



Redenhall with Harleston Town Council

Clerk: Mrs. C. Crane

2020/2144 Land South of Redenhall Road: Comments on Appeal

Redenhall with Harleston Town Council recommended the refusal of the original application on 26th December 2020 and also recommends the refusal of this Appeal, based on the following considerations.

The Redenhall with Harleston Neighbourhood Plan (the Plan) was adopted by South Norfolk Council on 17th October 2022. The following statements and policies contained in the Plan should be taken into account when considering the Appeal Statement.

The Vision of the Plan includes “The surrounding area will remain rural, and the natural environment and local heritage will be protected”.

Policy RWH19 “Landscape character and town gateways” sets out the nature of this protection

Landscape: “The visual scenic value of the landscape and countryside in the Neighbourhood Plan area outside the defined settlement boundary will be protected from development that may adversely affect its character”

Town gateways: “where green gateways or substantially undeveloped entrances currently exist, these should be maintained as “soft” entrances to assist with rural to urban transition”.

Areas identified as important “soft” gateways were identified through consultation and include “The eastern approach to the town from the Redenhall roundabout”. This is shown as No. 5 on the Town Gateway map (Appendix A). The proposed site provides an important part of the soft entrance to this town gateway and is outside of the defined settlement boundary and should be protected from development and maintained in its current form in line with this policy.

Housing

The Policy Framework in the Plan sets out the context i.e. the Joint Core Strategy (JCS), which looks to the period 2026 allocated 200-300 houses in Redenhall with Harleston. The emerging Greater Norwich Local Plan (GNLP) looks to 2038 and requires a deliverable housing commitment of 727. The total quantity of dwellings in the parish at March 2020 is estimated to be 2,508.

The policies in the Plan were derived from a series of consultations including a household survey. This evidenced widespread concerns about the lack of capacity of doctors, dentists, schools and parking. Following on extensive feedback from the community, the Plan states:

5.1.2 “The issue of future housing development is a key issue for the town over the next 16 years, particularly its impacts upon the people, services and environment of the town”



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5.1.6 “The adopted JCS and the GNLP policies identify Redenhall with Harleston as a ‘Main Town’ within the settlement hierarchy and as such it is expected to deliver a specified level of new growth over the plan period” “The Town Council has therefore taken the view that the Neighbourhood Plan will not make further allocations for new housing but instead will focus its policies on managing the impacts of this level of development over the plan period”

This is in contradiction to section 5.20 of the Appeal Statement, which asserts that the delivery of 110 houses meets identified local needs. These needs are amply met by the sites already identified.

The land to the south of Redenhall Road was not allocated in the JCS and was not considered a Reasonable Site in the GNLP, both documents which have been rigorously developed over a period of many years so as to ensure an adequate supply of housing in the most suitable sites. The Town Council reaffirms that it does not support provision of further housing by the development of the site south of Redenhall Road.

Policy RWH22: “Climate Change and Flood Risk” states “All development will be expected to demonstrate how it can mitigate its own flooding and drainage impacts, avoid increase of flooding elsewhere and seek to achieve lower than greenfield runoff rates” and “New development should not exacerbate existing surface water or foul drainage problems”.

5.5.22 “The majority of the parish is largely located within Flood Zone 1 of the Environment Agency’s Flood Risk categorisation which indicates it is at a low risk of flooding. There are however regular incidences of flooding within the town, including the town centre which are largely the result of surface water drainage issues rather than river-based flooding. These have been identified and are shown in figure 24” (Appendix B)

5.5.23 “These incidences of localised flooding are occurring more and more frequently as the climate and weather patterns change. It is therefore important to ensure that the occurrence of new development does not exacerbate existing flooding or drainage problems or lead to new ones either through surface water run off or displacement”

Figure 24 shows areas which have experienced localised flooding. Area 1 includes the part of Redenhall Road which is adjacent to the proposed site on the north. Area 2 comprises properties which are located to the south and west of the site. These properties, in Church View and St Mary’s Close, have suffered very severe flooding in the recent past.

The Flood Risk and Drainage Assessment clarified that there will be an extensive impermeable area and set out measures to mitigate this. It states that the majority of the site is at very low risk of pluvial flooding, the exception is a small narrow region along the southern boundary of the site which is modelled to experience Medium to High risk of pluvial flooding. It is stated that on the southern half of site, surface water runoff will be collected within an above ground attenuation basin and 2 No. attenuation tanks, located in the south-east corner of the site, prior to undergoing a restricted discharge offsite via 2 No. outfalls to accommodate the levels



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It is not possible to be sure that the attenuation basin would be able to cope with the volume of water generated in heavy rain when the ground is already waterlogged. Any increase in run-off in the southern half of the site would have severe and long lasting consequences for neighbouring properties. The Town Council objects to the proposed site as it would add to the existing risk of flooding on the adjacent areas of housing and Redenhall Road

Traffic

Policy 3.11 of the South Norfolk Local Plan on “Road Safety and the free flow of traffic” states that “On all sites development will not be permitted that endangers highway safety or the satisfactory functioning of the highway network”.

It should also be noted that Section 5.4 of the Appeal Statement quotes the reasons given in the GNLP for considering the site as unreasonable for development, but fails to provide the final phrase: The last sentence should read “In highways terms development would probably require the realignment of Redenhall Road and other sites that are allocated are preferable”

Policy RWH15: “Traffic generation and safety” states “Within proposals for major development, consideration should be given both to the levels of traffic generated by the proposal and the wider impacts of this traffic Measures should be included to address and mitigate potential impacts upon highway and pedestrian safety as well as those on traffic flows elsewhere in the town. Development impacts that cannot be mitigated and which would result in an unacceptable increase in traffic generation, or which would be detrimental to highway safety will not be supported”

A large volume of traffic would be generated from this site. Redenhall Road is a very busy road with a bend in the road to the north of the site.

A local resident has carried out a modelling exercise to assess the possibility of an accident occurring when a vehicle turned left out of the site (Appendix C). This detailed analysis demonstrates that traffic turning left out of this site would be at risk of a collision with a car travelling along Redenhall Road towards Harleston, if that driver was travelling at a speed of above 40mph. This kind of speeding is not uncommon. The Town Council reaffirms its objection to this site on the grounds that traffic leaving the site would be detrimental to highway safety.

Design Code: Height of buildings

The Design Code (BU.01) states that “The heights of new buildings should respond to the surrounding context and should not be over-bearing or dominant in the existing street scene”

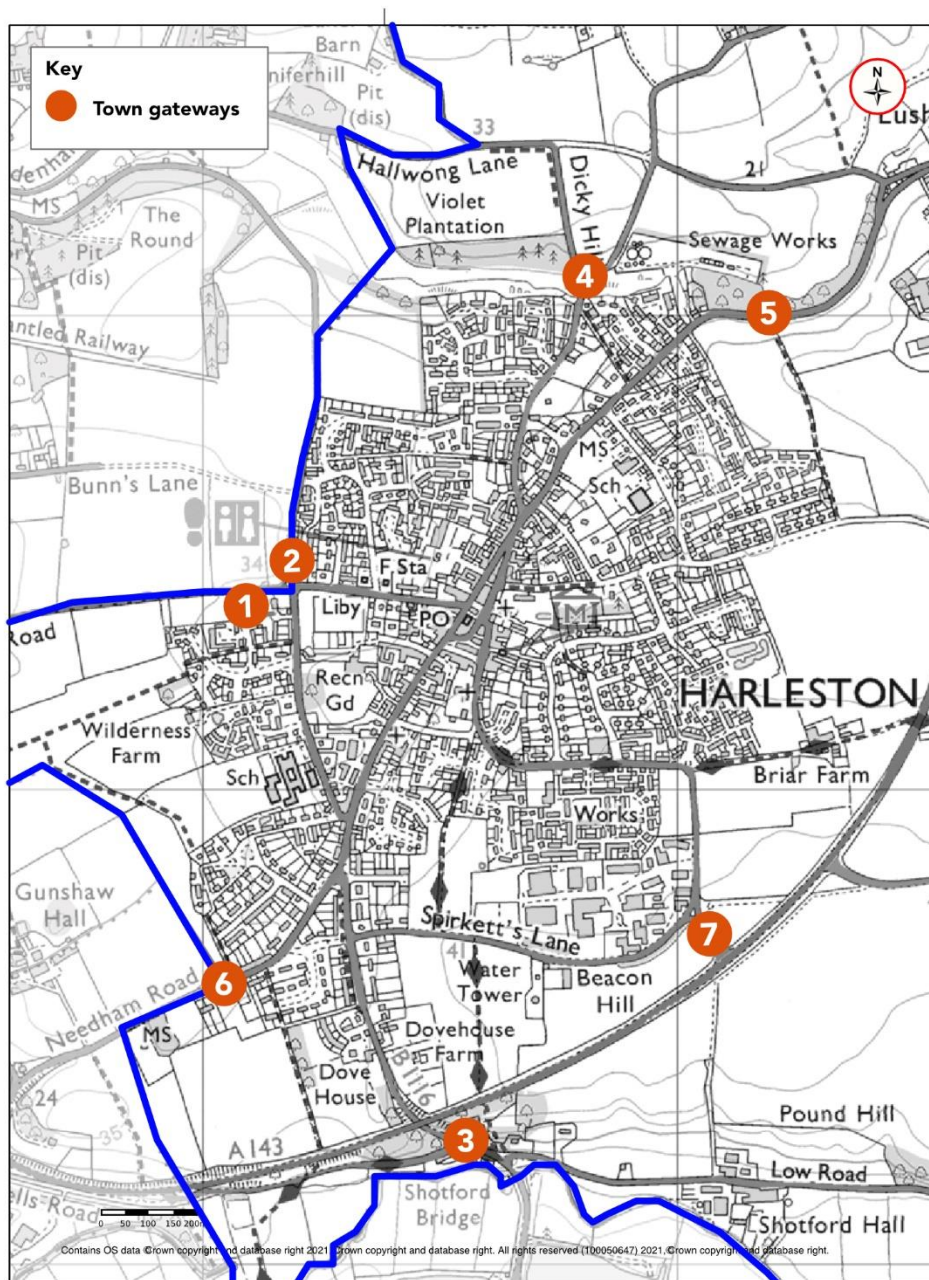
The proposed site would include 2 storey houses which border the existing properties in Church View and St Mary’s Close. This would be detrimental to the amenity of those home owners and contrary to the stipulation in the Design Code and the Town Council objects to this plan.



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Figure 19 Town gateways - Appendix A





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It is necessary first to make several assumptions.

1. The driver of any vehicle involved is fully alert, and not distracted in any way.
2. His vehicle is in very good condition with no faults. (especially brakes or speedometer, or ability to accelerate reasonably)
3. The road itself has no faults, and the surface is not contaminated in any way which would compromise braking of the vehicle.

We also assume that the main danger to anyone trying to leave the estate would be from the Wortwell end, incoming to the town.

It is assumed that every driver leaving town is a model citizen and is not exceeding the speed limits in force.

So, the perceived problem arises when turning left from the estate into Redenhall Road, a 30 Mph road, with other vehicles following such driver down Redenhall Road in the direction of the town centre.

The table below give information about the incoming vehicle.

		Thinking distance	Revised Distance	Stopping distance	120 m view
Mph	M/s	Metres	Metres	Metres	Seconds
30	13.41	9	11	25	9
40	17.88	12	15	39	7
50	22.35	15	19	57	5
60	26.82	18	22	77	4
70	31.29	21	25	100	4

The first two columns show the speed in Mph converted to Metres/second – as we are talking about a 120 metre sight-line.

The next column gives the thinking distance as currently laid out in the Highway code.

However, motoring organisations have been lobbying the Government as they believe that the established thinking distance is no longer sufficient, and should be increased.

This produces a thinking distance listed under the heading Revised distance.

This then produces a stopping distance in the appropriate column.

If a car is at the junction of the proposed estate waiting to pull out, and the driver of the incoming vehicle sees him **immediately** he comes into the 120 metre sight-line point, then the incoming driver will have the time, in seconds, before reaching the mid-point of the exit from the estate, given in the table; unless he brakes.



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At 30 Mph, the incoming driver has 9 seconds to respond, but at 60 Mph he has only 4 seconds to take action.

So, as you can see, if the driver at the junction starts to pull out, then the incoming driver does not have a lot of time to brake, especially at the higher speeds.

Nor, does the driver pulling out onto Redenhall Road have a lot of time to get out of the way of the incoming driver.

So, if the exiting driver turns right, even at the higher speeds of incoming vehicle, he should have sufficient time to get out of the nearside of the carriageway.

But what of the person turning left from the estate?

In that case the situation is a bit more complicated.

In this case it is assumed that the intention of that driver is to stick to the 30 Mph speed limit, once he has achieved it. He looks to see if the road is clear to his right, and then pulls out, turning left.

I have assumed that it takes 2 seconds to move from a stationary position in the junction, to being almost stationary in Redenhall Road facing the town, prior to accelerating away.

Research has been undertaken to establish the average acceleration of cars from a stopped position. I have used this information to calculate the effect of a car pulling out of the access to the proposed estate, when another vehicle just enters the 120 metre sight line point.

For those wishing to check the research paper I have included the reference below.

The **acceleration** threshold was taken from another study by Wang et al. (2004) that found the **normal average acceleration** rate of vehicles from a **stopped** position to be 1.25 m/s² (0.13 g) when traveling straight and 1.16 m/s² (0.12 g) when turning.

11 Oct 2020

[www.researchgate.net › publication › 245560870_Norma...](https://www.researchgate.net/publication/245560870_Norma...)

Now, if the vehicle pulling out of the estate is following the average acceleration, intending to reach 30 Mph, then the tables below give the effect of that vehicle and that of the incoming vehicle.

There are some standard formulae that can be used to calculate the speed, distance covered, etc for the vehicle leaving the proposed estate.



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Standard formulae

$$t = \frac{V_f - V_o}{a}$$

t = time
V_f = final velocity
V_o = original velocity
a = acceleration

$$s = V_o t + \frac{1}{2} a t^2$$

s = distance
V_o = original velocity
a = acceleration
t = time

Using these formulae produces the following information: -

2 seconds to turn onto Redenhall road
30mph

Elapsed Seconds	Straight Seconds	Acceleration	Speed	Distance covered	Distance between
2	0	0.00	0.00	0.00	120.00
3	1	1.25	1.25	0.63	107.22
4	2	1.25	2.50	2.50	95.68
5	3	1.25	3.75	5.63	85.40
6	4	1.25	5.00	10.00	76.36
7	5	1.25	6.25	15.63	68.58
8	6	1.25	7.50	22.50	62.04
9	7	1.25	8.75	30.63	56.76
10	8	1.25	10.00	40.00	52.72
11	9	1.25	11.25	50.63	49.94
12	10	1.25	12.50	62.50	48.40
13	11	1.25	13.75	75.63	48.12

The stopping distance at 30 Mph is 25 metres.

The car pulling out and turning left (vehicle 1), pulls out and turns to the left at virtually no acceleration along Redenhall Road.

As it is nearly stationary, its acceleration is effectively zero, and the incoming driver (vehicle 2) who arrives at the 120-metre mark sees the first vehicle in Redenhall Road. At this point he has 120 metres separation in which to take any actions.

The 'speed' in the above table is the overall speed of the vehicle 1 in Redenhall Road, and the 'distance covered' is the distance in Redenhall Road that the vehicle has covered by accelerating.



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There are therefore two factors in operation. As the driver of vehicle 1 accelerates he increases the distance between himself and vehicle 2. However, vehicle 2 is decreasing the distance between the vehicles due to his greater speed.

The last column, 'Distance between' shows the effect of the above factors, giving the separation of the two vehicles second by second.

At 30 Mph there is no problem, providing all the assumptions made are correct, and the driver of vehicle 1 continues to accelerate smoothly.

As you may imagine, following the same theory as the speed of the vehicle 2 increases, it produces more interesting results.

Same scenario but for 40 Mph

2 seconds to turn onto Redenhall road

40mph

Elapsed Seconds	Straight Seconds	Acceleration	Speed	Distance covered	Distance between
2	0.00	0.00	0.00	0.00	120.00
3	1	1.25	1.25	0.63	102.75
4	2	1.25	2.50	2.50	86.74
5	3	1.25	3.75	5.63	71.99
6	4	1.25	5.00	10.00	58.48
7	5	1.25	6.25	15.63	46.23
8	6	1.25	7.50	22.50	35.22
9	7	1.25	8.75	30.63	25.47
10	8	1.25	10.00	40.00	16.96
11	9	1.25	11.25	50.63	9.71
12	10	1.25	12.50	62.50	3.70
13	11	1.25	13.75	75.63	-1.05

Since the stopping distance at 40 Mph is 39 metres, the driver of vehicle 2 needs to be thinking about braking within 5 seconds of seeing vehicle 1, because if there is any sort of delay in the acceleration of vehicle 1, vehicle 2 will impact vehicle 1.

Obviously, if vehicle 1 continues accelerating without problem, the driver braking vehicle 2 has longer to make his decisions.

Though if he did not break, then he would still impact vehicle 1, only this time just about when vehicle 1 achieves 30 Mph.

Same scenario but for 50 Mph



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2 seconds to turn onto Redenhall road

50mph

Elapsed Seconds	Straight Seconds	Acceleration	Speed	Distance covered	Distance between
2	0	0.00	0.00	0.00	120.00
3	1	1.25	1.25	0.63	98.28
4	2	1.25	2.50	2.50	77.80
5	3	1.25	3.75	5.63	58.58
6	4	1.25	5.00	10.00	40.60
7	5	1.25	6.25	15.63	23.88
8	6	1.25	7.50	22.50	8.40
9	7	1.25	8.75	30.63	-5.83
10	8	1.25	10.00	40.00	-18.80
11	9	1.25	11.25	50.63	-30.53
12	10	1.25	12.50	62.50	-41.00
13	11	1.25	13.75	75.63	-50.23

As you can see the speed differential really starts to come into play.

Stopping distance at 50 Mph is 57 metres.

Effectively, this means that the driver of vehicle 2, needs to start braking within 3 seconds of seeing vehicle 1 pull out of the estate.

Even if vehicle 1 continues to accelerate, it will be impacted by vehicle 2; should the driver of vehicle 2 fail to brake in time. The impact being before vehicle 1 has achieved any sort of speed at all.



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Same scenario for 60 Mph

2 seconds to turn onto Redenhall road
60mph

Elapsed Seconds	Straight Seconds	Acceleration	Speed	Distance covered	Distance between
2	0.00	0.00	0.00	0.00	120.00
3	1	1.25	1.25	0.63	93.81
4	2	1.25	2.50	2.50	68.86
5	3	1.25	3.75	5.63	45.17
6	4	1.25	5.00	10.00	22.72
7	5	1.25	6.25	15.63	1.53
8	6	1.25	7.50	22.50	-18.42
9	7	1.25	8.75	30.63	-37.12
10	8	1.25	10.00	40.00	-54.56
11	9	1.25	11.25	50.63	-70.76
12	10	1.25	12.50	62.50	-85.70
13	11	1.25	13.75	75.63	-99.40

Stopping distance for 60 Mph is 77 metres.

2 seconds to turn onto Redenhall road
60mph

Elapsed Seconds	Straight Seconds	Acceleration	Speed	Distance covered	Distance between
2	0.00	0.00	0.00	0.00	120.00
3	1	1.25	1.25	0.63	93.81
4	2	1.25	2.50	2.50	68.86
5	3	1.25	3.75	5.63	45.17
6	4	1.25	5.00	10.00	22.72
7	5	1.25	6.25	15.63	1.53
8	6	1.25	7.50	22.50	-18.42
9	7	1.25	8.75	30.63	-37.12
10	8	1.25	10.00	40.00	-54.56
11	9	1.25	11.25	50.63	-70.76
12	10	1.25	12.50	62.50	-85.70
13	11	1.25	13.75	75.63	-99.40



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Effectively, the driver of vehicle 2 must **immediately** start braking as soon as he sees vehicle 1 turn out of the estate.

Failure to do so, will cause a fairly high-speed impact, even if the driver of vehicle 1 continues to accelerate smoothly.

Thus, it can be seen, that at the very least, the whole question of speed limits, sight lines, and enforcement of the speed limits needs to be high on the priority list before the actual construction of the proposed estate is undertaken.

120 metres may sound a lot, it isn't!