STAGE 1 FLOOD RISK ASSESSMENT

Five Acres, Poore Street
Wicken Bonhunt
Essex CB11 3UL
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Checked by: Martin Roberts I Eng, ACIWEM, MCIHT
1.0 INTRODUCTION & SUMMARY

1.1 This report has been prepared for Ms R. Allum in relation to the planning application for the change of use to Gypsy and Traveller residential pitches at Five Acres, Poore Street, Wicken Bonhunt, Essex CB11 3UL, and no responsibility is accepted to any third party for all or part of this study in connection with this or any other development.

1.2 GTA Civils Ltd. was appointed by the client to provide a Screening – or Stage 1 - FRA report to support the Client’s planning application.

1.3 This report will take the form of a formal Flood Risk Assessment in accordance with the 2012 National Planning Policy Framework (NPPF) and the associated Technical Guidance document (TG), both contained within the 2014 Planning Practice Guidance (PPG).

1.4 Policy H11: Affordable Housing on “Exception Sites” (from Uttlesford’s 2005 Local Plan) and ‘Planning Policy for Traveller Sites’, (published by the Department for Communities and Local Government, March 2012) have been consulted. The former does not mention flood risk and the latter states that such developments should not be located in areas at high risk of flooding. This report demonstrates that the risk of flooding is low to medium over the majority of this site.

SUMMARY

1.5 The proposal is for travellers’ mobile homes and an amenity block to be placed on a 2.1ha site in Uttlesford.

1.6 The main sources of flooding are fluvial, which is limited to the east only, and pluvial (surface water), which is through the middle of the site. The external areas will be of porous surfacings and the channel of the overland flow route will be enlarged slightly and the homes will be sited away from this.

1.7 The occupants do not have a safe access route to dry land to the south: Poore Street is liable to flood to a depth of over 0.9m in extreme storms. This would trap occupants within their homes for this duration.

1.8 The appropriate mitigation would be for a ‘Flood Response Plan’ to be drawn up by the leaders of this community – see sections 4.6 – 4.9 and Appendix C.
2.0 EXISTING SITE

2.1 The site lies within the area administered by Uttlesford District Council (UDC), comprising a vacant agricultural field. The setting is predominantly rural. An existing site location maps and an aerial view of the vicinity are shown in Appendix A.

2.2 The application site’s area is approximately 2.1ha and is 100% porous.

2.3 The site is within the River Cam’s catchment area – more specifically that of Wicken Water, a subsidiary of the Cam that flows south along the east side of Poore Street. A surface water drain (stream) flows eastwards along the north boundary discharging into Wicken Water at the NE corner.

2.4 Geology: the BGS map indicates the solid geology is Lewes Nodular Chalk Formation and Seaford Chalk Formation. Glaciofluvial drift deposits (sand and gravel) are shown overlying the Chalk. A narrow strip adjacent to the drain is showing as having Head Deposits overlying the Chalk, however. The soil’s infiltration rate is expected to be low where the Head is the uppermost stratum but potentially very high where there is a majority of sand, gravel and chalk.
3.0 CURRENT FLOOD CONDITIONS

3.1 The Environment Agency ‘Rivers and Seas’ Flood Map in Appendix B show that the vast majority of the site lies within Flood Zone 1 (FZ1). Inland sites in FZ1 have a low probability of river flooding of less than a 1 in 1000 probability (<0.1%) each year. A narrow strip along the east boundary – no more than a few metres wide – lies in Flood Zone 3A (FZ3A). These sites are liable to flood once in 100 years or more (or 1% annual Exceedance probability).

3.2 Surface water flooding: occurs when excess rainwater does not infiltrate into the ground, or is not intercepted by urban drainage systems, and instead flows across the surface. The EA’s Online ‘Surface Water Depth - ‘Medium Chance’ or ‘1 in 100 years’ Flood Map in Appendix B shows an overland flow route originating within the site near to the southwest corner. This flows north towards the NE corner joining the confluence of the drain and Wicken Water. This is no greater than 300mm in depth. The ‘Low Chance’ or ‘1 in 1000 years of Occurring’ surface water flood map shows the site is clear of this threat, however. It is concluded that the site is most liable to flood in the most extreme storms.

3.3 Groundwater flooding: occurs when water levels in the ground rise above surface elevations. The SFRA outlines the risk of this source of flooding across the district, which is high overall.

3.4 Sewer failure flooding: the SFRA does not give any indication of flooding from this source affecting this area, let alone the site itself.

3.5 Artificial Sources: flooding from reservoirs, canals and docks. The EA’s reservoir flood map shows that the site is removed from the areas at risk of flooding if a reservoir were to fail. There are no canals or docks in this area so the risk of flooding from this source is negligible.

3.6 Historical records: neither the EA nor the SFRA shows that this site has flooded. It is understood that Poore Street has flooded in recent times. The limit of this was confined to the highway and the east, not the west site which includes the application site.

3.7 It is concluded that the main risk of flooding to this site is from surface water. Although there is a narrow strip of land in FZ3A this is not considered to be a major problem. These 2 factors will be considered in the next section.
4.0 PROPOSED DEVELOPMENT & MITIGATION

4.1 The application is for outline planning permission for an indeterminate number of mobile homes sited here. At least one amenity block will be included.

4.2 Most of the external levels will remain as they are currently. There will be a corridor left in the middle of the site to ensure that the overland flow route will be unimpeded between south and north of the site. There will be a 150mm difference in level between this ‘channel’ and the pads formed for the homes. As the mobile homes will be raised over 300mm above ambient ground levels, there is no danger of these flooding. The amenity block will be sited to the east or west of this flow route.

4.3 Table 2 of the NPPF’s TG classifies mobile homes for permanent use as ‘Highly Vulnerable’ to flood risk. Table 3 of the TG indicates that the development of ‘Highly Vulnerable’ uses within Flood Zone 3 should not be permitted. There will be a 5m wide buffer strip along the east boundary to ensure that the area in FZ3A is left as is currently. In this way, the development will be limited to fluvial FZ1. Table 3 of the TG states that Highly Vulnerable uses are ‘appropriate development’ in FZ1.

4.4 The DEFRA publication, “Developing a joint approach to improving flood awareness and safety at caravan and camping sites in England and Wales” states that such sites should be better prepared for flooding than they currently are. This report initiates this awareness as the occupants will now be more aware of the Flood Risk issues affecting this site.

4.5 Access to safety: The site that will be developed is in Flood Zone 1, with the area adjacent to Poore Street in FZ3A left as is. The occupants are at no risk if they remain on this site. If they have to make their way south along Poore Street, then it is apparent that the flood depth may rise to over 0.9m between the site and the main highway to the south. As can be seen in Flood Hazard Table overleaf (from DEFRA’s publication FD2321) depths of 1m are only safe if the water is stationary. This is unlikely as Wicken Water flows southwards adjacent to Poore Street.

4.6 The site is not at high risk of flooding but the route south along Poore Street is liable to flood to a hazardous depth. As long as the occupants are warned about the risk of flooding and are alert to the possibility of being trapped in and around their homes, then it is contended that the risk will have been mitigated.

4.7 It is proposed that the site’s management (community leadership) draws up, manages and reviews a ‘Flood Response Plan’. This will be a ‘live’ document, meaning that it will be monitored and evolve over time to reflect the changing flood risk. The Plan should be adapted to suit the perceived flood risk as it changes.

4.8 An initial draft of a Flood Response Plan is shown in Appendix C. The final version of this Plan should coordinate with UDC’s Emergency Planners’ policy for such sites as far as practically possible, to be confirmed by the LPA.
4.9 The occupants are to monitor the local TV and online weather forecasts during stormy conditions: the EA issues flood warnings via the broadcast media. All the occupants will be made aware of this Plan as there will be a durable notice displayed in each home and near to the entrance of the amenity block.

4.10 All external areas will be either porous (e.g., gravel or permeable pavings) or impermeable, laid to falls and draining to ground. The mobile homes’ roofs will also drain to ground.

4.11 SUDS Only the amenity block’s roof will be positively drained. The offsite flow rate from this will be restricted to 4.0 l/s in the critical ‘1 in 100 years + 30% climate change’ storm event. This is the practical minimum limit of limiting devices such as orifice plates and vortex controls. It is lower than the minimum limit used by BREEAM’s ‘Code for Sustainable Homes’ scheme (5 l/s). This will be routed into the ditch at the NE corner of the site.

4.12 Foul Water: the foul drainage network from the units and amenity block will be discharged into a sewage treatment plant that conforms to EN 12566. The water from this will be sufficiently clean for discharge into the watercourse. The unit itself will not be positioned in the overland flow route, so there will be no negative impact of this plant.

Conclusion: this development will not increase the flood risk to this site or to neighbouring properties. It is therefore considered that, with the above recommended measures, this development will fully comply with the NPPF/PPG.
APPENDIX A

Site Location Map & Aerial Photo

![Site Location Map & Aerial Photo](image-url)
APPENDIX B

Environment Agency Flood Maps

EA’s Flood Map for Planning (Rivers and Seas)

The site lies within fluvial Flood Zone 1: a very narrow strip along the east boundary is in FZ3A.
EA’s Online ‘Surface Water Depth - Medium Chance (1 in 100 years) of Occurring’ Flood Map

There is a shallow overland flow route flowing northeast through the site, which originates within the site.
EA’s Online ‘Surface Water Depth - Low Chance (1 in 1000 years) of Occurring’ Flood Map

The overland flow route within the site is wider than the ‘100 years’ scenario but no deeper than 300mm
EA’s Online ‘Risk of Flooding from Reservoirs’ Map

The site is removed from this threat
APPENDIX C

Flood Response Plan

A permanently affixed durable sign shall be affixed inside each mobile home and immediately inside the main entrance of the amenity block.

Its letters shall be no less than 3mm high in a simple, clear font and the lettering shall be black on a white background or white on a black background for maximum contrast.

Each sign should read:

**Flood Warning**

Poore Street is at high risk of flooding. The depth of flooding may exceed 0.5m, which is hazardous. This depth may last more than a few hours and so would trap you and your neighbours within the confines of Five Acres.

You are strongly advised to monitor the weather and keep informed of storm/flood developments as they arise. You are advised to keep informed by listening to the radio or watching the TV news bulletins.

**Response**

Well in advance of any such threat you should plan ahead. Consider who you can visit (friends/family). You should also plan the means of transport, e.g. by car, walking or other means.

If there are any occupants with physical disabilities then these should be incorporated into this plan.

The site may flood prior to you evacuating: you should ensure that you have sufficient provisions (food and sanitary/ cleaning materials etc.) for at least 3 days.