

6.6.3 Land to the north of Bygrave Road

The majority of the land to the north of Bygrave Road is clear of surface water with the extent being confined to the southern and western areas (refer to Figure 6.19).

An area of shallow flooding (less than 300 mm deep) is indicated to the west of Freeland Farm on the north side of Bygrave Road. However, this flooding only occurs in the Low Probability event (a 1 in 100 (1%) or less probability of occurring) and has a velocity of over 0.25 litres/sec indicating that it is very shallow overland flow flowing west rather than standing flood water. This overland flow is then channelled into a narrow flow to the west which is consistent with the existing contours.

At least part of this flow appears to be generated from the secondary overland flow route from the "overtopping" of Flood Area 1 (refer to Section 6.6.2).

The overtopping of Flood Area 2 across Bygrave Road (refer to Section 6.6.2) flows north west where it again starts to pond due to the raised bund to Laymoor Farm, "Flood Area 3". The top of the bund is approximately 60.60m and the lowest ground level in the area is 59.80 m giving a maximum flood depth of 800 mm which is consistent with it appearing on the EA 600 mm deep map but not the 900 mm deep.

In the Low Probability event, the flood water then overtops the bund and combines with the overland flow path noted above and flows to an area of flooding adjacent to North Road, "Flood Area 4". Overlaying the flood map with the topographical survey suggests the maximum flood level is approximately 57.50 m The lowest ground level in the area is approximately 56.50 m giving a maximum flood depth of 1 m which is consistent with the EA map designation of over 900 mm.

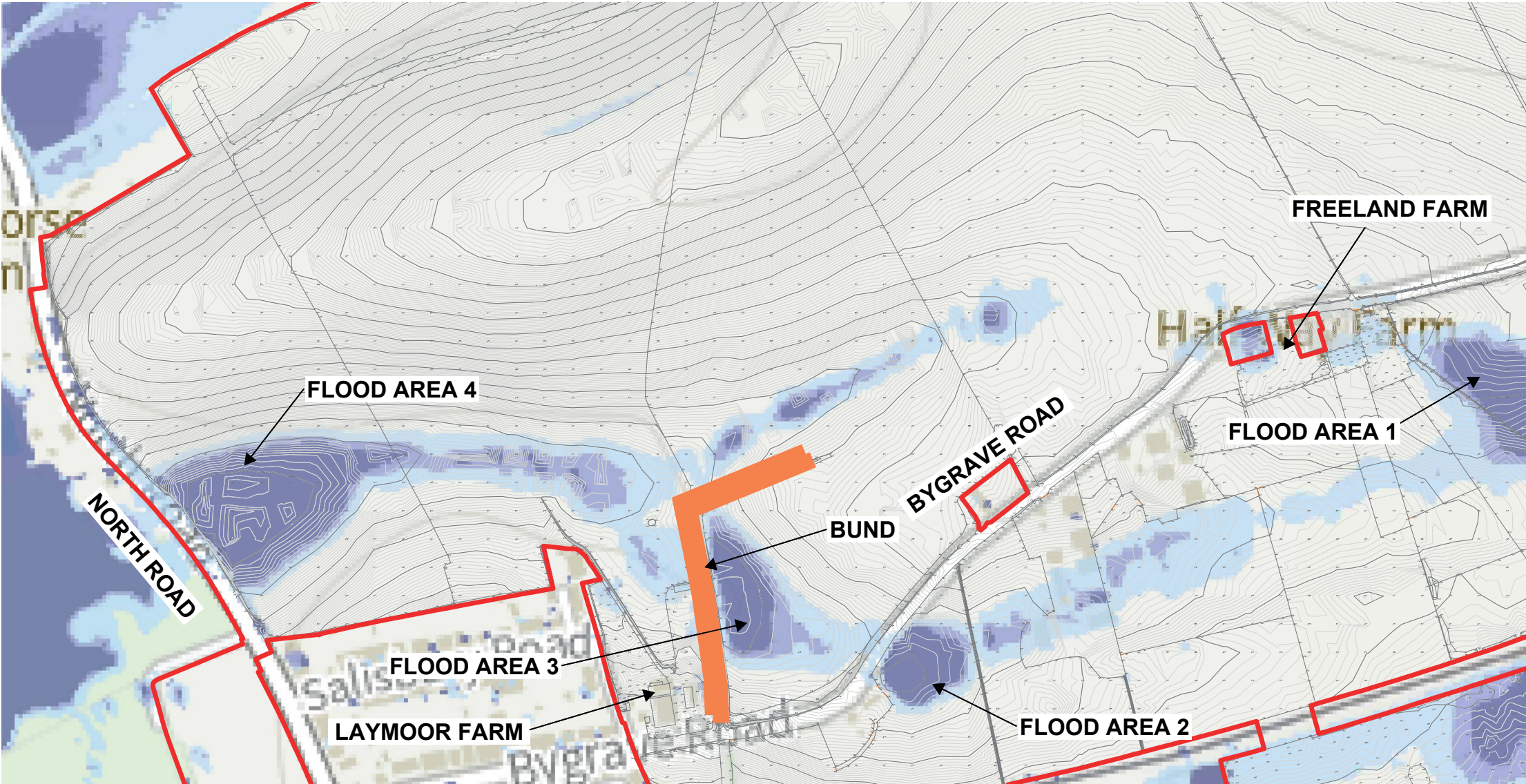


Figure 6.19 EA Surface Water Map overlaid with land north of Bygrave Road

6.6.3.1 Constraints / Opportunities

Implementing the measures discussed in Section 6.6.2.1 is likely to remove the flooding noted east of Freeland Farm (Flood Area 1) and also significantly reduce the overland flow from there to the west to Flood Area 4. The overland flow could also be integrated into the landscaped corridor to provide a controlled route and rate.

The flooding adjacent to North Road is the culmination of a series of smaller, shallower areas of ponding cascading from east to west following the existing contours until it reaches this low point. Implementing the measures outlined in Section 6.6.2.1 will provide much greater control over the volume and rate of surface water flooding noted in Section 6.6.3. In addition to those measures, the flooding that occurs adjacent to North Road could be integrated into open SuDS features to provide attenuation volume, water treatment and amenity space whilst controlling the flooding extent.

6.6.4 Safe Access / Egress

The EA and Defra published FD2321/TR2 "Flood Risks to People" in March 2006. Guidance Note 2, Figure 6.20 provides details on combinations of flood depth and velocities that cause danger to people. This table shows that people can become endangered in shallow but fast moving water through to still but deep water.

From the Environment Agency Surface Water Flooding Maps discussed above, the surface water flooding can be up to 1m deep but not moving or 200-300 mm deep with a velocity of up to 1 m/s. Figure 6.20 shows that in both extremes, this should not present a danger to people.

		Depth (m)									
Velocity (m/s)		0.25	0.50	0.75	1.00	1.25	1.50	1.75	2.00	2.25	2.50
	0.00	0.13	0.25	0.38	0.50	0.63	0.75	0.88	1.00	1.13	1.25
	0.50	0.25	0.50	0.75	1.00	1.25	1.50	1.75	2.00	2.25	2.50
	1.00	0.38	0.75	1.13	1.50	1.88	2.25	2.63	3.00	3.38	3.75
	1.50	0.50	1.00	1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00
	2.00	0.63	1.25	1.88	2.50	3.13	3.75	4.38	5.00	5.63	6.25
	2.50	0.75	1.50	2.25	3.00	3.75	4.50	5.25	6.00	6.75	7.50
	3.00	0.88	1.75	2.63	3.50	4.38	5.25	6.13	7.00	7.88	8.75
	3.50	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00
	4.00	1.13	2.25	3.38	4.50	5.63	6.75	7.88	9.00	10.13	11.25
	4.50	1.25	2.50	3.75	5.00	6.25	7.50	8.75	10.00	11.25	12.50
	5.00	1.38	2.75	4.13	5.50	6.88	8.25	9.63	11.00	12.38	13.75

Flood Hazard Rating (HR)	Colour Code	Hazard to People Classification
< 0.75		Very low hazard - Caution
0.75 to 1.25		Danger for some - includes children, the elderly and the infirm
1.25 to 2.00		Danger for most - includes the general public
> 2.00		Danger for all - includes the emergency services

Figure 6.20 FD2321/TR2 "Flood Risk to People" Extract