base AccsMap, found that during the last 5 years, within both Withiel and Ruthernbridge no collisions between a pedestrian and/or vehicles, have been recorded. However due to evidence received from residents, there have been 2 accounts of lorries being stuck, as well as 4 accounts of physical damage to highway trees, bridges and village property walls these locations are shown in figure 2.1.

2.2.2 During the Cormac Infrastructure Design site visit 13th September 2022 it was noted that a stay for an electrical pylon, located on the church wall within Withiel, showed signs of vehicle damage.

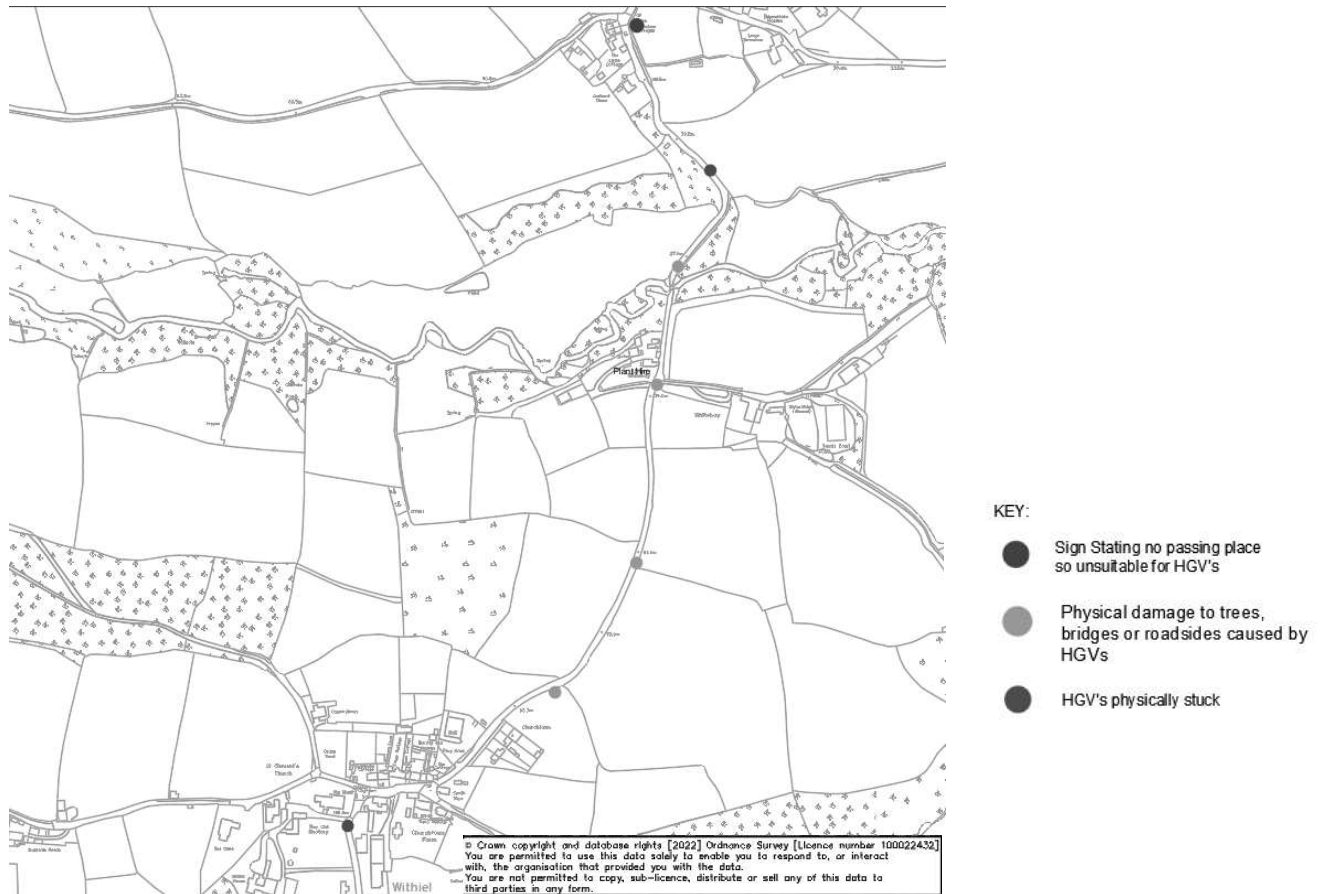


Figure 2.1 Withiel locations of stuck vehicles or damage. Source for locations: Withiel Parish Council

2.2.3 Within Ruthernbridge it was noted that repairs have previously been made to the bridge, following vehicle damage. The location of the damage is shown in figure 2.2

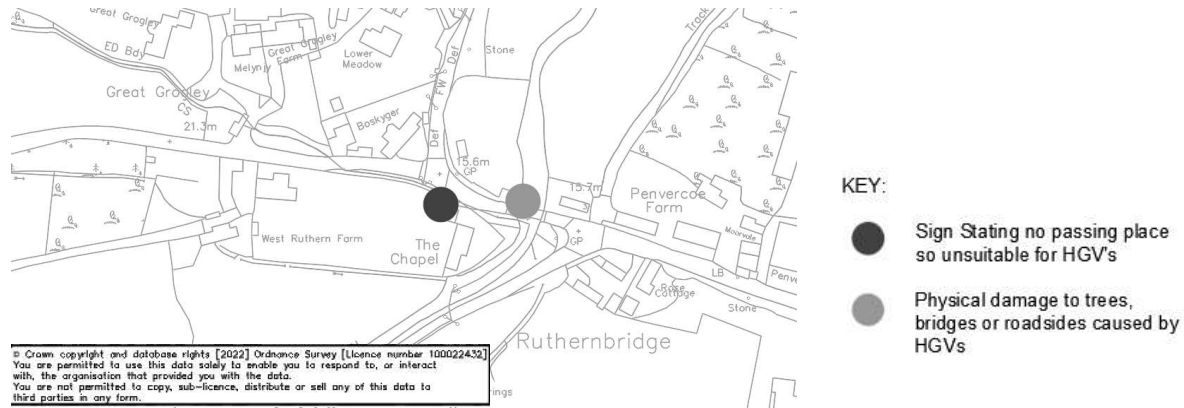


Figure 2.2 – Ruthernbridge locations of stuck vehicles or damage. Source: Cornwall Highways

2.2.4 During the Cormac Infrastructure Design site visit 13th September 2022, there was visible evidence of damage caused by larger vehicles. This included branches broken from overhanging trees and damaged carriageway surfacing, considered to be as a result of tight turning movements and wheel spinning from larger vehicles.

2.3 Existing road network and traffic data

- 2.3.1 Within the two zones there has been one traffic count taken within the last 5 years. It was taken at the location shown on figure 2.3 on 26th of June 2019 between the hours of 7am and 7pm.

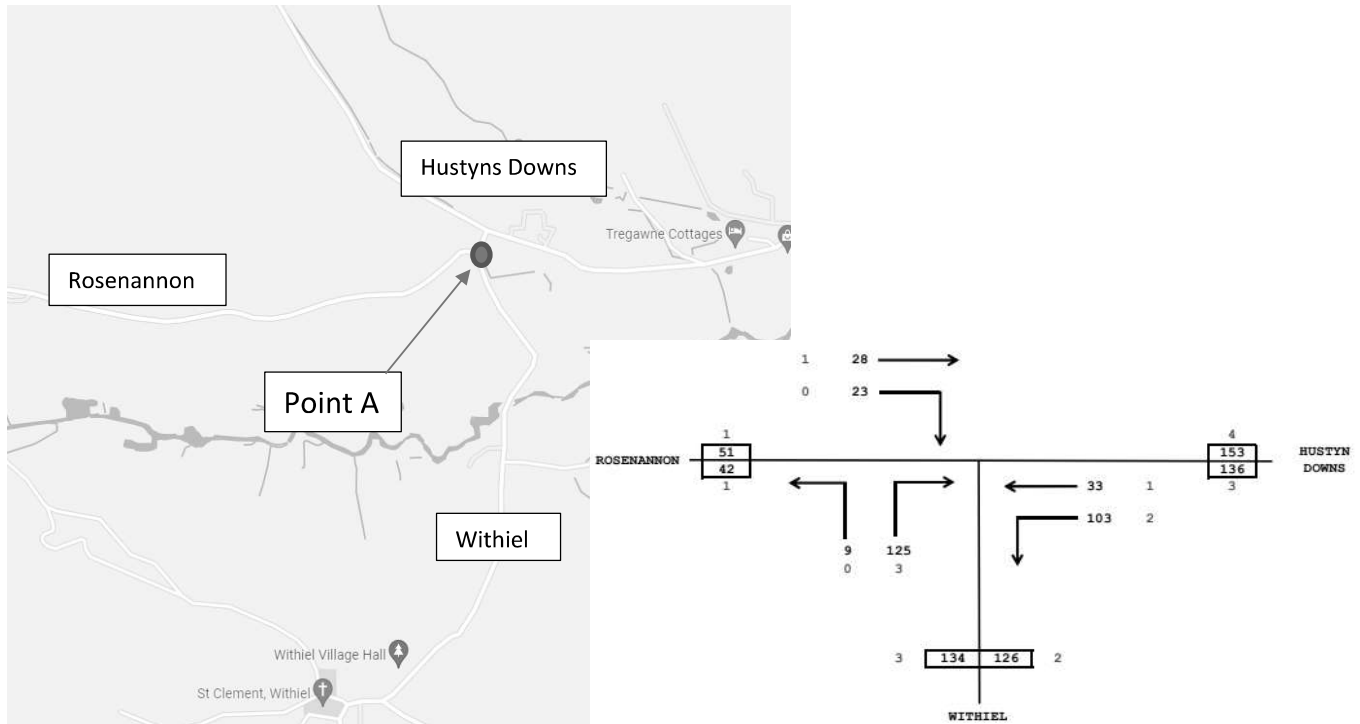


Figure 2.3 – Location of traffic count(Google Maps ,2022) and traffic flows (Black - total flow and Red - HGVs)

- 2.3.2 From Figure 2.3 it is noted that during the count, 3 rigid 2 axle HGVs travelled in a northerly direction through Withiel.
- 2.3.3 Traffic flow over the period of the traffic count, in a southerly direction totalled 126 vehicles 2 of which were HGVs.
- 2.3.4 Traffic flow over the period of the traffic count, in a northerly direction from Withiel totalled 134 vehicles 3 of which were HGVs.
- 2.3.5 The recorded traffic flows highlight the presence of HGVs travelling through Withiel. It must be stated that there are no destination details for these vehicles. They could therefore be on required access to local properties or businesses.
- 2.3.6 A supermarket chain HGV was reported by the Parish Council to be stuck within the local lanes. The lorry was likely travelling between a branch at Cornwall Services located at the A30 Victoria and another branch located in Wadebridge.

- 2.3.7 The route advised by Google Maps, between Cornwall Services and Wadebridge, (Figure 2.4) takes 21 minutes. This does not account for the terrain and the suitability of the roads, through and around Withiel. The alternative routes of the A39 or A389 routes, as indicated below, take 26 or 23 minutes, respectively.



Figure 2.4 – SAT-NAV route and alternate options. (Google Maps, 2022)

- 2.3.8 The route eastbound, as shown in figure 2.4, that uses the A389 via Bodmin is suitable for HGV traffic. The route westbound, as shown in figure 2.4, is not suitable as it has height restrictions in the form of a low bridge. The alternate westbound route avoiding the bridge and using the A30 then A39 northbound is longer.
- 2.3.9 An Annual Average Daily Traffic (AADT) count was recorded in 2019. This states that 320 vehicles per day (two way) use the road, through zone 1 Ruthernbridge.

2.4 Existing restrictions and signing

- 2.4.1 **Withiel:** Motorists travelling through Withiel are made aware that the roads are unsuitable for HGVs, with no designated passing places, by the use of signs. These signs are located as shown above in figures 2.1 and 2.2.



Figure 2.5 unsuitable for HGV no passing places advisory sign (Google Streetview , 2010)

- 2.4.2 This sign in figure 2.5 is located on the junction of the 2019 traffic count highlighted shown as point A in figure 2.3. The Traffic count data 2.3.3, shows that 2 HGVs travelled into/through Withiel and past the existing sign.
- 2.4.3 The text, location and height of the sign may all contribute to its effectiveness.
- 2.4.4 The position of the sign could be improved. South bound traffic turning in to the junction north of the sign (figure 2.6), won't see the sign until it is too late to turn around. Following this sign there are very limited opportunities for HGVs to perform a U turn manoeuvre.



Figure 2.6 north of Withiel looking southbound to the blue sign (highlighted in red) (Google Streetview , 2010)

- 2.4.5 Southbound traffic that chooses the right turn to avoid Withiel because of the sign, will travel to Rosenannon, through another unsuitable road for HGVs that is not signed.

- 2.4.6 The traffic count from 2019 (Figure 2.3) showed that 3 HGVs travelled in a northerly direction through Withiel. There are no warning signs to the south of the village that would inform or deter HGV drivers.
- 2.4.7 As mentioned in paragraph 1.2.4, there is a steep hill on the southern side of Withiel signed with a 12% incline, as well as narrowing roads.
- 2.4.8 Within the village of Withiel, there has often been a vehicle parked outside a house, on the apex of the corner of the main road through the village and close to the junction leading east to Withielgoose, the position of the vehicle is shown on figure 2.7. The position of the parked vehicle reduces the vision of other vehicles and forces vehicles and HGVs towards the junction fingerpost sign and significantly narrows the road.



Figure 2.7 – Withiel parked cars (Google Streetview , 2010)

- 2.4.9 **Ruthernbridge:** The village has an unsuitable for HGVs sign located on the west side of the river Ruthern and across the bridge see figure 2.8. The sign advises road users travelling westbound across Ruthernbridge that the road to the west towards Withiel is unsuitable for HGVs no passing places. Its location could be improved by warning drivers before the bridge.



Figure 2.8 Ruthernbridge looking westbound to blue sign (highlighted in red) (Google Streetview , 2010)

2.4.10

As shown on figure 2.9 below and from conversation with the Parish Council members, there is local concern that a section of road shows signs of some considerable surface degradation. The Area Highway Manager has stated that the site is being monitored during the routine carriageway inspection regime and that a resurfacing scheme is likely to be taken forward here. As part of the routine carriageway inspection, it has been noted that there are no signs of movement on the slope below the road. It is therefore considered that it is the construction of the road surface that has started to fail.

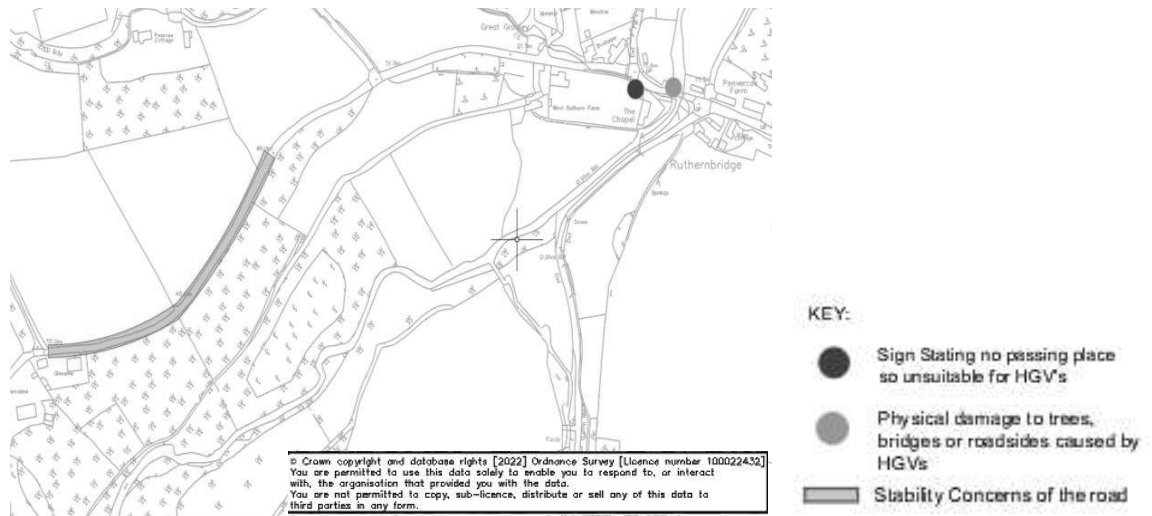


Figure 2.9 – location of stability concerns west of Ruthernbridge

3 Design Methodology

3.1 Data gathering

- 3.1.1 A desktop-based study has been undertaken. This study has focused on reviewing all known available traffic data and constraints on the two sites and connected routes. Evidence provided by local residents has also been utilised.
- 3.1.2 A site visit was undertaken on the 13th of September 2022 to assess the study area and meet with Withiel Parish Councillors. During the site visit local councillors showed the area where problems had previously occurred. Weather conditions were overcast with heavy rain.
- 3.1.3 Cormac Infrastructure Design have found no historical studies or previous proposals undertaken into the alleviation of HGVs and the damage they cause in the Withiel Parish.
- 3.1.4 During the site visit on the 13th of September discussions were undertaken with the parish councillors. It was discussed during this time that the damage being caused to the bridge might be resolved with the implementation of oak bollards. This project is currently underway and being delivered by Cormac. It is due for commencement within the next financial year, with an anticipated completion date of spring 2023. Therefore this will not be priced in this report.

4 Proposed Strategy

4.1 Option 1- TRO and weight prohibition signing

4.1.1 The first option proposes the prohibition except for access of HGVs, this will be implemented as a weight restriction. Signage shown below.



4.1.2 It is recommended that this new traffic engineering proposal is delivered by the process of a 3-week consultation followed by the permanent implementation of a Traffic Regulation Order (TRO) with the addition of improved directional signage as shown by the green marks in Figure 4.1, 4.2 and 4.3.

4.1.3 This TRO will have an exception for access. Deliveries to residents and business within the TRO extents will be advised to use smaller vehicles by residents.

4.1.4 The weight of vehicles that will be restricted is an important feature of the plan. This will require further local discussions between Councillors, local businesses and Cornwall Highways as not to stop local agricultural traffic.

4.1.5 An access restriction may have a limited effect where HGVs are directed by satnav and the change may take a time before incidents reduce as mapping systems get updated.



Figure 4.1 suggested signing and potential turning point locations

- 4.1.6 When HGVs travelling in a northbound direction reach the sign on the south of Withiel stating a weight restriction is in place. The drivers only way of turning around is to turn into the east junction and reverse into the west junction as shown below (Figure 4.2). This is potentially a dangerous option as they are making the turn within a junction. This is something that will need to be monitored post TRO implementation.

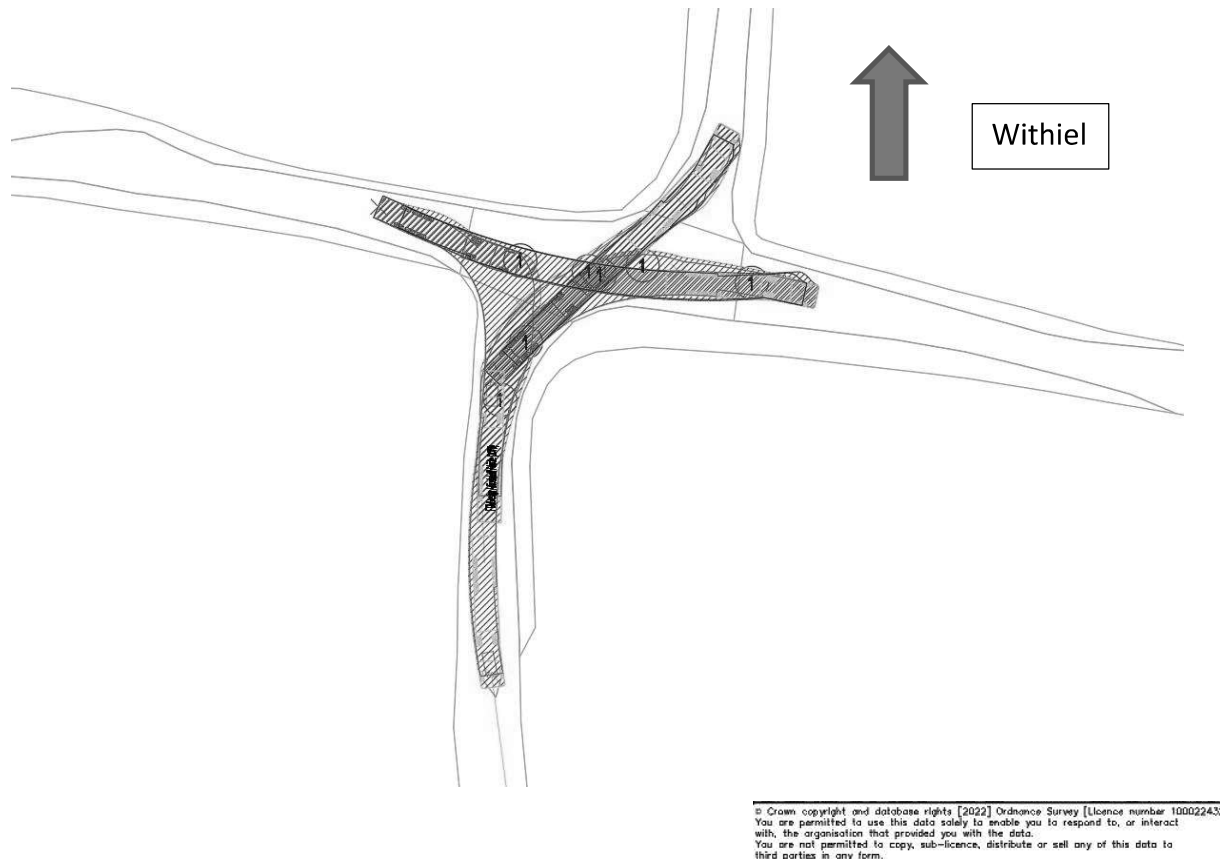


Figure 4.2 HGV turning process vehicle tracking

- 4.1.7 As discussed in following paragraphs it is important that the chosen signing locations do not divert HGVs onto other unsuitable routes where they may cause further damage.

- 4.1.8 HGVs travelling southbound to Victoria services or on to the A30 will be warned by signage at Polmorla outside of Wadebridge (figure 4.3) of the weight limit in Withiel. This will advise them to use the more appropriate route of the A39 located to the west and then travel south via Indian Queens, using the diversion shown in (figure 4.5, blue route). Polmorla was chosen as it was the best place to redirect traffic onto the A39. Other possible areas were reviewed however they all were unsuitable for HGVs this was shown with both signage and general characteristics of the roads.

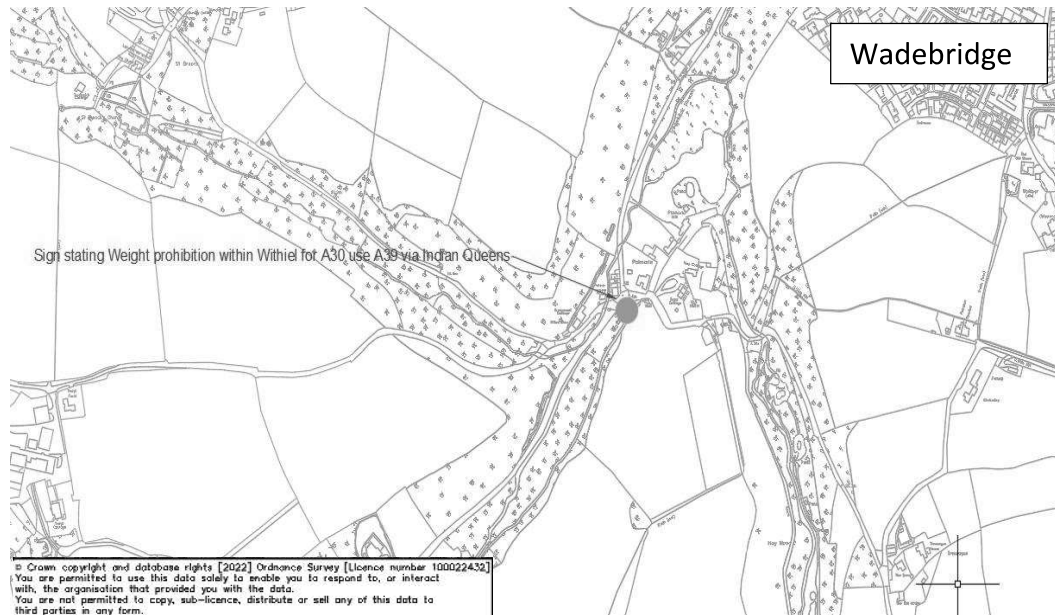


Figure 4.3 signing warning HGV drivers of weight restriction within Withiel

- 4.1.9 HGVs travelling northbound to Wadebridge will be warned of the weight limit in Withiel and advised to return to the A389 and travel eastbound via Bodmin towards Wadebridge. This is a result of the existing height restriction associated with the iron bridge on the A39 (figure 4.5, red route). Signing location will be close to the A30 (figure 4.4)



Figure 4.4 signing warning HGV drivers of the weight restriction within Withiel

4.1.10 These two diversions are shown in figure 4.5

4.1.11 As included part of the works costs for option 1 detailed sign locations and impact on local signing and strategic road networks will be reviewed.

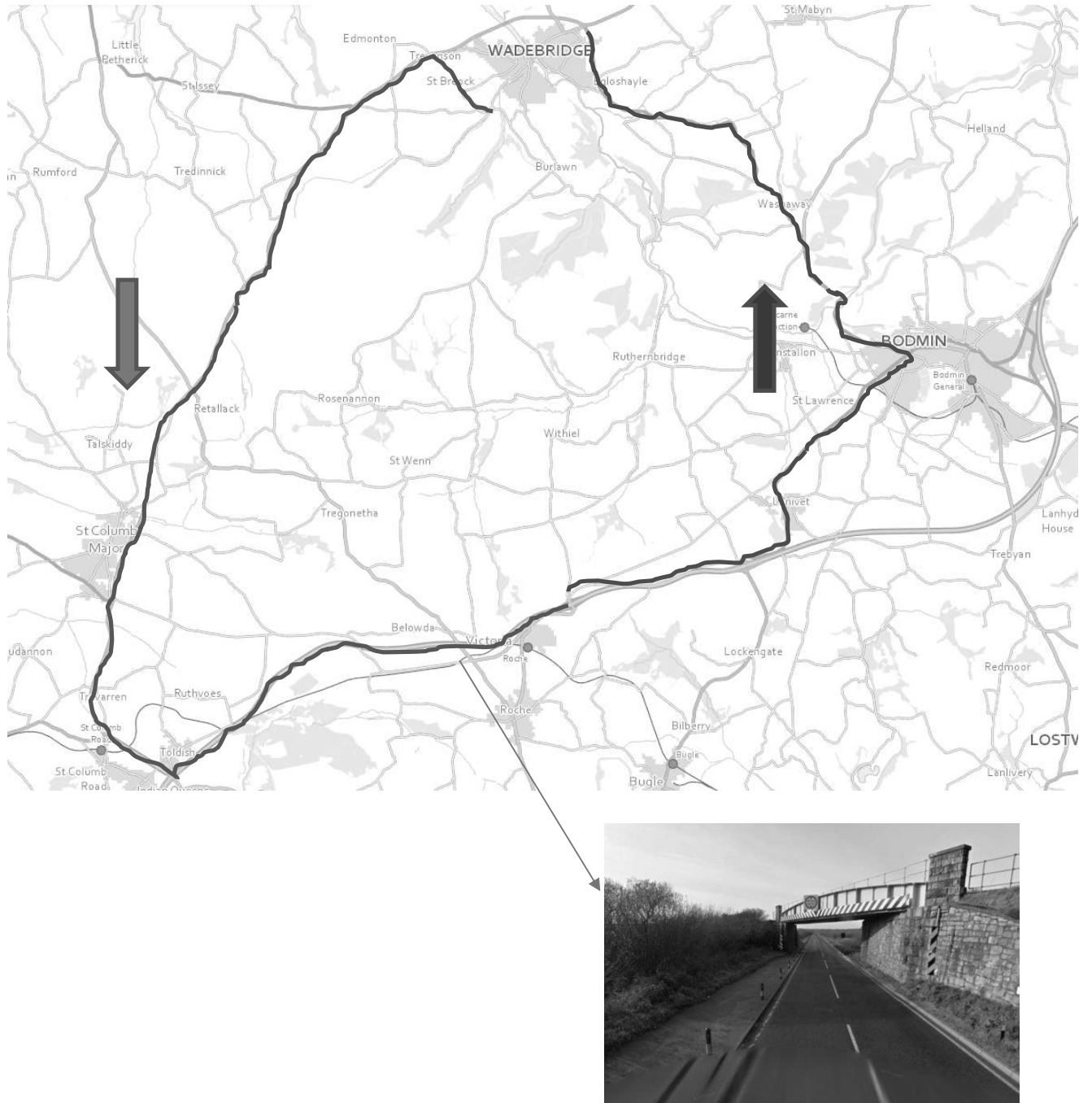


Figure 4.5 diversion routes (top) and low bridge 4.3m prohibiting use of A39 for HGVs(bottom) (Google Streetview , 2010)

4.2 Option 2 – Advisory signage and signing strategy

- 4.2.1 The second option to control HGV access to unsuitable routes within the Withiel Parish is for advisory signage only.
- 4.2.2 This is considered a more affordable version of option 1 as it does not include a TRO or the extensive signage to support it.
- 4.2.3 The removal of the TRO from option 2 will mean that the associated signage is not a prohibition, it is only advisory and therefore will not be enforceable.
- 4.2.4 Detailed sign locations and impact on local signing and strategic road networks will be reviewed as part of the design costs .

5 Cost Estimation and Key Risks

5		Table 5.1 Estimated Total Costs					
Location/Option	Design fee	Works Cost	Risk	Total	Topo Survey (Estimate)	Land (Estimate)	Ecological
Option 1- Weight restriction signage without HGV turning area	£15,000	£20,000 Sign installation	£4,000	£39,000	Not Required	Not Required	Not required
Option 2 – Advisory signage	£5,000	£10,000	£2,000	£17,000	Not Required	Not required	Not Required

Table 5.1 Cost estimate for options 1 and 2

Please note that option 1 may require a turning area for HGVs if issues arise this has not been currently costed for.

Option 1 Design fee to include: 3-week consultation and permanent installation of TRO

6 Conclusion and Recommendations

- 6.1.1 It is considered that the HGV use of unsuitable routes within the Withiel Parish stems from the lack of prior warning to HGVs of the existing highway constraints.
- 6.1.2 Two options have been put forward from the information gathered during a desktop study and site visit.
- 6.1.3 Option One: will initially be through an enforceable Traffic Regulation Order (TRO), weight restriction. The Police would have power to enforce the Order.
- 6.1.4 This restriction will mean that HGV traffic travelling northbound will need to be diverted around the A389 via Bodmin.
- 6.1.5 The position of the signs is of the most importance, as the HGVs should be warned of the required route at the earliest opportunity and early enough to avoid them re-routing into other nearby Parishes, with equally unsuitable routes for HGV's.
- 6.1.6 A detailed review of the correct signs and the position of these signs gives HGV drivers a clear understanding that the route is unsuitable. This is required before they reach a point at which all alternative routes are unsuitable, and a return manoeuvre is impossible or dangerous.
- 6.1.7 Although more affordable, Option 2 will not be enforceable and as such, will only be advisory.
- 6.1.8 This means that HGVs travelling within Withiel, but not requiring access to business or property could not be prosecuted, but the signing would still give clear indication of the expected routes for the vehicles to take.
- 6.1.9 The recommendation chosen from this report is option one. This is due to the ability to enforce the restriction within the area, as well as have signage that warns HGV drivers early enough to take alternative routes.

7 Appendices

7.1 Appendix A – 2019 Traffic count

ROAD: C429 KM: 4.57 LOC: BOSNEIVE Cottage, N of WITHIEL FILENAME: AC167
 DATE: 26/06/19 DAY: WEDNESDAY TIME FROM: 700 TO: 1900 JCT No : 884 GRID REF: 199736 066207
 REMARKS:

KEY TO WEATHER: FI=FINE CL=CLOUDY SH=SHOWERY RA=RAIN SN=SNOW FO=FOG
 JUNCTION TURNING MOVEMENTS EXCLUDE PEDAL & MOTOR CYCLES

FLOW DISTRIBUTIONS:	HR INTERVAL BEGINNING AND WEATHER:												TOTAL
	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	
	FI	FI	CL	CL	CL	CL	CL	CL	CL	CL	FI	FI	
FROM APP. 1, C35 TO EXIT:	HUSTYN DOWNS 1035/04												
2: WITHIEL	10	7	3	16	10	7	13	9	11	2	6	9	103
3: ROSEANNON	2	5	4	2	1	0	4	4	6	1	2	2	33
TOTAL INTO JUNCT	12	12	7	18	11	7	17	13	17	3	8	11	136
TOTAL FROM JUNCT	8	9	13	12	8	11	5	13	31	17	15	11	153
FROM APP. 2, C35 TO EXIT:	WITHIEL 1035/04												
3: ROSEANNON	1	2	1	0	1	1	0	0	0	1	0	2	9
1: HUSTYN DOWNS	7	7	10	8	7	11	4	13	23	13	12	10	125
TOTAL INTO JUNCT	8	9	11	8	8	12	4	13	23	14	12	12	134
TOTAL FROM JUNCT	10	9	4	19	12	8	14	11	11	7	10	11	126
FROM APP. 3, C429 TO EXIT:	ROSEANNON 1429/02												
1: HUSTYN DOWNS	1	2	3	4	1	0	1	0	8	4	3	1	28
2: WITHIEL	0	2	1	3	2	1	1	2	0	5	4	2	23
TOTAL INTO JUNCT	1	4	4	7	3	1	2	2	8	9	7	3	51
TOTAL FROM JUNCT	3	7	5	2	2	1	4	4	6	2	2	4	42

	PEDAL CYCLE	MOTOR CYCLE	CARS & TAXIS	BUS & COACH	LIGHT GOODS	MED. GOODS	HEAVY GOODS VEHICLES						TOTAL HGVs	TOTAL EXC MOTOR/PED CYCLES
							RIGID 2 AX	RIGID 3 AX	RIGID 4 AX	ARTIC 3 AX	ARTIC 4 AX	ARTIC 5 AX		
App. 1														
INTO JUNCT	1	0	104	0	27	2	3	0	0	0	0	0	3	136
FROM JUNCT	0	0	117	0	32	0	4	0	0	0	0	0	4	153
TWO WAY	1	0	221	0	59	2	7	0	0	0	0	0	7	289
App. 2														
INTO JUNCT	0	1	97	0	34	0	3	0	0	0	0	0	3	134
FROM JUNCT	0	1	89	0	33	2	2	0	0	0	0	0	2	126
TWO WAY	0	2	186	0	67	2	5	0	0	0	0	0	5	260
App. 3														
INTO JUNCT	0	1	37	0	13	0	1	0	0	0	0	0	1	51
FROM JUNCT	1	1	32	0	9	0	1	0	0	0	0	0	1	42
TWO WAY	1	2	69	0	22	0	2	0	0	0	0	0	2	93
TOTAL														
ENTERING	1	2	238	0	74	2	7	0	0	0	0	0	7	321

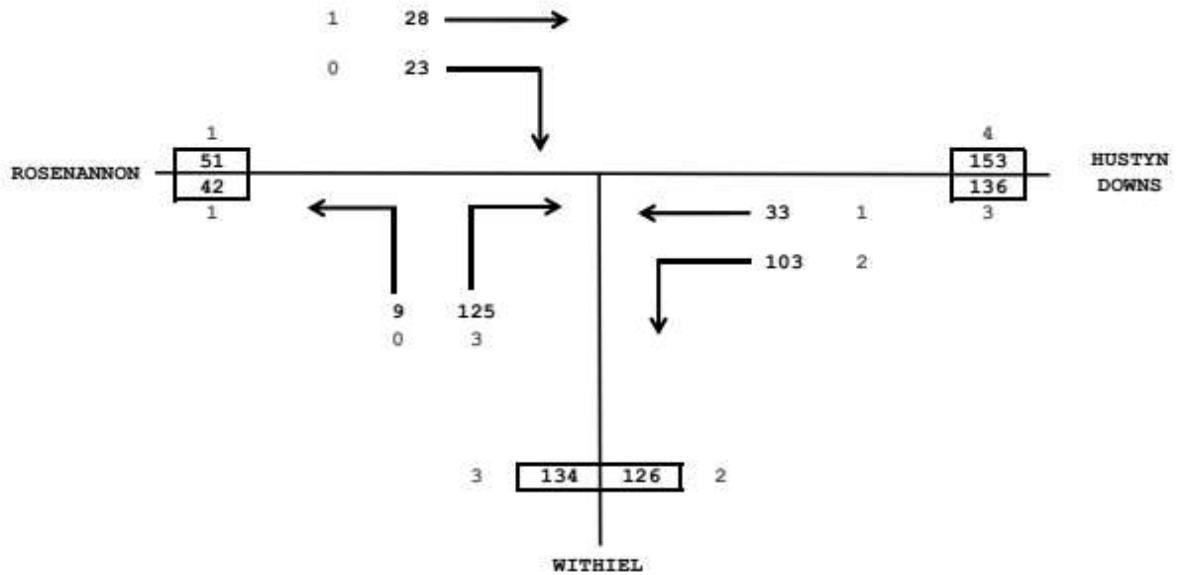
ROAD: C429
 DATE: 26/06/19

EM: 4.57
 DAY: WEDNESDAY

LOC: BOSNEIVE Cottage, N of WITHIEL
 JCT No : 884

FILENAME: AC167
 GRID REF: 199736 066207

12 Hour Flows - 07:00 to 19:00



Key

- 5123 All motor Vehicles (excluding Motor Cycles)
- 34 Heavy Commercial Vehicles (HGVs and Buses/Coaches)

7.2 Appendix B - Drawings 0001-0004



7.3 Appendix C – Evidence





