Submission to the Regional Telecommunications Review

Brian Wall

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Introduction

In July 2020 my partner Jenny Jones (as Jossolin Pty Ltd) purchased [redacted], Yallingup Siding WA 6282. The property had been mainly used as an Airbnb short-term rental villa, and that use has continued, although we have been less aggressive in pursuit of Airbnb clientele with increasing Covid restrictions in place.

The property was developed and let as 'high end' accommodation. Attempting to continue in that vein, we titled the villa [redacted]

We intend to give guests (and ourselves and family) a luxury experience. The slow and expensive access to data makes this difficult.

We learned from the previous owners (and found for ourselves) the limitations of Skymuster, especially for Airbnb clients who were almost invariably from cities. They could not grasp the fact of the limitations of the broadband at the property.

It took some time for us to know that what we now have is as good as we can do for the moment. In the process of discovering that, we upgraded the on-roof antenna, the booster and modems. We have tried to use wireless broadband as a supplement to Skymuster if not a full replacement of it, but that has proven to be quite impossible with the available wireless broadband speed – a tenth or less of claimed speeds. We have not found a solution to the problem of all the satellite data being used up by guests in the first half of the month leaving none for those later in the month, which occasionally happens. The cost of buying top-ups makes it prohibitive.

Entertainment systems – essential in a high-level Airbnb property but no ability to avoid HD/UHD

The property had a Foxtel box version 2 or 3 but when we took out a contract Fox insisted on upgrading the box to the latest version. The old box did not use wireless and did not provide HD images. While that was why Fox wished to upgrade it, it was a negative for us as the newer box could quickly consume data. We persisted with Foxtel for 12 months but as soon as the contract expired we cancelled it. We now provide a Netflix single subscription (not HD) and a Kayo subscription (which is HD, unavoidably) via an Apple TV device.

Nevertheless, we speculate that the majority of data that our guests use is from handheld devices being used by guests themselves and/or their children, logged onto the wireless modem. The boosted Telstra data signal is strong enough but unusably slow. Skymuster is faster but a family with three or four young people staying can use nearly all the Skymuster prime time data in a long weekend.

Equipment: what we have, which can only do so much
We now have an omni antenna[1] on the roof connected to a Cel-fi fixed modem in the house, delivering the phone and data signal throughout. There was an older model data booster (a Telstra branded one) but it did not seem to be doing much, but that may have been the poor signal.

[1] Directional antennae are said to be faster/better but for the issue we have, signal strength is not the determining factor. A directional antenna was no faster (we replaced one and tried another) and would have other issues if a nearby antenna was upgraded. Then it would be pointing the wrong way.

The new Cel-fi booster has an app that allows us to directly assess the booster's performance. Without a booster in the house, the Telstra signal is too weak to make calls inside the house most of the time.

While the Cel-fi can boost signal strength, it cannot boost speed. We have assessed the available speeds for the various Telstra antennae around our dwelling. The closest is only 1.4 kilometres away but is too short to get over the rise between us. The strongest signal is the antenna on Roy Rd, Carbunup, 10 km away. We have line of sight to this antenna which is vey large, but it seems to be very overloaded. The speeds are glacial (see later).

What we are led to expect by Telstra's own claims

Figure 1 is a map taken from the internet but provided by Telstra showing the claimed 4G wireless data speed in our area in 50Mbps. This is a falsehood. The speeds at the accessible antennae themselves, let alone kilometres away from them, do not provide anything like these speeds – less than one tenth of that speed at busy times.

Figure 1: Theoretical 4G coverage Yallingup Siding:
from https://www.telcoantennas.com.au/telstra-next-g-4gx-coverage-maps/

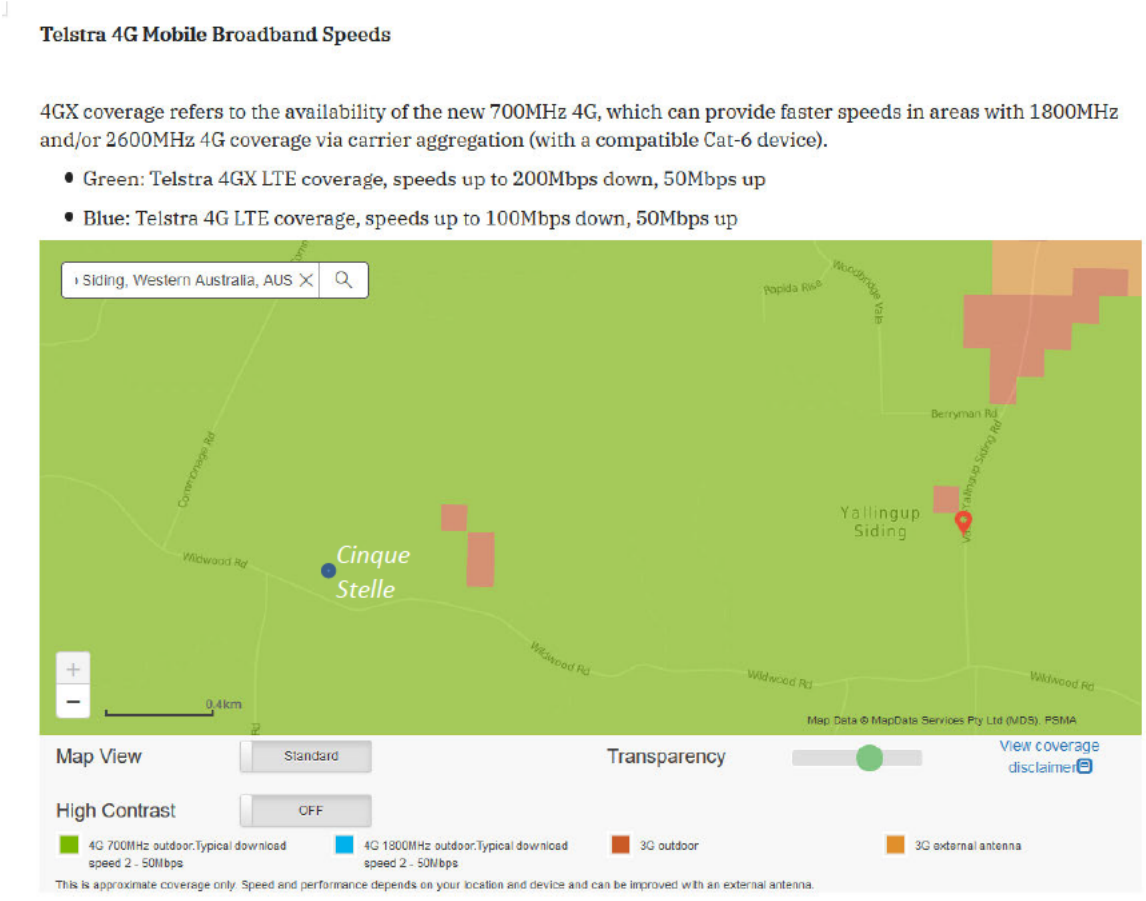
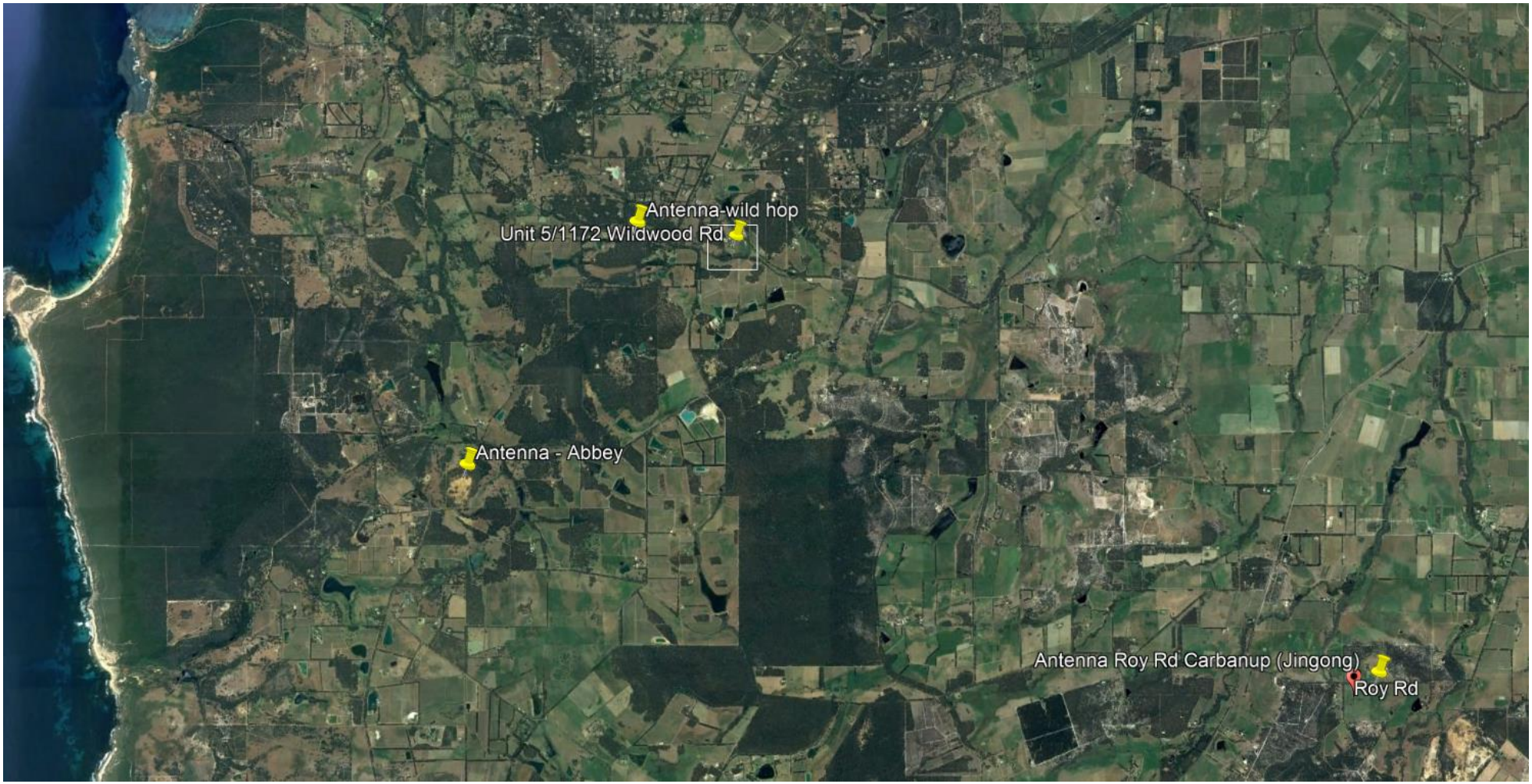


Figure 2 provides a map of the relative positions of the nearby antennae that might provide a source of high speed (close to the claimed 50 Mbps) for wireless data at for Cinque Stelle.

Table 1 provides actual data collected over two days In September 2020 of speeds experienced at various time of day at or close to the antennae themselves and at Cinque Stelle. The data collected specifically from the west side of the house (made of rammed earth) was to minimize possible connection to the Carbunup antenna and maximise the chance of connection to the Abbey Rd antenna. This did not happen – the phone still linked to Roy Rd Carbunup.

Figure 2 The principal antennae serving the Yallingup to Carbunup area



Note: Distances to each of these antennae are:

- To “Wild Hop” (the antenna is next to the Wild Hop Brewery) **1.4 km** (position: 33°41'37.11"S; 115° 4'5.90"E).
  (For Cinque Stelle this antenna is inaccessible despite proximity – antenna too short – barely taller than the trees around it.)
- To Abbey **4.5 km** (blocked by terrain) (position . 33°43'24.16"S, 115° 2'36.25"E).
- To Carbunup/Roy Rd **10 km**. (line of sight) (position 33°44'55.24"S, 115°10'37.01"E).

There are other antennae further to the north and west but they too are blocked by hills etc. Profiles of the terrain to these antennae are provided as Attachment 1.

Table 2: Results of speed tests using an iPhone with the "Opensignal" app on the Telstra network over two days 19 & 20 September 2020

SPD TESTS-IPHONE 0412233577	SAT Early Morning			SAT Around Lunchtime			SAT evening			Sunday morning 20th			Sunday afternoon		
Sat 19 and Sunday 20 Sept 2020	Time	Down	Up	time	down	up	time	down	up	Time	Down	Up	time	Down	Up
Near Hop Brewery	0724	16	29.6	1255	12.2	15	1823	15.2	19.7	0659	28	18.5			
1.4 km from dwelling	0725	17.7	32.2	1256	13.5	16.9	1823	16	27 3	0659	30.5	19.4			
	0726	23.7	24.6	1257	7	10	1824	14	25	0700	31.8	19			
		19.13	**28.80**		**10.90**	**13.97**		**15.07**	**24.00**		**30.10**	**18.97**			
Cnr Caves and Abbeys Farm Rd	0736	20.1	22.6												
	0736	25.9	29.2												
Same antenna but Brash Rd high up	0737	7.5	25.6												
	07.38	16.8	24.4												
		17.58	**25.45**												
Brash Rd alongside Wills Domain	07.41	50.8	39.9	1305	29.7	15.6	1834	17	20.4	0737	36.6	43.8			
(top of hill)	0742	33.9	40.2	1306	18.3	18.7	1834	15.7	25.4	0737	16.4	53.9			
	0743	39.8	41.6	1306	17.6	6.7	1835	17.4	40	0738	26.1	43.9			
		33.90	**40.57**		**21.87**	**13.67**		**16.70**	**28.60**		**26.37**	**47.20**			
Roy rd DIRECTLY under tower				1327	6.00	36.10									
(aka Carbunup)				1327	2.4	15.5									
				1328	2.6	17.8							1557	10.9	28
Corner Irvine & Roy Rd				1334	3.2	22							1557	5	29
100 metres from tower				1335	3.2	23				0716	20.3	27.9	1558	11	34
				1335	1.7	16				0717	13.4	41.8	1559	9	23
					3.18	**21.73**					**16.85**	**34.85**		**8.98**	**28.5**
											One dataset lost				
Inside House-5/1172 Wildwood Rd	0826	2.5	24												
(Cinque Stelle)	827	3	24.5												
	828	2.8	23												
		2.77	**23.83**												
Immediately west of house	0847	11	1.9	1231	7.6	2.1	1816	5.1	17 3						
(shield from Roy Rd antenna	0848	12.9	1.4	1232	3.5	1	1817	8.2	31	note					
attempted but unsuccessful)	0848	10.3	1.9	1233	3.9	error	1817	2.7	7.4	range!					
		11.4	**1.73**	1233	2.2	error		**5.33**	**18.57**						
					4.3										
West of house on 3G	0849	3.9	0.5	1238	1.7	error	(3 bars)								
	0850	3.1	0.6	1238	error	error									
Inside house cel-fi on				1228	2.2	29									
				1229	**2.2**	**30**									

Summary of download speeds - usually average of 3 tests					
	Sat am	Sat noon	Sat evening	Sun am	Sun pm
Near Hop Brewery	19.13	10.90	15 07	30.10	
Brash nr Wills Domain	33 90	21.87	16.70	26.37	
Roy Road Carbunup		3.18		16.85	8.975
Immediately west of house*	11.4	4.3	5 33	too wet!	

*also linked to Carbunup even despite shielding from house.

Data are provided in Table 2 which assesses the speed of each of the antennae: at the antenna itself and at the house at various times of the day over two days[2].

As you can see from these measurements, most repeated in triplicate, the Abbey Rd antenna, near the intersection of Caves Rd, is the fastest. I have never been able to see it from the road but Google Earth shows it is quite tall. Nearby, at the top of the hill at nearby Brash Rd (alongside Wills Domain winery) the speeds there are very good. Close to the intersection of Abbey Rd and Caves Rd (very close to the antenna) speeds are less, but that is a low point on the road, so there is likely interference from hills or trees.

The small antenna near the Wild Hop Brewery is fast in the mornings when the brewery is quiet, but relatively slow in the afternoons. I think it must be there to fix a 'black spot' in that area.

However, the only antenna we can connect to routinely is the one at Carbunup. As one can see from the data (key results shown in red) the Carbunup antenna is extremely slow even when the relevant wireless device is very close to it. We understand the Carbunup mast also supports Vodaphone's transmitters. Optus is from another antenna nearby. Optus and Vodaphone signals do not provide a work-around at Cinque Stelle.

Even when standing only 50 – 100 metres away from the Carbunup antenna the speed tests are very slow during the day (averaging less than 10% of the claimed 50 Mbps). This means the booster at *Cinque Stelle* has no hope of getting close to acceptable speeds for business purposes. The boosted signal inside the house will handle calls and texts but not much more.

Clearly, if you get a fast signal it is a hit-and-miss affair. If we were located further west and could get the antenna near the corner of Abbey Rd and Caves Rd, we would be happy. But the Carbunup antenna, which must service a large area is very slow. The terms of reference refer to equity. While waiting in Telstra shop in metropolitan Perth, trying to get a better device for our situation, I did a speed test using the same phone and app as I have used for these tests. The speed was 250 Mbps – about 50 times as fast as the Carbunup antenna during the day.

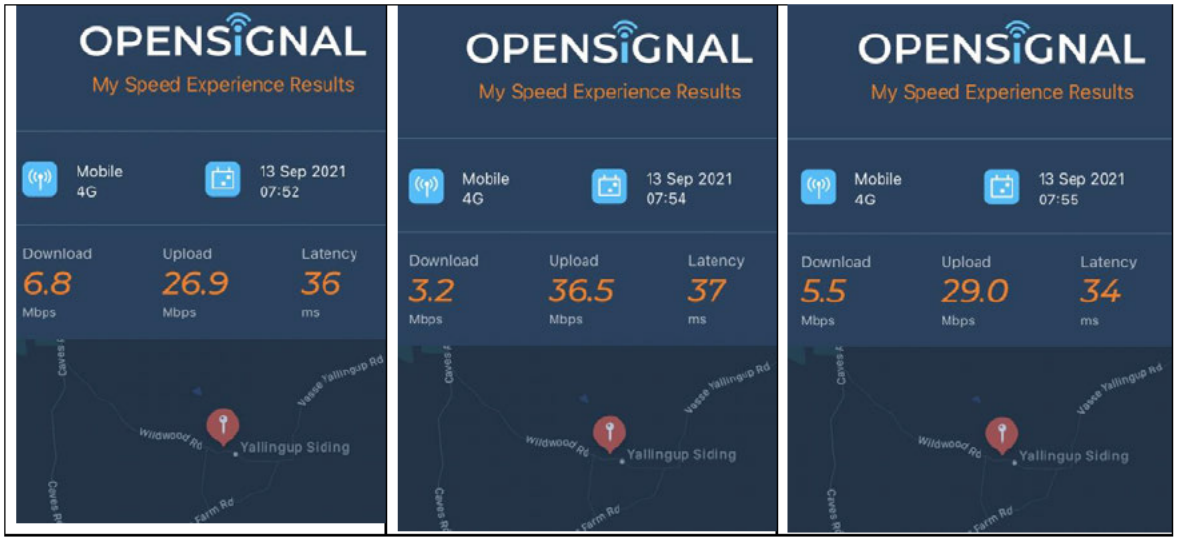
Due to the fact I of making this submission, and since the data above are nearly a year old, on 13 September 2021 I did some further speed tests at *Cinque Stelle* prior to 8 a.m. when I hoped demand on the Carbunup antenna would be light.

The findings are given in Figure 3. These data are with the Cel-fi booster on. With it off (taking the omni antenna out of the picture) the download speed is much the same but the upload speed is around 1 Mbps or less.

This again shows that our omni antenna (to which the Cel-fi is connected) readily receives & sends signal from/to the Carbunup antenna but clearly it cannot receive data any faster than the Telstra transmitter chooses to send it. For these latest tests that is an average of 5.1 Mbps – (no faster than those last year provided above), and that is before 8 a.m.

[2] Note that I used the same phone and app to assess internet speeds in the Telstra shop at Booragoon W.A. to test the system I was using. The signal there was 250 Mbps so it was capable of measuring high speeds.

Figure 3. Data speed tests early on 13 September 2021 – 51 weeks after the test results above.



Clearly there is a case for consumers feeling misled by the claims made for the 4G service in the area. Perhaps it may not be fair to only focus on Telstra in this regard but it is a fact that there is essentially no service other than Telstra's that you can find consistently across WA. Consumers continue to be misled by ridiculous speed claims without any effective action being taken. It is a clear case of market failure, in my view resulting from both a lack of competition and effective sanction.

As a result of the consultation on 1 September we became aware of the Regional Connectivity Program. we see that there is an entry for upgrade of the Carbunup antenna[3], for which we are immensely grateful, but, as said during the video-conference, we wonder why, if an antenna the size of this one has so much business that it is constantly overloaded, private not public money is being used to upgrade it. I note the other grants on p.32 are for remote areas with mainly Aboriginal populations. I think Carbunup is in a different category to these – it serves a region with flourishing businesses in wine, other agriculture, tourism and accommodation as well as a lot of commercial and other traffic down Bussell Highway. Just to the north Vasse seems to be a rapidly growing commercial centre serving mainly the area south of it. Its businesses would be highly reliant on a mobile service that is 'fit for purpose', which Carbunup is not at the moment.

In any case, we are grateful an upgrade to Carbunup is to occur. Unfortunately, as the Regional Connectivity Program's pdf document is undated it is hard to know anything about the timeline for this upgrade. It cannot happen soon enough for us – ideally before we have to finally commit to Starlink, which at present appears to be the only way that we can get what we need.

[3] The undated pdf document outlining these grants says (p.32) of the Carbunup upgrade regarding a grant of $121,295 to Telstra: *The project will upgrade the capacity of the existing Telstra 4G macro cell base station at Carbunup River, near Bussleton* [sic]. *The upgrade will provide improved mobile connectivity to support the digital needs of residents and local small businesses, including tourist retreats, retail, horse boarding and riding facilities and vineyards. Improved connectivity will also provide increased public safety coverage along the Bussell Highway and in a high-risk bushfire region.*

Key points:

Data speeds: We submit that the information Telstra provides about access to effective data speeds is misleading at least at our location, and anecdotal reports from others support this view. . The poor service arises, I believe, in part from a lack of competition and in part from a lack of effective regulation. A few prosecutions would force companies to lift their game. I contend that it is unacceptable to claim 50 Mbps and provide 5 Mbps or less during the day. The public deserves to have accurate information, not marketing hype. . I cannot comment in detail on the other providers as I have no objective data but when I put their SIMs into my devices they do not seem much more accessible or faster. Their towers are also 10 km away.

Skymuster is not up to contemporary business needs: If I were educating children in the outback where there is nothing else, I would be grateful for Skymuster. But if one is running a business in an area that is not remote and the business is at all demanding of data (and many if not most are these days) Skymuster is limited. The plans available are too expensive for what you are getting and not really fast enough for many applications. Even having an online (eg Zoom) meeting, something which is now a common business necessity, is unreliable where we are.

Entertainment streaming options are mostly not available without HD or UHD: It would assist those in rural settings if entertainment provider plans were available that optionally excluded HD and UHD reception. HD and UHD are mostly an unnecessary luxury consuming data and bandwidth. The companies just assume everyone wants HD if not UHD, but in our situation that is not the case, and this impacts across rural and remote services by overloading the local infrastructure.

Acknowledgements

I would like to thank:

- BIRRR, and especially Kristy Sparrow, who has been of great help and support in navigating the rural internet maze, and in bringing our plight to the attention of a very helpful Telstra officer.

- Kevin Donnellan of Telstra who provided us with a great deal of technical advice and support in trying to unravel which tower was our best option and in helping me understand some of the technical aspects a little better.

- Paul Collins from Antennatech Yallingup, who patiently ordered in, put up and took down various aerials as we tried different options; who assisted us with tricky installing and cabling; and generally helped us muddle through to our present optimized but unsatisfactory state.
- Finally I thank the Australian government for the opportunity to make a submission.

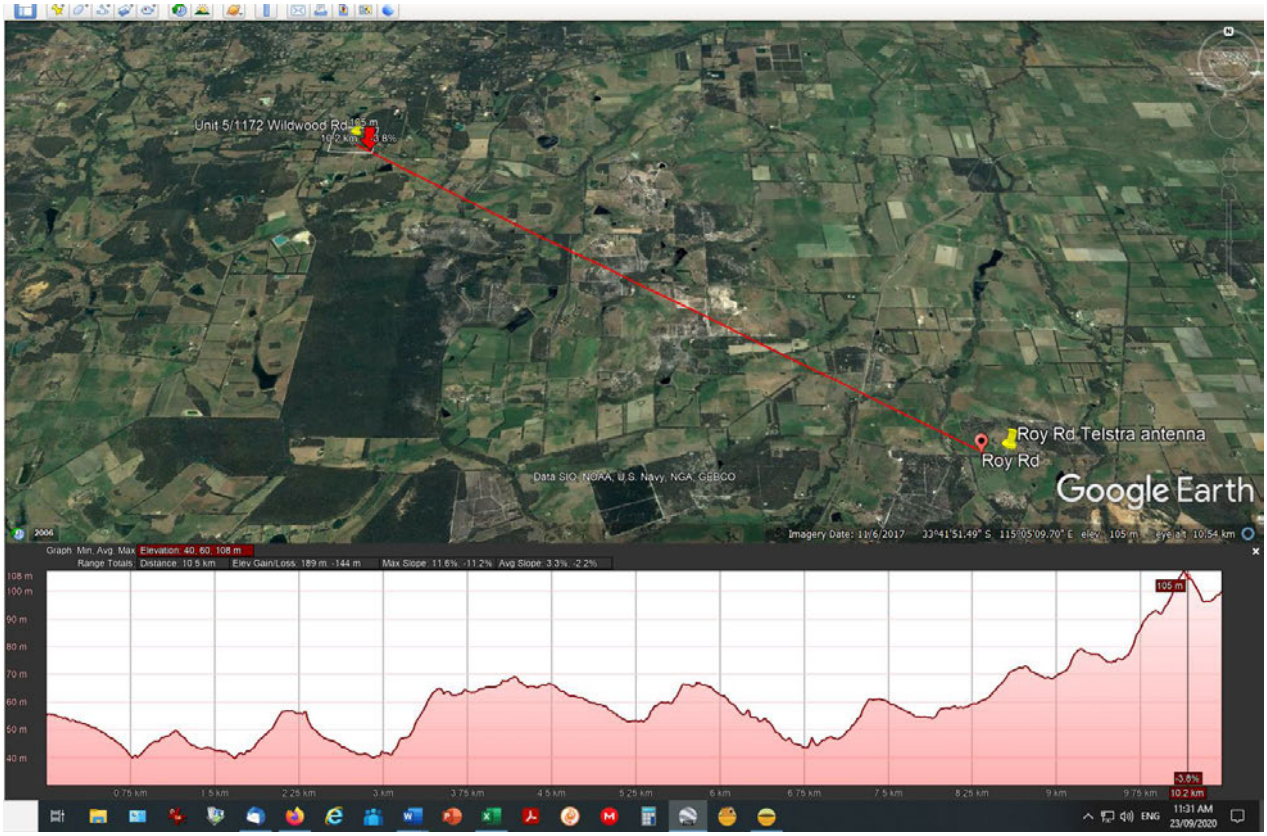
BRIAN WALL

[redacted]

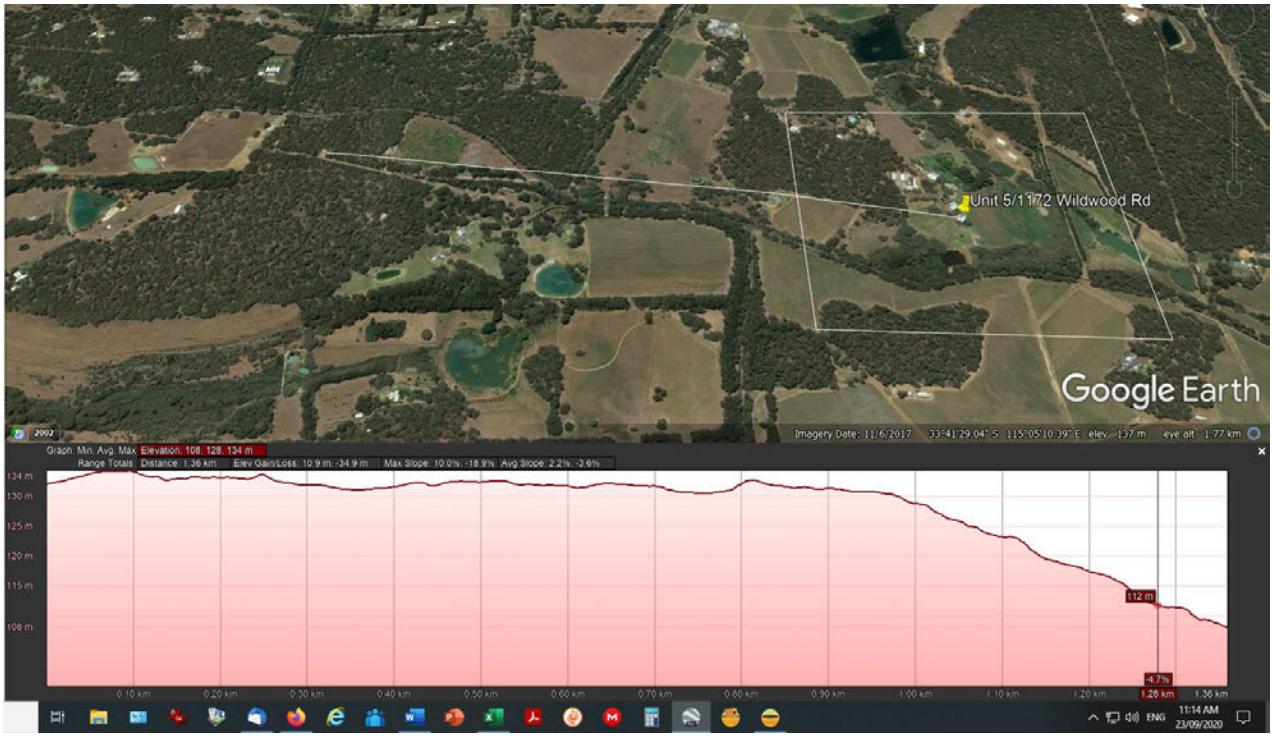
Attachment 1

Ground profiles from Cinque Stelle to the three main Telstra antennae near our location.

1. **Cinque Stelle Yallingup to Carbunup/Roy Rd antenna – Distance 10 km - house on right end of profile.** Note this is the only antenna we can access even though the other examples are significantly closer.



2. Cinque Stelle Yallingup to Wild Hop antenna – distance 1.4 km. House end on right end of profile.
Note the fall towards the house is only 18 metres but blocks the signal as the antenna is so short**.**



3. Cinque Stelle Yallingup to Abbey Rd antenna – Distance 4.8 km - house on left end of profile