

astro

Proposed Development
Land Adjacent to
132 Heolgerrig
Merthyr Tydfil

Speed Survey & Access Appraisal

August 2018

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Revision History

Issue 1		8 th November 2017
Issue 2		8 th August 2018

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1 INTRODUCTION

- 1.1 Acstro has been appointed to undertake an assessment of access requirements for a proposed development of land adjacent to 134 Heolgerrig, Merthyr Tydfil.
- 1.2 The proposed development will be served by an existing junction / access that currently serves four dwellings (132, 133 and 141 Heolgerrig and 17 Beechwood Drive).



Heolgerrig Junction / Access

2 TRAFFIC SURVEY

- 2.1 Automatic traffic counters (ATC's) were installed, for a period of 1-week, commencing Tuesday 24th October 2017, on the public highway near the site's access. The weather throughout the course of the survey was mostly dry with some scattered showers occurring only on Tuesday 24th October.
- 2.2 The surveyor's report is included as Appendix 1 and provides details of traffic volume, vehicle classifications and vehicle speeds throughout the survey period.

Appendix 1 Traffic Survey

- 2.3 A summary of the results is provided in the Table below.

	Traffic Volume		Recorded 85 th Percentile Speed (mph)	Adjusted Wet Weather 85 th Percentile Speed (mph)
	am Peak Hour	pm Peak Hour		
Eastbound Traffic	9	10	21.1 mph	18.6mph
Westbound Traffic	4	17	22.6 mph	20.1mph

Table 1 ATC Survey Results

- 2.4 The survey demonstrates that traffic volume passing the access is light with a total of 13 two-way vehicle movements during the am peak hour (0800-0900) and 27 movements during the pm peak (1700-1800). The peak flow of 27 vehicles per hour represents a rough average of only 1 vehicle passing the site access every 2 minutes.

3 VISIBILITY REQUIREMENTS

- 3.1 Guidance on appropriate visibility provision at accesses and junctions is provided within TAN18, Manual for Streets (MfS1), Manual for Streets 2 (MfS2) and the Design Manual for Roads and Bridges (DMRB). The guidance of visibility requirements differs depending on the situation of the access and the speed of traffic passing.
- 3.2 The most recent of these documents is MfS2 (October 2010), provides clarification on which of the design standards should be followed in which situations.
- 3.3 MfS2 states in 1.3.2 that 'for any scheme affecting non-trunk roads, designers should start with MfS'.
- 3.4 Advice on these parameters is provided within section 10 of MfS2, which states that visibility from an access (Y-distance) should be based upon the stopping sight distance (SSD) for the speed of approaching traffic. SSD should be calculated based on wet weather 85th percentile speed and based on the following formula:

$$SSD = vt + \frac{v^2}{2(d + 0.1a)}$$

Where:

v = speed (m/s)

t = driver perception/reaction time (seconds)

d = deceleration (m/s²)

a=longitudinal gradient (%)

- 3.5 Table 10.1 of MfS2 provides the relevant criteria for the formula and recommends that, where speeds are below 60kph (37mph) that driver perception/reaction time is taken as 1.5 seconds and that deceleration is taken as 0.45g. Based on the above the known 85th percentile speeds require the following SSD:

	85 th Percentile Wet Weather Speed	Longitudinal Gradient	SSD
Eastbound Traffic	18.6mph	Negligible	23m
Westbound Traffic	20.1mph	Negligible	25m

Table 2 Stopping Sight Distance

- 3.6 The relevant SSD dimension should normally be visible from a point measured 2.4m back from the give-way line at the centre of the access. However, at low speed locations where traffic volume is low, such as at this location, this dimension can be reduced to 2m.
- 3.7 MfS2 concludes its discussion on the measurement of visibility at accesses and junctions by stating (10.5.9) that 'the Y-distance should be based on recommended SSD values. However, unless there is local evidence to the contrary, a reduction in visibility below recommended levels will not necessarily lead to a significant problem'.
- 3.8 The available visibility from the access is shown in Appendix 2. Visibility splays of approximately 2 x 15m are available. To the west visibility is restricted to 2 x 8m by the front boundary of No. 141. However, eastbound traffic approaching from this direction will normally be travelling on the far side of the street and visibility measured to this side is approximately 2 x 15m.

Appendix 2 Junction Visibility

- 3.9 Despite the limited visibility the junction appears to operate safely. A review of injury accident records for the latest five year period (2013 to 2017 inclusive) shows that there have been no injury accidents at this junction.

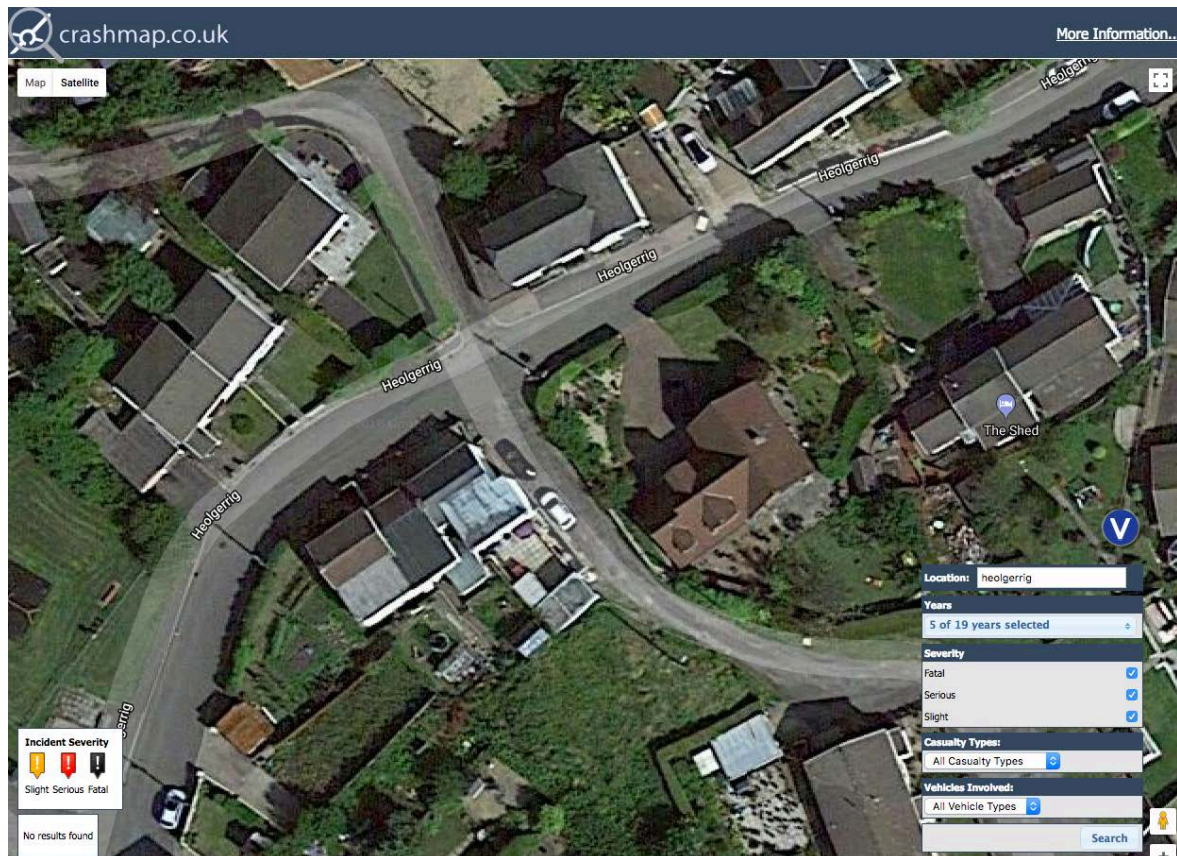


Figure 1 Injury Accident Records 2013 - 2017

4 CONCLUSION

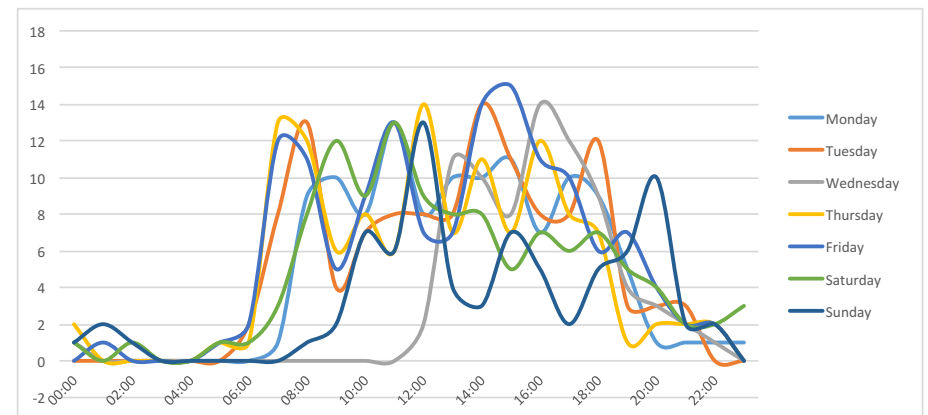
- 4.1 The available visibility from the junction is less than the recommended SSD values. However, traffic volume and speeds are low at this location and the access is an established one that evidently operates safely.
- 4.2 MfS2 guidance is (10.5.9) that the visibility Y-distance should be based on recommended SSD values. 'However, unless there is local evidence to the contrary, a reduction in visibility below recommended levels will not necessarily lead to a significant problem'.
- 4.3 The local evidence here is that the junction operates safely and that the fact that visibility is below recommended levels clearly does not cause a significant problem.
- 4.4 The proposed development is of a modest scale that will not generate significant traffic movements. Given these facts and MfS2's advice that visibility distances below recommended levels will not necessarily lead to a significant problem it is considered that the access is acceptable to serve the proposed development.

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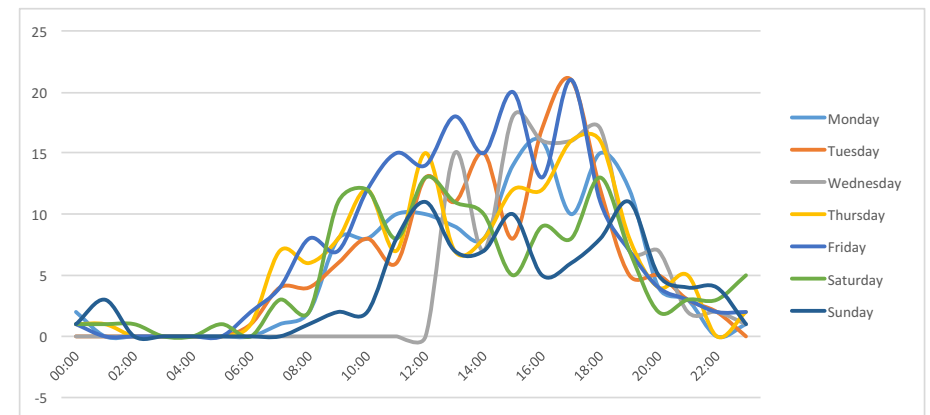
Appendix 1

Time	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	5 Day Avg	7 Day Avg
00:00	1	0	1	2	0	1	1	1	1
01:00	0	0	0	0	1	0	2	0	0
02:00	0	0	0	0	0	1	1	0	0
03:00	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0	0	0
05:00	0	0	0	1	1	1	0	0	0
06:00	0	2	0	1	2	1	0	1	1
07:00	1	8	0	13	12	3	0	7	5
08:00	9	13	0	12	11	8	1	9	8
09:00	10	4	0	6	5	12	2	5	6
10:00	8	7	0	8	9	9	7	6	7
11:00	13	8	0	6	13	13	6	8	8
12:00	8	8	2	14	7	9	13	8	9
13:00	10	8	11	7	7	8	4	9	8
14:00	10	14	10	11	14	8	3	12	10
15:00	11	11	8	7	15	5	7	10	9
16:00	7	8	14	12	11	7	5	10	9
17:00	10	8	12	8	10	6	2	10	8
18:00	9	12	9	7	6	7	5	9	8
19:00	5	3	4	1	7	5	6	4	4
20:00	1	3	3	2	4	4	10	3	4
21:00	1	3	2	2	2	2	2	2	2
22:00	1	0	1	2	2	2	2	1	1
23:00	1	0	0	0	0	3	0	0	1
07-19	106	109	66	111	120	95	55	102	95
06-22	113	120	75	117	135	107	73	112	106
06-00	115	120	76	119	137	112	75	113	108
00-00	116	120	77	122	139	115	79	115	110



Eastbound Volume Graph

Time	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	5 Day Avg	7 Day Avg
00:00	2	0	0	1	1	1	1	1	1
01:00	0	0	0	1	0	1	3	0	1
02:00	0	0	0	0	0	1	0	0	0
03:00	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0	0	0
05:00	0	0	0	0	0	1	0	0	0
06:00	0	1	0	1	2	0	0	1	1
07:00	1	4	0	7	4	3	0	3	3
08:00	2	4	0	6	8	2	1	4	3
09:00	8	6	0	8	7	11	2	6	6
10:00	8	8	0	12	12	12	2	8	8
11:00	10	6	0	7	15	8	8	8	8
12:00	10	13	0	15	14	13	11	10	11
13:00	9	11	15	7	18	11	7	12	11
14:00	8	15	7	8	15	10	7	11	10
15:00	14	8	18	12	20	5	10	14	12
16:00	16	17	16	12	13	9	5	15	13
17:00	10	21	16	16	21	8	6	17	14
18:00	15	12	17	16	11	13	8	14	13
19:00	12	5	7	8	7	7	11	8	8
20:00	4	5	7	4	4	2	5	5	4
21:00	3	3	2	5	3	3	4	3	3
22:00	0	2	2	0	2	3	4	1	2
23:00	1	0	1	2	2	5	1	1	2
07-19	111	125	89	126	158	105	67	122	112
06-22	130	139	105	144	174	117	87	138	128
06-00	131	141	108	146	178	125	92	141	132
00-00	133	141	108	148	179	129	96	142	133



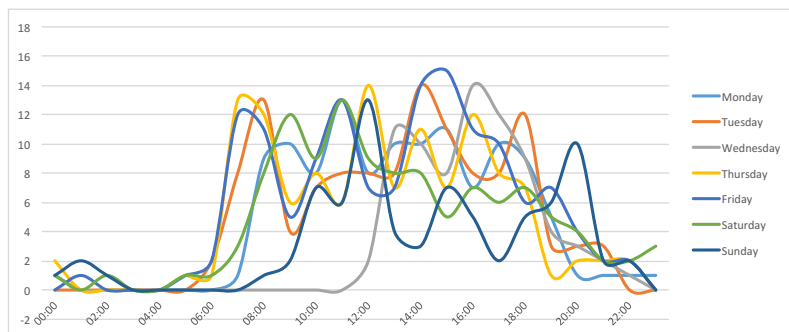
Westbound Volume Graph

Eastbound	5-Day	7-Day
07-19	102	95
06-22	112	106
06-00	113	108
00-00	115	110
7 Day Total	768	

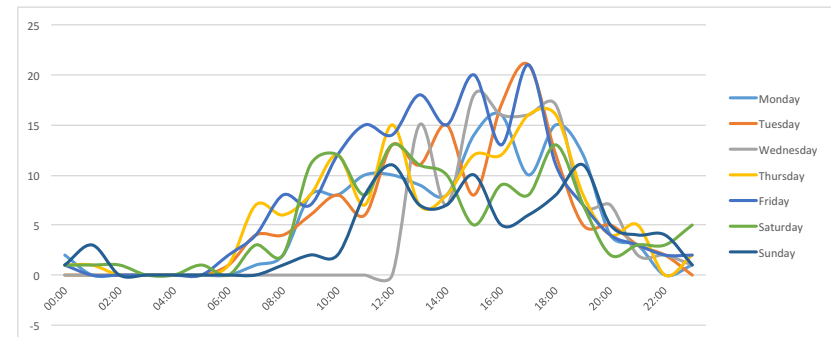
Westbound	5-Day	7-Day
07-19	122	112
06-22	138	128
06-00	141	132
00-00	142	133
7 Day Total	934	

Combined	5-Day	7-Day
07-19	224	206
06-22	250	234
06-00	254	239
00-00	257	243
7 Day Total	1702	

		Eastbound			Westbound			Combined		
		Average Speed	85th Percentile Speed	Free Flow 85th	Average Speed	85th Percentile Speed	Free Flow 85th	Average Speed	85th Percentile Speed	Free Flow 85th
Monday	30/10/2017	16.8	20.6	20.7	19.7	23.3	23.3	18.4	22.5	22.5
Tuesday	24/10/2017	16.9	21.1	21.1	18.6	22.2	22.3	17.8	21.7	21.8
Wednesday	25/10/2017	17.5	21.0	21.0	18.9	22.7	22.7	18.3	22.5	22.5
Thursday	26/10/2017	17.3	22.1	22.0	18.0	22.0	22.1	17.7	22.0	22.0
Friday	27/10/2017	17.1	20.8	20.8	18.6	22.4	22.5	18.0	21.8	21.8
Saturday	28/10/2017	16.8	20.8	20.8	18.6	22.6	22.6	17.7	21.8	21.9
Sunday	29/10/2017	17.3	22.7	22.2	18.7	22.8	22.6	18.1	22.6	22.6
7 Day		17.1	21.1	21.1	18.7	22.6	22.6	18.0	22.1	22.1



Eastbound Volume Graph

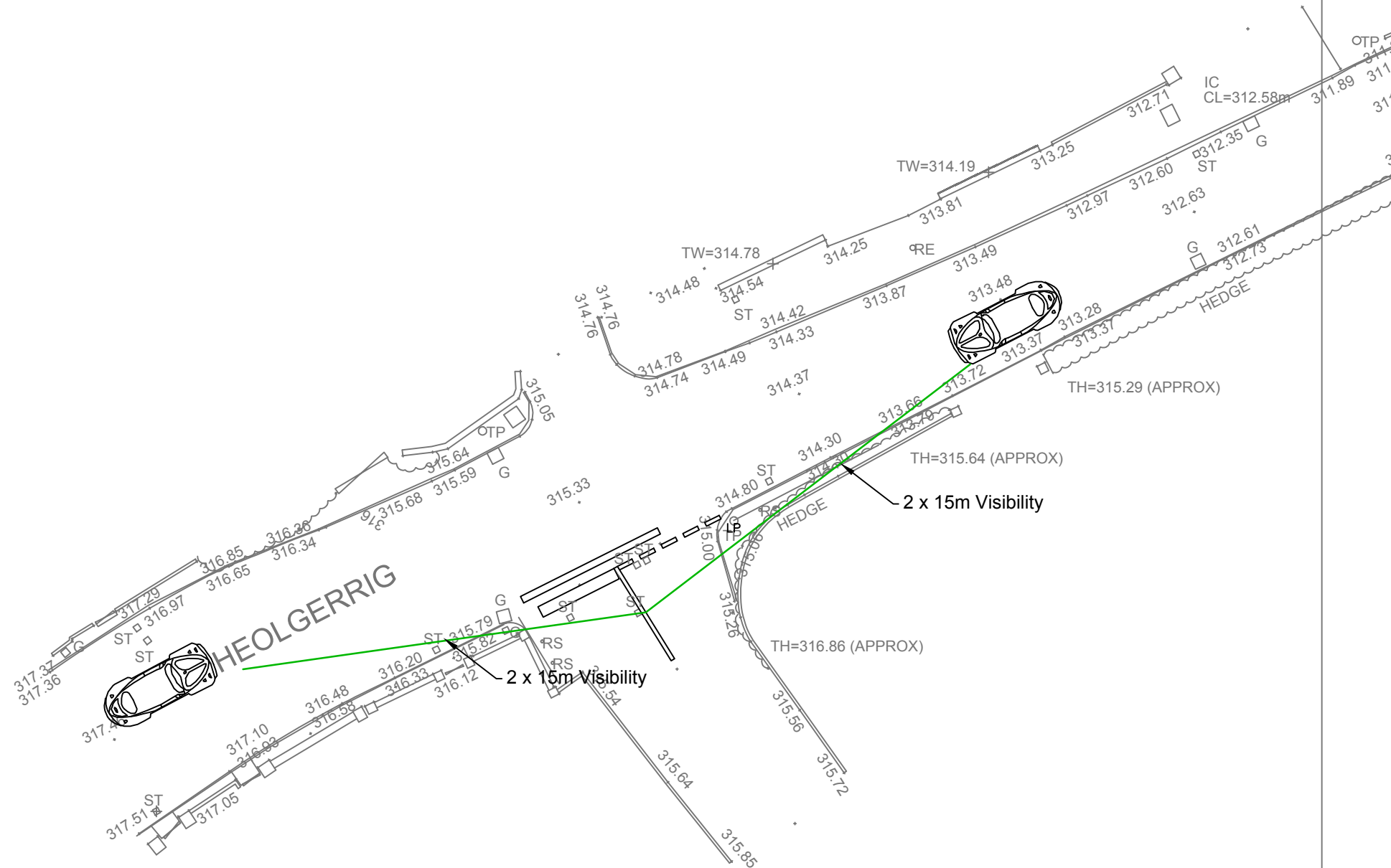


Westbound Volume Graph

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Appendix 2



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A	First Issue	09-08-18
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