

Flood Risk Assessment & Drainage Strategy

Residential Development

The Orchards, Blazegate, Gedney Spalding, Lincolnshire,
PE12 0AD

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2 Executive Summary

This Flood Risk Assessment and Drainage Strategy supports the proposed development of 22 residential mobile homes at The Orchards, Blazegate, Gedney. The application site extends to approximately 1.2 hectares and already contains mobile home accommodation, access from Blazegate, an internal road, areas of hardstanding and gravel, fencing and associated infrastructure.

The site is located within defended Flood Zone 3a. The principal source of flood risk is a low-probability residual tidal event associated with a breach of the Lincolnshire coastal defences. Environment Agency modelling indicates that present-day breach flooding would be shallow and slow-moving, with depths generally below 0.25m. Under the 2115 climate-change scenarios, depths could reach approximately 1.0m during the 0.5% Annual Exceedance Probability (AEP) event and approximately 1.6m during the more extreme 0.1% AEP event.

Floodwater associated with a tidal breach would develop gradually over successive tidal cycles rather than occurring as a rapid-onset event. This will provide sufficient opportunity for Environment Agency warnings to be received and residents to evacuate before conditions become hazardous. A site-specific Flood Warning and Evacuation Plan is included in Appendix A.

In allowing the appeal on 5 July 2024, the Planning Inspector concluded that no reasonably available, sequentially preferable site existed and that the Sequential Test was passed – appeal decision included in Appendix C. The current proposal relates to the same site and general form of residential mobile-home accommodation. There has been no material change in the distribution of flood risk or availability of suitable lower-risk land that would alter that conclusion. The proposed development therefore passes the Sequential Test.

The development will provide wider sustainability benefits through the delivery of 22 residential mobile homes, contributing towards the identified accommodation need and making effective use of an established residential site. The Planning Inspector previously accepted that residential pitches represented a wider sustainability benefit and that development could be made safe without increasing flood risk elsewhere. The enhanced mitigation incorporated into the current proposal satisfies both elements of the Exception Test.

Each mobile home will be installed on a Flood Technology Group Flood Adaptive Platform™. Under normal conditions, the homes will remain at a conventional floor level approximately 600mm above surrounding ground. In response to an agreed flood trigger, each platform will raise the occupied accommodation so that the finished floor level is approximately 2m above surrounding ground and exceeds the 1.6m mitigation level previously accepted for the site.

The platforms will incorporate automatic activation, manual controls, battery backup, secure structural support and service connections capable of accommodating the full lifting movement. Their open structure will allow floodwater to pass beneath the elevated homes, maintaining floodplain storage and avoiding the displacement associated with permanent land raising or solid foundations.

Early evacuation will remain the primary life-safety response. The elevated homes will provide additional resilience and temporary refuge if evacuation is unexpectedly delayed or becomes unsafe but will not replace the requirement to evacuate when the trigger in the Flood Warning and Evacuation Plan is reached.

The only positively drained impermeable surfaces will be the roofs of the 22 mobile homes. Based on approximately 45m² per unit, the total contributing roof area will be approximately 0.10 hectares.

Approximately 0.2 hectares will remain grassed, while the remaining access roads, parking areas and plots will comprise gravel surfaces that are not positively connected to the formal roof-water drainage system. No formal storage or infiltration credit has been assigned to these areas.

Roof runoff will drain to two approximately 70m-long, 1,000mm clear-bore storage pipes laid alongside the access road and falling towards a central surface-water pumping station. The pipes will provide approximately 110m³ of combined gross storage. Detailed hydraulic design will confirm at least 104m³ of usable storage, sufficient for the 1% annual probability rainfall event including a 40% climate-change allowance.

The surface-water pumping station will incorporate duty and standby pumps, level controls, non-return and isolating valves, and a high-level alarm with telemetry. Runoff will be pumped to a break-pressure/discharge chamber and discharged by gravity to the adjacent land-drainage ditch at a maximum final rate of 1.0 l/s, unless otherwise agreed with the South Holland (Internal Drainage Board) IDB.

The existing boundary ditches will be cleared and locally regraded where necessary. The final surface-water outfall, discharge rate and associated ditch works will be agreed with the South Holland IDB.

There is no reasonably available public foul sewer serving the site. Foul flows from the 22 mobile homes will drain through a communal gravity-sewer system falling from north to south towards a foul pumping station located within the southern part of the site.

The pumping station will convey flows through a rising main to a communal package sewage treatment plant located within the southern treatment area. Treated effluent will pass through a sampling chamber and discharge by gravity to the adjacent land-drainage ditch.

The treatment plant will be sized from the confirmed bedroom and occupancy information. A minimum preliminary capacity of approximately 66 population equivalent and 9.9m³/day has been assumed, although sufficient space will be retained for a plant of up to approximately 125 population equivalent should this be required by the final occupancy calculation.

An Environment Agency environmental permit will be obtained before the treated-effluent discharge commences, together with any required consent from the South Holland IDB.

The assessment demonstrates that the development incorporates a comprehensive and deliverable strategy for managing residual tidal flood risk, surface-water runoff and foul drainage. With the specified mitigation, warning, evacuation, drainage, permitting and maintenance measures implemented, the development will remain safe throughout its lifetime and will not increase flood risk elsewhere.

3 Introduction

3.1 Purpose and scope

This report supports a planning application for 22 residential mobile homes at The Orchards, Blazegate. It has been prepared to:

- Assess flood risk from all relevant sources over the lifetime of the development;
- Address the Sequential and Exception Tests;
- Define the proposed flood-resistance, resilience, warning and evacuation measures;
- Provide a surface-water drainage strategy based on the drainage hierarchy;
- Provide a foul-water drainage strategy where connection to a public sewer is not reasonably practicable;
- Define the proposed ownership, maintenance and implementation arrangements; and
- Identify the consents, permits and detailed design work required before construction and occupation.

This is a planning-stage assessment and drainage strategy. Final pipe sizes, levels, pumping-station duties, treatment-plant capacity, structural details and anti-flotation measures will be confirmed through detailed civil, structural, mechanical and electrical design before construction.

3.2 Existing site

The site is located at The Orchards, on the southern side of Blazegate, Gedney, Spalding, Lincolnshire, PE12 0AD, approximately 700m east of Chapel Gate in Gedney village.

The site covers an area of approximately 1.2 hectares that was historically agricultural land but now comprises an access from Blazegate, an internal access road, fencing, areas of hard standing, gravel and made ground, low-level vegetation, and mobile home accommodation – as shown in Figure 1.



Figure 1 – Existing site

The site is within the South Holland IDB district. A drainage ditch follows much of the site boundary and connects at the north-western corner to the wider land drainage network. The IDB maintained Gedney Drain is located approximately 100m west of the site.

Available topographical and LiDAR data indicate that ground levels across the site are generally between approximately 2.7m and 2.9m AOD.

3.3 Geology groundwater and infiltration

British Geological Survey mapping identifies tidal-flat superficial deposits of clay and silt over Ampthill Clay Formation mudstone. Previous trial excavations confirmed this general sequence and a BRE 365 test failed because the water level remained constant. Together with the low-lying setting and high groundwater, this demonstrates that conventional infiltration basins or soakaways should not be relied upon as the primary means of surface water drainage.

3.4 Proposed development

The current proposal comprises 22 residential mobile homes with associated access, parking, amenity space, planting, drainage, services and ancillary works – as shown in Figure 2.



Figure 2 – Proposed Development

4 Planning Policy

4.1 National and local policy

This assessment has been prepared with reference to the current National Planning Policy Framework, the Planning Practice Guidance on flood risk and coastal change, the South East Lincolnshire Local Plan 2011–2036, the South East Lincolnshire Strategic Flood Risk Assessment, Lincolnshire County Council’s flood risk and drainage guidance, and the relevant requirements of the South Holland IDB.

National policy requires development to be directed towards areas at the lowest risk of flooding. Where development is proposed in an area at risk, it must be demonstrated that it will be safe throughout its lifetime, without increasing flood risk elsewhere and, where possible, will reduce flood risk overall.

4.2 Flood Zone classification

The Environment Agency Flood Map for Planning identifies the site as being within Flood Zone 3 – as shown in Figure 3. This is land with a high probability of flooding from rivers or the sea, without taking account of the presence of flood defences.

The site benefits from tidal flood defences and is considered to be within defended Flood Zone 3a. The principal source of flood risk is tidal flooding associated with a breach of the Lincolnshire coastal defences. The assessment therefore considers both the probability of flooding and the residual consequences should the defences be exceeded or fail.



Figure 3 – Environment Agency Flood Map for Planning

4.3 Flood risk vulnerability

The proposed development comprises mobile homes intended for permanent residential occupation. In accordance with the vulnerability classifications set out in the Planning Practice Guidance, mobile homes intended for permanent residential use are classified as Highly Vulnerable development.

Highly Vulnerable development is not normally considered compatible with Flood Zone 3a. The application must therefore be considered in the context of the Sequential Test, the site specific flood risk, the availability of alternative sites, and the proposed measures for managing risk throughout the lifetime of the development.

The proposed use of Flood Adaptive Platform™ technology, together with flood warning and evacuation arrangements and the management of surface water runoff, form an integral part of the strategy for making the development safe.

5 Sequential Test

5.1 Objective and scope

The purpose of the Sequential Test is to direct development towards areas with the lowest probability of flooding. Development should not be allocated or permitted where there are reasonably available sites appropriate for the proposed development in areas at lower risk.

The test must be applied in a proportionate manner, having regard to the nature of the proposed development, the geographical area over which the identified need should reasonably be met, the availability and suitability of alternative sites, and the particular distribution of flood risk across South Holland.

For the purposes of this assessment, the search area comprises the South Holland district. This reflects the identified need for mobile home accommodation within the district and provides an appropriate geographical basis for assessing reasonably available alternatives.

5.2 Availability of lower risk sites

The proposed development will provide 22 residential mobile homes at The Orchards. The relevant consideration is therefore whether there are reasonably available and suitable sites within South Holland that could accommodate the proposed development in an area at a lower risk of flooding.

South Holland is an extensive, low-lying district in which a substantial proportion of the land lies within Flood Zones 2 and 3. This reflects the district's relationship with the Wash, River Nene and River Welland and the wider network of embanked watercourses and land drainage systems. Consequently, the availability of land within Flood Zone 1 is limited.

The presence of land within Flood Zone 1 does not, in itself, establish that a reasonably available alternative site exists. Any alternative would need to:

- be available for the proposed development;
- be of sufficient size to accommodate 22 residential mobile homes and the necessary access, amenity, drainage and servicing infrastructure;
- be suitable for the proposed form of residential occupation;
- be capable of meeting the identified accommodation need;
- be free from overriding planning, environmental, access, infrastructure or ownership constraints; and
- be capable of being delivered within a reasonable timescale.

There is no evidence of a reasonably available site within Flood Zone 1 that meets these requirements. The limited extent of lower risk land within the district, together with the development, ownership and infrastructure constraints that apply to potential alternatives, means that no sequentially preferable site has been identified that could reasonably accommodate the proposal.

5.3 Site specific considerations

The Orchards is an established residential mobile home site with an existing access from Blazegate, an internal access road, areas of hardstanding, fencing, services and associated infrastructure. The proposal therefore makes effective use of an existing site rather than introducing this form of development onto an undeveloped alternative site.

Although the site is located within Flood Zone 3, it benefits from tidal flood defences. The principal source of risk is residual tidal flooding following a breach of those defences, rather than frequent or direct flooding of the site. The available modelling indicates that floodwater associated with a breach would develop relatively slowly over successive tidal cycles, providing an opportunity for early warning and evacuation.

The proposed Flood Adaptive Platform™ technology, described in Section 8.2 and Appendix F, will enable the occupied accommodation to be raised to approximately 2m above surrounding ground level. This exceeds the 1.6m mitigation level previously accepted for the site.¹ The Flood Warning and Evacuation Plan, provided in Appendix A, establishes procedures for residents to leave the site before flood conditions become hazardous.

The 2024 appeal decision is a significant and directly relevant material consideration. In allowing residential mobile home accommodation at this site, the Planning Inspector considered the availability of alternative sites at a lower risk of flooding and concluded that there were no reasonably available, sequentially preferable sites. The Inspector therefore found that the Sequential Test was passed.

The current application relates to the same site, within the same district, and proposes the same general form of residential mobile home accommodation. The increase in the number of units does not alter the underlying distribution of flood risk across South Holland or make land that was previously unavailable or unsuitable reasonably available. The present proposal also incorporates enhanced flood adaptation measures through the use of Flood Adaptive Platform™ technology.

5.4 Sequential Test conclusion

A substantial proportion of South Holland lies within Flood Zones 2 and 3, and the availability of suitable land within Flood Zone 1 is limited. No reasonably available and suitable lower risk site has been identified that could accommodate 22 residential mobile homes together with the necessary access, drainage, servicing and amenity infrastructure.

The Planning Inspector has previously considered the availability of alternative sites in relation to residential mobile home accommodation at The Orchards and concluded that no sequentially preferable site was reasonably available. There has been no material change in the distribution of flood risk across the district or in the availability of suitable lower risk sites that would justify a different conclusion for the current proposal.

The development also makes effective use of an established residential site and incorporates enhanced measures to manage the residual flood risk. Having regard to the limited availability of suitable lower risk land, the absence of a reasonably available sequentially preferable alternative, the established use and infrastructure of the site, and the conclusions of the 2024 appeal decision, the proposed development passes the Sequential Test. The 2024 appeal decision is included in Appendix C.

¹ Refer to Condition 9 of Appeal Decision, reference: APP/A2525/W/24/3339458, dated 5 July 2024.

6 Exception Test

6.1 Wider sustainability benefits

The first part of the Exception Test requires the development to provide wider sustainability benefits to the community that outweigh the identified flood risk.

The proposal will provide 22 residential mobile homes, contributing towards the identified need for suitable residential accommodation within South Holland. It will make effective use of an established residential site that already contains mobile home accommodation, an access from Blazegate, an internal access road, areas of hardstanding and associated infrastructure.

The wider sustainability benefits of the development include:

- contributing towards the identified need for residential accommodation within the district;
- providing secure and appropriate long term accommodation for future residents;
- making effective use of an established residential site and its existing access and infrastructure;
- avoiding the need to establish the same form of development on an alternative undeveloped site;
- incorporating an engineered flood adaptation system into the design of the development; and
- providing coordinated drainage, flood warning, evacuation and site management arrangements.

These benefits are particularly relevant in South Holland, where a substantial proportion of the district lies within Flood Zones 2 and 3 and the availability of suitable lower risk land is limited.

The Planning Inspector considered the sustainability benefits associated with residential mobile home accommodation at this site in the appeal decision dated 5 July 2024. The Inspector accepted that the provision of residential pitches contributed towards meeting an identified accommodation need within the district and represented a wider sustainability benefit. The current proposal will provide a greater contribution towards that need through the delivery of 22 residential mobile homes.

The development therefore provides wider sustainability benefits to the community that outweigh the residual flood risk associated with the site. The first part of the Exception Test is satisfied.

6.2 Safe development over its lifetime

The second part of the Exception Test requires the development to be safe throughout its lifetime, without increasing flood risk elsewhere and, where possible, to reduce flood risk overall.

The principal source of flood risk is a low probability residual tidal event associated with a breach of the coastal defences. The available modelling indicates that floodwater would be expected to reach the site gradually over successive tidal cycles rather than arriving as a rapid onset event. This provides an opportunity for Environment Agency warnings to be received and for residents to evacuate before conditions become hazardous.

The flood risk strategy is based on:

- registration for and receipt of Environment Agency flood warnings;
- early managed evacuation before floodwater affects the site or evacuation route;
- automated raising of each occupied mobile home to approximately 2m above surrounding ground level using the Flood Adaptive Platform™;

- battery backup, manual controls and appropriate inspection, testing and maintenance arrangements for the platforms;
- locating vulnerable services and controls above the design flood level, where practicable;
- attenuating surface water runoff on site and restricting discharge to the adjacent drainage network;
- preserving floodplain storage and the movement of floodwater beneath and around the raised units; and
- implementing and maintaining a site-specific Flood Warning and Evacuation Plan.

The Flood Adaptive Platform™ provides an enhanced form of mitigation compared with permanent solid plinths or extensive land raising. The occupied accommodation will be securely fixed to ground and capable of being raised above the predicted flood level, while the open structure beneath the units will allow floodwater to be temporarily stored and conveyed across the site. This will minimise the displacement of floodwater and avoid a material increase in flood levels elsewhere.

The FRA considered at appeal proposed finished floor levels 1.6m above existing ground level for the mobile homes and dayrooms. Compliance with the mitigation contained in that FRA was subsequently secured through Condition 9. The current proposal will meet or exceed that previously accepted mitigation level through the use of the Flood Adaptive Platform™.

Early evacuation will remain the primary life safety response to a forecast tidal flood or defence breach event. The elevated mobile homes will provide an additional level of resilience and temporary refuge if evacuation is unexpectedly delayed or becomes unsafe, but they will not be relied upon as a substitute for evacuation.

The surface water drainage strategy will attenuate runoff on site and restrict discharge to an agreed rate. It will accommodate the design rainfall event, including an appropriate allowance for climate change, and provide managed exceedance routes. The development will therefore not increase surface water flood risk to neighbouring land or the wider drainage catchment.

The development will consequently remain safe throughout its lifetime and will not increase flood risk elsewhere. The second part of the Exception Test is satisfied.

6.3 Exception Test conclusion

The ability of residential mobile home accommodation at The Orchards to satisfy the Exception Test has already been considered in detail by the Planning Inspector. Although the Inspector noted that the Exception Test was not formally applicable in the circumstances of that appeal, the decision expressly considered both elements of the test and concluded that it would be passed.

The Inspector accepted that the provision of residential pitches represented a wider sustainability benefit, that the development would not increase flood risk elsewhere, and that the proposed accommodation could be made safe. The Inspector also recognised that residual tidal flooding would develop relatively slowly over successive tidal cycles, providing sufficient opportunity for residents to evacuate before hazardous depths were reached.

The current proposal retains these fundamental site specific circumstances but incorporates enhanced flood risk mitigation. Each occupied mobile home will be capable of being raised to approximately 2m above surrounding ground level using the Flood Adaptive Platform™, meeting or exceeding the mitigation level previously accepted for the site. The platforms will avoid extensive land raising and allow the temporary storage and movement of floodwater beneath the units, thereby limiting floodwater displacement.

Flood risk will be managed through Environment Agency warnings, early managed evacuation, active elevation of the occupied accommodation, resilient services, backup power, operational safeguards and a site specific Flood Warning and Evacuation Plan. Surface water runoff will be attenuated and discharged at a controlled rate so that the development does not increase flood risk to neighbouring land or the wider catchment.

The proposal will deliver a substantial contribution towards the identified accommodation need within South Holland and will make effective use of an established residential site. These wider sustainability benefits outweigh the low probability residual flood risk, which can be safely and effectively managed throughout the lifetime of the development.

Having regard to the findings of the Planning Inspector, the nature and expected progression of the residual tidal flood risk, and the enhanced mitigation incorporated into the current proposal, the development will be safe throughout its lifetime and will not increase flood risk elsewhere. Both elements of the Exception Test are therefore satisfied, and the proposed development passes the Exception Test.

7 Sources of Flood Risk

7.1 Environment Agency flood risk information

An updated request for site specific flood risk information was submitted to the Environment Agency for the purposes of this assessment. The information provided has been reviewed alongside the Environment Agency data previously obtained for the site and confirms that the relevant modelled flood depths, extents and hazard classifications remain consistent.

The latest Environment Agency information has therefore been used as the basis of this assessment, together with the South East Lincolnshire Strategic Flood Risk Assessment, available topographic data and the findings of the Planning Inspector in the appeal decision dated 5 July 2024 – included in Appendix C.

The Environment Agency information includes:

- the Flood Map for Planning;
- tidal defence information;
- extreme tidal-level data;
- tidal breach depth, velocity and hazard mapping;
- information on recorded historic flooding; and
- advice on other potential sources of flooding.

The relevant Environment Agency correspondence and mapping are included in Appendix B.

7.2 Flood Zone classification

The Environment Agency Flood Map for Planning identifies the site as being within Flood Zone 3. This is land assessed as having a 1% or greater annual probability of river flooding or a 0.5% or greater annual probability of tidal flooding, without taking account of the presence of flood defences.

The site is not considered to be at risk from Main River flooding. Its Flood Zone 3 classification arises from the potential for tidal flooding in the absence of the coastal defences.

The site benefits from an extensive system of tidal defences and is therefore considered to be within defended Flood Zone 3a. The mapped Flood Zone represents the theoretical undefended probability of flooding and does not reflect the actual standard of protection provided by the defences.

7.3 Tidal flood risk

The principal source of flood risk to the site is tidal flooding associated with the Wash and the tidal River Nene.

The Environment Agency has confirmed that the site is protected by earth embankment tidal defences. These defences are routinely inspected and were recorded as being in fair condition. The Environment Agency information identifies a present day standard of protection at the defences of approximately 0.67% annual probability, equivalent to a 1 in 150 annual chance event.

The Wash tidal defences are located approximately 4.8km from the site, while the River Nene tidal defences are approximately 7km to the east. A series of historic embankments and secondary defences between the coast and the site provide further interruption to potential flood pathways.

The probability of direct tidal flooding is therefore low. The principal remaining risk is a residual event caused by a breach or failure of the tidal defences during an extreme tidal event.

7.4 Tidal overtopping

The Environment Agency tidal hazard information confirms that the site is not affected by overtopping of the tidal defences under either the present day or 2115 climate change scenarios considered in its modelling.

Direct overtopping is therefore not identified as a material source of flood risk to the site. The controlling tidal risk is associated with a breach of the defences.

7.5 Residual tidal breach risk

The Environment Agency has modelled tidal defence-breach scenarios for the following events:

- present day 0.5% annual probability event;
- present day 0.1% annual probability event;
- 2115 0.5% annual probability event; and
- 2115 0.1% annual probability event.

The modelling provides maximum flood depths, velocities and hazard classifications resulting from breaches at a series of locations along the tidal defences. The mapped results represent conservative residual risk scenarios and do not assume that a breach will occur at the nearest or most critical location.

For the present day 0.5% and 0.1% annual probability breach events, floodwater reaching the site would generally be less than 0.25m deep and slow moving. The resulting hazard is classified as low.

Climate change increases the potential consequences of a defence breach. For the 2115 0.5% annual probability event, the modelled flood depth at the site is up to approximately 1.0m. For the more extreme 2115 0.1% annual probability event, the maximum mapped flood depth is up to approximately 1.6m – as shown in Figure 4. All data received from the Environment Agency is included in Appendix B.

Available topographical and LiDAR information indicates that ground levels across the site are generally between approximately 2.7m and 2.9m AOD. Local variations in ground level mean that the modelled depth will not be uniform across the site. The central and locally higher parts of the site would experience lower depths than the lower areas.

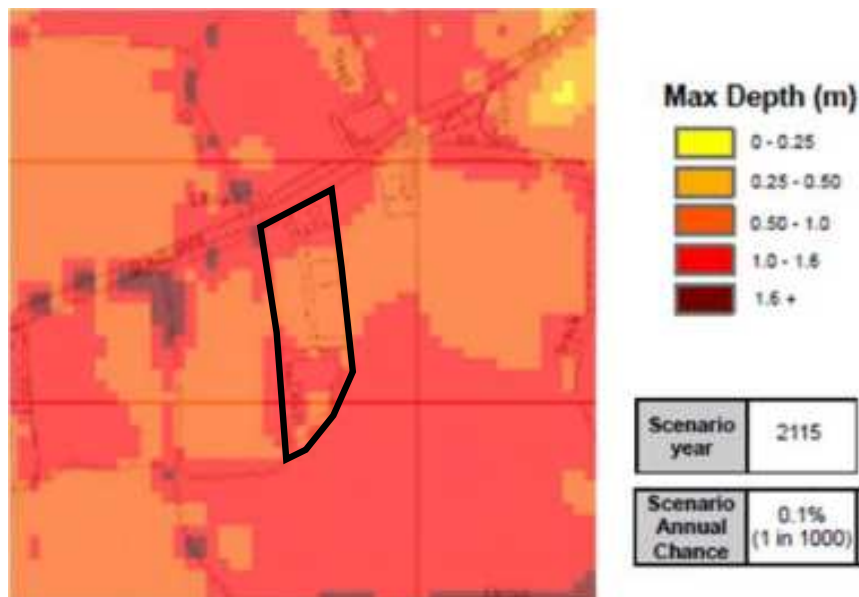


Figure 4 – Modelled tidal breach flood depth for the 2115 0.1% annual probability event

The modelled floodwater is slow moving and would not arrive at the site immediately following a breach. As the source is tidal, flood depths would rise and fall with successive tidal cycles. The maximum modelled depths would only be expected to develop following a number of high tides.

The Planning Inspector considered this progression of flooding in the 2024 appeal decision and concluded that residents would have sufficient opportunity to evacuate during a lower tide period before floodwater reached hazardous depths. The gradual development of the event is therefore an important consideration in the site's warning and evacuation strategy.

The residual tidal breach risk is significant in consequence but very low in probability. It can be safely managed through early warning and evacuation, together with raising the occupied mobile homes above the predicted flood level using the Flood Adaptive Platform™.

7.6 Ordinary watercourses and land drainage

The site lies within the South Holland IDB district and the Lutton Leam drainage catchment. Surface water from the surrounding low lying land is managed through an extensive network of ordinary watercourses, drains, sluices and pumping infrastructure.

A drainage ditch follows much of the site boundary and connects at the north-western corner to the wider land drainage network. The IDB maintained Gedney Drain is located approximately 100m west of the site.

The South Holland IDB system provides a managed standard of land drainage, supported by a programme of inspection and maintenance. Flooding could occur if:

- an ordinary watercourse or culvert became blocked;
- rainfall exceeded the capacity of the local drainage system;
- an IDB pumping station or control structure failed; or
- elevated downstream levels restricted discharge from the catchment.

The risk is managed in part through the maintained local drainage network and its active management by the IDB. Subject to the proposed surface water drainage controls and continued maintenance of the adjacent ditch network, the risk of flooding from ordinary watercourses and land drainage is considered low.

7.7 Surface water flooding

The Environment Agency long term flood risk mapping identifies the site as being at very low risk of surface water flooding, corresponding to an annual probability of less than 0.1% - as shown in Figure 5.

The generally flat topography means that some temporary localised ponding could occur during an intense rainfall event, particularly if the surrounding drainage ditches were obstructed or operating at elevated levels. However, there is no defined surface water flow path crossing the site and no significant area of mapped surface water flooding affects the proposed development.

The proposed drainage system will collect and attenuate runoff from the mobile-home roofs. Gravel roads, parking areas and plots will remain unconnected to the formal drainage system and will drain diffusely towards the designated exceedance routes and boundary ditches.

The existing surface water flood risk is therefore considered very low and will not be increased by the proposed development.



Figure 5 – Environment Agency surface water flood risk mapping

7.8 Groundwater flooding

The site is low lying and underlain by tidal flat deposits of clay and silt over Ampthill Clay Formation mudstone. Groundwater levels are understood to be high, and previous site investigations found that water remained within the trial excavation during attempted infiltration testing.

These conditions make infiltration drainage unsuitable and could result in shallow groundwater being encountered during construction. However, the low permeability of the underlying deposits limits the potential

for rapid groundwater emergence, and there is no evidence of the site having experienced groundwater flooding.

Groundwater is principally a constraint on the design and construction of below ground drainage infrastructure rather than a significant direct source of flooding to the proposed mobile homes. Below ground tanks, chambers and treatment plant structures will require appropriate sealing and protection against flotation.

The risk of groundwater flooding to the occupied accommodation is considered low.

7.9 Flooding from sewers

The Anglian Water asset information confirms that there are no public foul or surface water sewers within the immediate vicinity of the site. The proposed development will therefore not be directly connected to a public sewerage network. The Anglian Water asset plan is included in Appendix E.

There is consequently no material existing risk of flooding from public sewers. Foul water will be managed through a package treatment system, while surface water will be attenuated and discharged separately to the adjacent land drainage network.

The risk of sewer flooding is considered very low.

7.10 Reservoir flooding

The Environment Agency long term flood-risk mapping confirms that the site is outside the maximum mapped extent of reservoir flooding.

Flooding from reservoirs is therefore not considered a material risk to the proposed development.

7.11 Historic flooding

The Environment Agency confirmed in its response that it held no records of historic flooding affecting the site. No additional evidence has subsequently been identified to indicate that the site has experienced flooding from rivers, the sea, surface water, groundwater or the local drainage system.

The absence of recorded flooding is consistent with the protection provided by the tidal defences and the managed land drainage network.

7.12 Summary of flood risk

The assessment identifies tidal defence breach as the principal source of flood risk. The probability of such an event is low, but the potential consequences increase over the lifetime of the development as a result of climate change. A summary of flood risk to the site is provided in Table 1.

Source	Assessed risk	Assessment
Tidal overtopping	Very low	EA modelling shows no overtopping at the site in the present day or 2115 scenarios.
Tidal defence breach	Low probability but potentially significant consequence	Present day depths are generally below 0.25m; climate-change depths could reach approximately 1.0m to 1.6m in extreme breach scenarios.
Main River flooding	Very low	The Environment Agency confirms that the site is not at risk from Main River flooding.
Ordinary watercourses and land drainage	Low	Risk is managed through the maintained South Holland IDB drainage network.
Surface water	Very low	The site is predominantly within the very low-risk category and has no significant mapped flow path.
Groundwater	Low	High groundwater constrains drainage design but does not represent a significant direct risk to occupied accommodation.
Public sewers	Very low	No public sewer network is located within the immediate vicinity of the site.
Reservoirs	Very low	The site is outside the mapped reservoir flood extent.

Table 1 – Summary of flood risk to site

The identified residual tidal risk will be managed through the Flood Adaptive Platform™, Environment Agency warnings, early evacuation, resilient services and the site specific Flood Warning and Evacuation Plan. On this basis, the development can be made safe throughout its lifetime without increasing flood risk elsewhere.

8 Flood Risk Mitigation

8.1 Mitigation strategy

The development will incorporate a coordinated package of flood risk mitigation measures that responds directly to the residual tidal breach risk identified in Section 7.

The strategy will:

- provide Environment Agency flood warnings and early managed evacuation;
- raise the occupied mobile homes above the predicted design flood level using the Flood Adaptive Platform™;
- provide resilient structural supports, services, controls and backup power;
- maintain floodplain storage and the movement of floodwater across the site;
- attenuate surface water runoff and restrict its discharge to the adjacent drainage network; and
- secure the inspection, testing and long-term maintenance of the mitigation measures.

The primary life safety response will be early evacuation before floodwater reaches the site or affects the evacuation route. The Flood Adaptive Platforms will provide additional protection to the mobile homes and temporary refuge if evacuation is unexpectedly delayed or becomes unsafe.

8.2 Flood Adaptive Platform™

Each mobile home will be installed on a Flood Technology Group Flood Adaptive Platform™. The platform uses synchronised mechanical screw-jack assemblies to raise a mobile home vertically when a predetermined flood trigger is reached.

Under normal conditions, each mobile home will remain close to its conventional ground level position. In response to a flood warning or detection of rising water, the platform will raise the occupied accommodation to approximately 2m above the surrounding ground level. The proposed system will meet or exceed the 1.6m mitigation level identified in the FRA considered at appeal and subsequently secured through Condition 9 of the appeal decision dated 5 July 2024.

The precise maximum operating level will be established for each plot by reference to the verified ground level and platform arrangement. The platform design will provide sufficient structural capacity for the supported mobile home and all associated permanent and imposed loads.

The platform system includes:

- synchronised mechanical lifting assemblies;
- automatic activation linked to the flood monitoring and warning system;
- manual activation and override controls;
- audible and visual status and fault warnings;
- battery backup in the event of a mains electricity failure;
- secure support and anchoring throughout the full operating range;
- flexible or articulated service connections capable of accommodating the full lifting movement; and
- safe isolation arrangements for electrical, water and foul drainage services.

The platforms will be commissioned and tested before occupation. Commissioning records will confirm that each mobile home achieves the required elevation above its agreed local ground datum.

Further technical information on the Flood Adaptive Platform is provided in Appendix F.

8.3 Structural stability and anchoring

Each platform and its supporting foundations will be designed for the weight and loading of the mobile home, including eccentric loading, wind loading and the forces associated with the design flood event.

The mobile homes will remain securely supported and anchored in both their normal and elevated positions. The platform arrangement will prevent flotation, sliding, racking or unintended movement during a flood.

The structural design will include the supporting foundations, lifting assemblies, steelwork, connections and anchoring system. The final installation will be inspected and certified by a suitably qualified engineer before occupation.

The platform will retain an open structure beneath the elevated mobile home. Solid perimeter walls or enclosures that could obstruct floodwater or materially reduce floodplain storage will not be introduced.

8.4 Flood warnings and platform activation

The site will be registered to receive Environment Agency Flood Alerts, Flood Warnings and Severe Flood Warnings. The Site Flood Warden and nominated deputy will receive warnings through more than one communication method.

The platform control system will also monitor flood conditions and provide automatic activation in accordance with the agreed operating protocol. The activation thresholds will allow sufficient time for the platforms to reach their elevated position before floodwater reaches critical components or the occupied accommodation.

The system will incorporate battery backup so that the platforms can operate during a loss of mains electricity. The battery condition, controls, lifting equipment and warning systems will be inspected and tested at the intervals specified by the manufacturer.

Platform activation will not delay evacuation. Residents will leave the site when the evacuation trigger is reached, whether or not the platform has completed its lifting cycle.

8.5 Flood Warning and Evacuation Plan

A site specific Flood Warning and Evacuation Plan is provided in Appendix A. The plan will apply to all residents, visitors, staff and contractors at the site.

The Flood Warning and Evacuation Plan will:

- identify the Site Flood Warden and deputy;
- establish the Environment Agency warning that will trigger evacuation;
- maintain an up-to-date register of residents and their individual assistance needs;
- set out how warnings will be communicated to every occupied mobile home;
- provide transport arrangements for residents who cannot use their own vehicles;

- identify the primary and alternative evacuation routes;
- record the arrangements for alternative accommodation;
- provide procedures for accounting for all residents following evacuation; and
- establish arrangements for annual review, testing and practical exercises.

Evacuation will begin while the access route remains safe and before floodwater reaches the site. Residents will not be directed to walk or drive through floodwater. If evacuation becomes unsafe, residents will move to their elevated mobile homes as temporary refuge, contact the emergency services and follow the instructions issued by the responding authorities.

8.6 Flood resilient services

Electrical distribution equipment, platform controls, communications equipment and other vulnerable services will be located above the design flood level wherever practicable.

Water, electricity, communications and foul drainage connections serving the mobile homes will accommodate the full movement of the platforms. The connections will include appropriate isolation arrangements and will remain safe in both the normal and elevated positions.

Equipment that must remain below the design flood level will be selected and installed to withstand temporary inundation or allow safe and straightforward replacement. Materials used below the design level will be water resistant and capable of being cleaned and dried following a flood.

The package treatment plant and associated controls will be designed for the high groundwater conditions and protected against flotation, inundation and loss of electrical supply.

8.7 Site levels and floodplain storage

Extensive land raising will not be undertaken. Changes to ground levels will be limited to those required for access, drainage, platform foundations and the creation of safe local falls.

When elevated, the mobile homes will remain open beneath, allowing floodwater to pass through and be temporarily stored across the site. The platform arrangement will therefore avoid the loss of floodplain storage associated with solid raised foundations or extensive filling.

Fencing, landscaping and other external features will be arranged so that they do not create a significant obstruction to floodwater or divert flows towards neighbouring land.

The proposed development will not materially displace floodwater or increase flood levels elsewhere.

8.8 Surface water management

Surface-water runoff from the mobile-home roofs will be collected and attenuated within the communal storage pipes. Gravel roads, parking areas and plots will remain unconnected to the formal roof-water drainage system.

The drainage system will accommodate the design rainfall event, including the required allowance for climate change. Exceedance flows will be directed along defined routes away from the mobile homes, platform controls, package treatment plant and neighbouring property.

The surface-water drainage strategy is described in Section 9 and shown on the plan in Appendix G. Its implementation will ensure that the development does not increase surface-water flood risk elsewhere.

8.9 Inspection maintenance and management

The Flood Adaptive Platforms and associated warning and control systems will be inspected, serviced and tested in accordance with the manufacturer's requirements. This will include regular testing of the lifting mechanisms, sensors, controls, alarms, batteries and manual override arrangements.

A full operational test will be completed before occupation and subsequently at the intervals specified by the manufacturer. The platform will also be subject to any inspection or thorough-examination requirements identified by a competent person under LOLER 1998, PUWER 1998 or other applicable legislation, including any written scheme of examination.

The site operator will retain records of:

- platform commissioning and certification;
- routine inspections, servicing and repairs;
- battery and backup power tests;
- flood warning registration;
- evacuation plan reviews and exercises;
- drainage inspections and maintenance; and
- any flood event or platform activation.

Responsibility for maintaining the platforms, drainage infrastructure and Flood Warning and Evacuation Plan will remain with the site operator throughout the lifetime of the development.

8.10 Residual risk

The mitigation measures will substantially reduce the consequences of the residual tidal breach risk. Early evacuation will protect residents, while elevation of the mobile homes will protect the occupied accommodation from the predicted flood depths.

A residual risk will remain if an extreme event exceeds the design assumptions, a platform experiences a fault, a warning is not received or evacuation is unexpectedly delayed. This risk will be managed through multiple warning methods, automatic and manual platform controls, battery backup, routine testing, early evacuation and the availability of elevated temporary refuge.

With these measures implemented and maintained, the proposed development will remain safe throughout its lifetime and will not increase flood risk elsewhere.

9 Surface Water Drainage Strategy

9.1 Existing site and proposed impermeable area

The application site covers approximately 1.2 hectares.

The proposed development will contain 22 residential mobile homes, each with an assumed roof area of approximately 45m². The combined roof area will therefore be approximately 990m², equivalent to approximately 0.10 hectares.

Approximately 0.2 hectares will comprise grassed and landscaped areas, with the remaining approximately 0.9 hectares formed by gravel roads, parking areas, plots and areas of made ground.

The grassed areas will remain permeable and continue to drain naturally. The access roads, parking areas and plots will predominantly comprise permeable gravel laid over a granular sub-base and will not be positively connected to the formal roof-water drainage system.

The gravel construction will provide incidental interception and temporary storage within its surface and granular voids. However, because infiltration is constrained by low-permeability soils and high groundwater, no allowance for infiltration or storage within these areas has been included in the formal attenuation calculations.

The only positively drained impermeable surfaces will be the mobile-home roofs, with a combined area of approximately 0.10 hectares.

9.2 Existing greenfield runoff rates

Greenfield runoff rates have been estimated using the UK SuDS Greenfield Runoff Rate Estimation Tool and the FEH Statistical 2025 method. The calculation is based on the full 1.2-hectare application site.

The calculated greenfield runoff rates are summarised below. The calculation is included in Appendix D

Return period	Greenfield runoff rate
1 year	1.1 l/s
2 year	1.1 l/s
QBAR	1.3 l/s
10 year	2.1 l/s
30 year	3.1 l/s
100 year	4.5 l/s
200 year	5.3 l/s

Table 2 – Greenfield runoff rates

9.3 Surface water drainage hierarchy

The surface-water drainage hierarchy has been considered in developing the strategy.

Infiltration

The site is underlain by tidal-flat deposits of clay and silt over Ampthill Clay Formation mudstone. It is also low lying and subject to high groundwater levels.

Previous ground investigation and attempted infiltration testing confirmed that the underlying soils do not provide suitable infiltration characteristics. Water remained within the trial excavation and a representative infiltration rate could not be established. Conventional soakaways and other high-intensity infiltration systems will therefore not be used.

The proposed gravel roads, parking areas and plots will provide incidental interception and temporary storage, but the strategy does not rely upon infiltration into the underlying ground. These areas will be graded so that excess surface water follows the proposed site falls and designated exceedance routes towards the boundary land-drainage system without affecting the mobile homes or adjoining property.

Discharge to a surface-water body

A network of land-drainage ditches surrounds much of the site and connects to the wider South Holland IDB system. Discharge to the adjacent ditch represents the most appropriate available method of surface-water disposal.

Roof runoff will therefore be collected within a communal drainage system, attenuated below ground and pumped at a restricted rate to the adjacent land-drainage ditch.

9.4 Attenuation and pumping strategy

Roof runoff will drain to two oversized carrier and storage pipes located alongside the access road. The northern pipe will serve caravans 1–5 and 17–22, while the southern pipe will serve caravans 6–16. Both pipes will fall towards a central pumping station.

Each storage pipe will be approximately 70m long, laid at approximately 1:500 and have a minimum clear internal diameter of 1,000mm. Together, they will provide approximately 110m³ of gross storage. Detailed hydraulic design will confirm that at least 104m³ of usable storage is available between the pump-control and maximum design water levels.

The storage pipes will discharge to a central surface-water pumping station comprising duty and standby pumps, level controls, non-return and isolating valves, and a high-level alarm with telemetry. A rising main will convey flows to a break-pressure/discharge chamber, from which runoff will discharge by gravity to the adjacent ditch.

The system will:

- Restrict final discharge to a maximum of 1.0 l/s, unless otherwise agreed with the South Holland IDB;
- Include terminal chambers providing inspection and jetting access;
- Be watertight and designed for traffic loading, groundwater and flotation;
- Incorporate safe exceedance routing away from the mobile homes; and
- Provide safe access for inspection, cleaning, pump removal and maintenance.

Final pipe, chamber, pumping-station and anti-flotation details will be confirmed through detailed design. The proposed surface-water drainage layout is included in Appendix G.

9.5 Storage volume

A storage estimate has been undertaken using the UK SuDS Surface Water Storage Volume Design Tool for the combined contributing roof area of 0.10 hectares.

The calculation adopts:

- A contributing roof area of 0.10 hectares;
- The FEH Statistical 2025 runoff method;
- FEH22 rainfall data;
- The 1% annual probability rainfall event;
- A 40% climate-change allowance; and
- A restricted site discharge of approximately 1.0 l/s.

The calculation identifies a maximum water-storage requirement of 104m³. The two proposed 1,000mm clear-bore storage pipes will provide approximately 110m³ of combined gross storage.

Detailed design will confirm that at least 104m³ is usable between the pump-control and maximum design water levels. The storage calculation is included in Appendix D.

9.6 Discharge rate and flow control

The pumping and flow-control arrangement will restrict final discharge to the ditch to a maximum of 1.0 l/s, unless otherwise agreed with the South Holland IDB.

Pump duty, rising-main diameter, operating levels and cycling frequency will be confirmed by the specialist supplier.

Pumped flows will pass through a break-pressure/discharge chamber before discharging by gravity to the ditch. Detailed design will account for receiving ditch levels and incorporate non-return protection, energy dissipation and a calibrated flow-control device, or an equivalent pump-control arrangement, to ensure that the instantaneous discharge to the ditch does not exceed 1.0 l/s.

9.7 Land drainage ditches and outfalls

The existing boundary ditches will be cleared of vegetation, silt and other obstructions before the drainage system becomes operational. Local regrading will be undertaken where required to restore a continuous fall and ensure that water can flow from the site towards the wider land-drainage network.

The ditch works will be undertaken in consultation with the South Holland IDB and relevant riparian owners. Any required land-drainage consent will be obtained before work commences.

The surface-water outfall will include:

- A stable and erosion-resistant outlet;
- Protection against blockage and animal entry;
- An accessible inspection point;
- Appropriate protection to the ditch bed and bank; and
- Non-return protection against elevated receiving-water levels.

The ditches will be inspected and maintained as part of the site-wide drainage maintenance regime.

9.8 Gravel and landscaped areas

Approximately 0.2 hectares of the site will remain as grassed open space. These areas will remain permeable and continue to intercept rainfall and drain naturally.

The remaining non-roof areas will predominantly comprise gravel access roads, parking areas and individual plots. The gravel surfacing will be laid over an appropriately graded, free-draining granular sub-base. This construction will:

- Allow rainfall to pass through the gravel surface;
- Provide incidental interception and temporary storage within the granular voids;
- Delay the onset and rate of surface runoff;
- Avoid creating extensive positively drained impermeable areas; and
- Provide distributed source control across the development.

The gravel areas will not be connected to the formal roof-water drainage system. No allowance for infiltration, volume reduction or storage within the gravel construction has been included in the formal attenuation calculations.

During rainfall exceeding the temporary capacity of the gravel construction, excess water will drain diffusely across the surface and follow the proposed site falls and designated exceedance routes towards the boundary drainage ditches. Finished levels will prevent runoff being directed towards the mobile homes, the access onto Blazegate or adjoining property.

The permeability of the gravel surfaces will be maintained through periodic inspection, removal of accumulated silt and vegetation, local decompaction and replenishment of gravel where necessary.

9.9 Exceedance drainage

If rainfall exceeds the design capacity, or pumping is temporarily unavailable, excess water will follow the proposed site falls and designated exceedance routes towards the boundary drainage system.

External levels will direct exceedance flows away from:

- The mobile homes;
- Flood Adaptive Platform™ controls and lifting equipment;
- Electrical infrastructure;
- Foul pumping station and package treatment plant;
- Neighbouring property.

9.10 Water quality

Roof runoff is considered to present a low pollution risk and will not require formal treatment before discharge to the land-drainage ditch.

Runoff from gravel access roads, parking areas and plots will pass through the gravel surface and granular sub-base, providing filtration and retention of suspended solids and hydrocarbons. These areas will not be positively connected to the formal roof-water drainage system.

Trapped gullies, catchpits or debris filters will be provided where necessary to prevent leaves, moss and sediment entering the storage pipes and pumping station.

9.11 Ownership and maintenance

The surface-water pipes, chambers, pumping station, outfall and boundary ditch network will be maintained by the site operator.

Maintenance will include:

- Inspection and cleaning of gutters and downpipes;
- Inspection and jetting of storage pipes, chambers and connections;
- Servicing and testing of pumps, controls, valves, alarms and telemetry;
- Inspection of the outfall for blockage, damage and erosion;
- Clearance of vegetation and silt from the boundary ditches;
- Maintenance of gravel surfaces to prevent compaction and loss of permeability; and
- Repair or replacement of damaged components.

The drainage system will be inspected at least annually and following significant storm or flood events. The pumping station will be serviced in accordance with the manufacturer's requirements, with alarms and duty/standby operation tested regularly.

A drainage operation and maintenance plan will be provided to the site operator and retained for the lifetime of the development.

9.12 Surface-water drainage conclusion

Only the approximately 0.10-hectare mobile-home roof area will be positively drained. Roof runoff will be conveyed to two oversized storage pipes providing approximately 110m³ of combined gross storage and pumped to the adjacent land-drainage ditch at a maximum final discharge of 1.0 l/s.

Grassed and gravel areas will remain unconnected to the formal roof-water drainage system and have not been assigned any formal attenuation or infiltration credit.

Subject to detailed hydraulic design and agreement with the South Holland IDB, the strategy will accommodate the 1% annual probability rainfall event, including the 40% climate-change allowance, without increasing surface-water flood risk elsewhere.

10 Foul Drainage Strategy

10.1 Existing foul drainage

There are no public foul sewers in close proximity to the site. Connection to the Anglian Water network is therefore not reasonably practicable, and foul drainage will be managed through a communal on-site collection and treatment system.

10.2 Proposed foul-drainage system

Foul flows from the 22 residential mobile homes will discharge to a separate communal gravity sewer running from north to south through the development.

The gravity sewer will fall towards a foul pumping station located within the southern part of the site. The pumping station will convey foul flows through a rising main to a communal package sewage treatment plant located within the southern treatment area.

Treated effluent will pass through a sampling chamber and discharge by gravity to the adjacent land-drainage ditch.

The foul system will remain entirely separate from the surface-water drainage system. Roof water, surface runoff, groundwater and ditch water will not connect to the foul network.

10.3 Design flows and treatment-plant sizing

The package treatment plant will be sized by the specialist manufacturer in accordance with the final residential occupancy, applicable British Standards and current industry guidance.

For preliminary design, an allowance of three persons per mobile home gives a design population of approximately 66 population equivalent. At 150 litres per person per day, this would generate an indicative average foul flow of approximately 9.9m³/day.

The final design population and hydraulic and biological loading will be confirmed from the proposed unit sizes and occupancy assumptions. The selected treatment plant will have sufficient rated capacity for the confirmed design loading and will not be undersized based solely on average occupancy.

Where necessary, the pumping regime or an inlet balancing arrangement will regulate flows entering the treatment plant to avoid excessive peak or shock loading.

10.4 Gravity foul sewer and pumping station

Foul flows from each mobile home will drain through individual 110mm-diameter connections to a communal foul sewer running from north to south through the development.

The communal sewer will be a minimum of 150mm nominal internal diameter and laid at a preliminary gradient of 1:150 towards the southern foul pumping station. Based on an approximate sewer length of 200m, the total fall will be approximately 1330mm.

Thermoplastic pipes will have minimum cover of 600mm in non-trafficked areas and 900mm beneath the access road. Where these cover depths cannot be achieved, additional structural protection will be provided.

Based on relatively level ground and 900mm cover, preliminary sewer invert depths are expected to be approximately:

- 1.0–1.1m below ground level at the northern end;
- 1.5–1.6m below ground level near the centre of the site; and
- Approximately 2.4m below ground level at the southern pumping station.

Final pipe sizes, gradients, cover and invert levels will be confirmed from the topographic survey and detailed drainage design.

Individual plot connections will incorporate 450mm or 600mm-diameter inspection chambers where appropriate. Manholes serving the communal sewer will be minimum 1,200mm internal diameter and provided at junctions, changes in direction or gradient and suitable maintenance intervals.

The southern foul pumping station will comprise a specialist-designed wet well, provisionally minimum 1,800mm internal diameter and approximately 2.8–3.3m overall depth. Final dimensions will depend on the incoming sewer level, pump sump, operating volume and emergency-storage requirements.

The pumping station will include duty and standby pumps, automatic changeover, level controls, isolating and non-return valves, a high-level alarm with telemetry, emergency storage and provision for connection of a temporary generator.

The pumping station and associated chambers will be watertight and positively secured against flotation.

10.5 Rising main and package treatment plant

The pumping station will convey foul flows to the package treatment plant through a dedicated rising main.

A preliminary internal rising-main diameter of approximately 63–75mm is anticipated. The final diameter will be selected by the pump supplier to provide suitable velocities, pump operating points and retention times.

The pump duty and cycling regime will be coordinated with the package treatment plant manufacturer. Where required, an inlet chamber or flow-balancing arrangement will be provided to avoid hydraulic shock loading of the treatment process.

The package treatment plant will be sized from the confirmed bedroom numbers, occupancy and hydraulic and biological loading.

A minimum capacity of 66 population equivalent and 9.9m³/day has been assumed. However, three occupants cannot automatically be assumed for each bedroom or mobile home, and the final design population may be higher. Sufficient space will therefore be retained for a plant of up to approximately 125 population equivalent.

For planning purposes, an indicative treatment-plant footprint of approximately 9m x 3m will be reserved, within an approximately 11m x 5m maintenance area. The final plant dimensions, access-cover positions, control kiosk, ventilation and tanker access will be confirmed by the selected manufacturer.

The treatment plant will be installed on, or positively anchored to, a reinforced-concrete anti-flotation slab designed for the maximum anticipated groundwater level. Electrical controls, kiosks, alarms and isolation equipment will be positioned above, or otherwise protected against, the design flood level.

10.6 Treated-effluent outfall

Treated effluent will pass by gravity from the package treatment plant through a dedicated sampling chamber to the adjacent land-drainage ditch.

The sampling chamber will be a minimum of 450mm internal diameter (depending on depth) and configured to provide safe access to a representative effluent sampling point.

The gravity outfall will be a minimum of 150mm nominal diameter and laid at a positive gradient, provisionally not flatter than 1:150. The final pipe invert will be coordinated with the treatment-plant outlet and expected ditch-water levels.

The ditch outfall will include a formed headwall, erosion protection and non-return protection where required. The arrangement will prevent elevated ditch levels from backing up into the treatment plant.

Final levels, outfall details and any works affecting the ditch will be agreed with the South Holland IDB and Environment Agency through the relevant consenting and permitting processes.

10.7 Consents and permitting

The anticipated treated-effluent discharge will exceed the 5m³/day threshold applicable to small sewage discharges to surface water under the general binding rules. An environmental permit will therefore be obtained from the Environment Agency before the discharge commences.

The final permit route and effluent-quality requirements will be agreed with the Environment Agency following confirmation of the design population, daily discharge volume, receiving watercourse and treatment-plant specification.

Any separate consent required from the South Holland IDB for the outfall or works affecting the ditch will also be obtained before construction.

10.8 Ownership and maintenance

The foul sewers, pumping station, rising main, treatment plant, sampling chamber and outfall will be retained and maintained by the site operator.

Maintenance will include:

- Routine inspection and cleansing of foul sewers and chambers;
- Servicing and testing of pumps, valves, controls, alarms and telemetry;
- Routine servicing and desludging of the treatment plant;
- Sampling or monitoring required by the environmental permit;
- Inspection of the treated-effluent outfall; and
- Prompt repair or replacement of defective equipment.

An operation and maintenance plan will be prepared before occupation. The plan will identify responsible persons, servicing intervals, alarm-response procedures, desludging arrangements and actions to be taken during pump, power or treatment-plant failure.

10.9 Foul-drainage conclusion

Foul flows from the 22 mobile homes will drain by gravity to a foul pumping station located within the southern part of the site and be pumped to a communal package sewage treatment plant. Treated effluent will discharge by gravity through a sampling chamber to the adjacent land-drainage ditch.

The final system will be sized for the confirmed design population, protected against groundwater and flood risk, and operated under the required Environment Agency permit and IDB consent. Subject to detailed design, permitting and ongoing maintenance, the strategy provides an appropriate and sustainable means of managing foul drainage from the development.

Final pipe, chamber, pumping-station and anti-flotation details will be confirmed through detailed design. The proposed foul drainage layout is included in Appendix G.

11 Ownership Maintenance and Implementation

11.1 Ownership and responsibility

The site operator will retain overall responsibility for the flood-risk mitigation, surface-water drainage, foul-water drainage and flood-warning arrangements serving the development.

This will include:

- The 22 Flood Adaptive Platforms™ and associated controls, sensors and backup-power systems;
- Roof gutters, downpipes, catchpits and connections;
- Surface-water storage pipes, chambers, pumping station, rising main and outfall;
- Gravel roads, parking areas and plots;
- Boundary drainage ditches and associated vegetation;
- Gravity foul sewers, chambers, foul pumping station and rising main;
- The communal package sewage treatment plant, sampling chamber and treated-effluent outfall;
- The Flood Warning and Evacuation Plan; and
- Registration for and receipt of Environment Agency flood warnings.

Inspections, servicing and repairs will be undertaken by suitably competent contractors. Ownership and maintenance responsibilities will be retained throughout the lifetime of the development and transferred to any future site owner or operator.

11.2 Flood Adaptive Platforms

Each Flood Adaptive Platform™ will be commissioned and tested before the associated mobile home is occupied. Commissioning records will confirm that the platform operates correctly and raises the occupied accommodation above the agreed 1.6m mitigation level.

Maintenance will include:

- Inspection of lifting assemblies, steelwork, connections and foundations;
- Functional testing of the complete lifting cycle;
- Testing of automatic activation and manual controls;
- Inspection and testing of sensors, alarms and communications;
- Testing of batteries and backup-power arrangements;
- Inspection of flexible service connections and isolation arrangements; and
- Inspection following any activation, flood event or reported fault.

A full operational test and competent examination will be undertaken at the intervals specified by the manufacturer and any written scheme of examination prepared by a competent person, including any examination required under applicable lifting-equipment legislation. Defects affecting safe operation will be rectified before the associated mobile home is occupied or reoccupied.

11.3 Surface-water drainage maintenance

The surface-water system will be maintained as outlined in Table 3.

Asset	Maintenance requirement	Minimum frequency
Roof gutters and downpipes	Inspect and remove leaves, moss and debris	Twice yearly and following significant storms
Catchpits and debris filters	Inspect and remove accumulated sediment and debris.	Twice yearly
Storage pipes and access chambers	Inspect for sediment, blockage, damage and loss of effective storage; jet or cleanse where required.	Annually and following significant storms.
Surface-water pumping station	Test duty and standby pumps, controls, valves, alarms, telemetry and backup arrangements.	In accordance with the manufacturer's requirements, with a formal service at least annually.
Rising main and discharge chamber	Inspect for leakage, blockage, damage and correct operation of any flow-control equipment.	Annually
Surface-water outfall	Inspect for blockage, damage, erosion, animal entry and correct operation of non-return protection.	Twice yearly and following significant storms.
Gravel roads and plots	Remove silt and vegetation, repair rutting and relieve compaction	As required, with a formal annual inspection
Boundary ditches	Remove obstructive vegetation, debris and excessive silt and maintain the agreed longitudinal fall	At least annually and as required
Exceedance routes	Confirm that routes remain unobstructed and direct water away from mobile homes and critical infrastructure	Annually

Table 3 – Maintenance of surface water drainage system

Sediment removed from the drainage system will be disposed of appropriately and will not be deposited where it could wash back into the ditches.

11.4 Ditch clearance and maintenance

Before either drainage system becomes operational, the existing boundary ditches will be cleared of excessive vegetation, debris and accumulated silt.

The ditches will be locally regraded where required to provide a continuous flow path towards the wider land-drainage network. The works will retain stable banks and will not adversely affect neighbouring land or the operation of the IDB system.

The clearance, regrading and outfall works will be agreed with the South Holland IDB and relevant riparian owners. Any required consent will be obtained before work begins.

The site operator will maintain the sections of ditch within its ownership or control to ensure that:

- The agreed ditch profile and flow path are retained;
- Surface-water and treated-effluent outfalls remain unobstructed;
- Vegetation does not materially restrict flow;
- Silt does not accumulate to a level that reduces capacity; and
- Damage or erosion at the outfalls is repaired promptly.

11.5 Foul-water drainage maintenance

The communal foul-water system will be operated and maintained by the site operator in accordance with the manufacturers' requirements and the Environment Agency environmental permit.

Maintenance will include:

- Inspection and cleansing of gravity foul sewers and chambers;
- Testing of duty and standby pumps, controls, valves, alarms and telemetry;
- Inspection and testing of the rising main;
- Routine inspection of the treatment process;
- Servicing of the treatment plant by a competent wastewater contractor;
- Removal of sludge before it exceeds the manufacturer's recommended capacity;
- Inspection and cleaning of the sampling chamber and treated-effluent outfall;
- Monitoring and sampling required by the environmental permit; and
- Prompt investigation and repair of alarms, blockages, odour or deterioration in effluent quality.

Sludge will be removed by a registered waste carrier. Service, sampling, desludging and repair records will be retained by the site operator.

The pumping station and treatment plant will be serviced at least annually, or more frequently where required by the manufacturers or environmental permit. Emergency storage, alarms and contingency arrangements will be maintained throughout the lifetime of the development.

11.6 Flood Warning and Evacuation Plan

The site operator will appoint a Site Flood Warden and deputy before the development is occupied.

The Flood Warning and Evacuation Plan will be reviewed:

- Before first occupation;
- At least annually;
- Following any flood warning or evacuation;
- Following a change in the site layout, access arrangements or residents' needs;
- Following any material change to Environment Agency warning arrangements; and
- Following activation of the Flood Adaptive Platforms™.

An annual exercise will test the warning, communication, transport and resident-accounting arrangements. The results will be recorded and any identified improvements incorporated into the plan.

11.7 Implementation

Before construction of the drainage systems and outfalls:

- Detailed surface-water and foul-drainage designs will be completed;
- Final pumping-station duties, pipe levels and treatment-plant capacity will be confirmed;
- Structural and anti-flotation designs will be completed;
- Surface-water discharge and outfall arrangements will be agreed with the South Holland IDB;
- Any required land-drainage or ordinary-watercourse consents will be obtained;

- The environmental permit for the treated-effluent discharge will be obtained; and
- Ditch-clearance and regrading works will be agreed.

Before first occupation:

- The communal surface-water storage pipes, pumping station, rising main, discharge chamber and outfall will be installed, tested and operational;
- The gravity foul sewers, foul pumping station, rising main, treatment plant, sampling chamber and outfall will be installed, commissioned and operational;
- The relevant drainage ditches will be cleared and capable of receiving the permitted flows;
- The drainage operation and maintenance plan will be provided to the site operator;
- The Environment Agency environmental permit and any required IDB consent will be in place;
- Safe access will be available for pump maintenance, treatment-plant servicing, sampling and tanker desludging.
- The Flood Warning and Evacuation Plan will be implemented; and
- The Site Flood Warden and deputy will be appointed.

Before occupation of each mobile home:

- The Flood Adaptive Platform™ will be installed, commissioned and certified;
- Roof and foul connections to the communal drainage systems will be completed and tested;
- The occupier will receive the Flood Warning and Evacuation Plan; and
- The occupier's contact, transport and assistance requirements will be added to the site register.

All mitigation and drainage measures will thereafter be retained, operated and maintained throughout the lifetime of the development.

12 Conclusions

This Flood Risk Assessment and Drainage Strategy has considered the proposed development of 22 residential mobile homes at The Orchards, Blazegate, Gedney.

The principal conclusions are:

- The approximately 1.2-hectare site is located within defended Flood Zone 3a.
- The principal flood risk is a low-probability residual tidal event associated with a breach of the coastal defences. Present-day breach flooding would generally be shallow and slow-moving. Under the 2115 climate-change scenarios, depths could reach approximately 1.0m during the 0.5% annual probability event and approximately 1.6m during the 0.1% annual probability event.
- Floodwater would develop gradually over successive tidal cycles, providing sufficient opportunity for Environment Agency warnings to be received and residents to evacuate before conditions become hazardous.
- The Planning Inspector previously concluded that no reasonably available, sequentially preferable alternative existed for residential mobile-home accommodation at this site. The proposed development passes the Sequential Test.
- The delivery of 22 residential mobile homes will contribute towards the identified accommodation need and make effective use of an established residential site. The enhanced mitigation incorporated into the proposal satisfies both elements of the Exception Test.
- Each mobile home will be installed on a Flood Adaptive Platform™ capable of raising the occupied accommodation to approximately 2m above surrounding ground level, exceeding the previously accepted 1.6m mitigation level.
- The platforms will incorporate automatic activation, manual controls, battery backup, secure structural support and flexible service connections. They will be commissioned before occupation and maintained throughout the development lifetime.
- Early evacuation will remain the primary life-safety response. The Flood Warning and Evacuation Plan provides warning triggers, management responsibilities, communications, transport assistance and evacuation procedures.
- The open structure beneath the elevated homes will retain floodplain storage and allow floodwater to move across the site. Extensive land raising and solid raised foundations will not be used.
- The only positively drained impermeable area will be the approximately 0.10-hectare combined mobile-home roof area. Grassed and gravel areas will remain unconnected to the formal roof-water drainage system and have not been assigned formal storage or infiltration credit.
- Roof runoff will drain to two approximately 70m-long, 1,000mm clear-bore storage pipes providing approximately 110m³ of combined gross storage. Detailed hydraulic design will confirm at least 104m³ of usable storage.
- The surface-water system will accommodate the 1% annual probability rainfall event including a 40% climate-change allowance. Runoff will be pumped to a discharge chamber and released to the adjacent ditch at a maximum final rate of 1.0 l/s, unless otherwise agreed with the South Holland IDB.
- The existing boundary ditches will be cleared and locally regraded to maintain an effective flow path. Final outfall arrangements and ditch works will be agreed with the South Holland IDB.
- There is no reasonably available public foul sewer serving the site. Foul flows will drain through a communal gravity sewer falling from north to south towards a foul pumping station located within the southern part of the site.
- The pumping station will convey foul flows through a rising main to a communal package sewage treatment plant within the southern treatment area.

- The treatment plant will have a preliminary minimum capacity of approximately 66 population equivalent and 9.9m³/day. Final capacity will be based on the confirmed bedroom and occupancy information, with sufficient space retained for a plant of up to approximately 125 population equivalent.
- Treated effluent will discharge by gravity through a sampling chamber to the adjacent land-drainage ditch. An Environment Agency environmental permit and any required IDB consent will be obtained before discharge commences.
- The Flood Adaptive Platforms™, surface-water system, foul drainage and treatment system, outfalls and drainage ditches will be managed and maintained by the site operator.

The development incorporates a comprehensive and deliverable strategy for managing residual tidal flood risk, surface-water runoff and foul drainage. With the specified mitigation, warning, evacuation, drainage, permitting and maintenance measures implemented, the development will remain safe throughout its lifetime and will not increase flood risk elsewhere.

The proposed development is therefore appropriate for the site in flood-risk and drainage terms.

13 Appendices

Appendix A – Flood Warning and Evacuation Plan

Appendix B – Environment Agency flood risk & tidal breach mapping

Appendix C – Appeal decision dated 5 July 2024

Appendix D – Greenfield runoff & surface water storage calculation

Appendix E – Anglian Water asset plan

Appendix F – Flood Adaptive Platform™ technical information

Appendix G – Proposed surface water and foul drainage layouts

Disclaimer

This report has been prepared for the purpose of supporting a planning application and should be used only for its intended purpose.

The information contained within this report is based on data provided and/ or obtained from publicly available sources, including (but not limited to) the Environment Agency, and is believed to be accurate at the time of writing. Whilst reasonable skill, care and diligence have been exercised in its preparation, no representations or warranties, express or implied, are made as to the accuracy, completeness, or suitability of the information presented.

This report should not be relied upon by third parties without the prior written consent of the author. No liability is accepted for any use of this report other than for the purpose for which it was prepared.

Flood risk is inherently uncertain and may change over time due to factors including, but not limited to, climate change, land use changes, and updates to available data. This report does not guarantee that flooding will not occur.

The author accepts no liability for any direct, indirect, incidental, or consequential loss or damage arising from the use of, or reliance upon, this report.

Users are advised to seek appropriate professional advice where necessary.

Appendix A – Flood Warning and Evacuation Plan

Appendix A - Flood Warning and Evacuation Plan

Document item	Details
Site	The Orchards, Blazegate, Gedney, Spalding, Lincolnshire, PE12 0AD
Development	22 residential mobile homes with associated infrastructure
Prepared by	Gilliland Advisory
Status	For Planning
Date	25 th September 2026
Related document	Flood Risk Assessment and Drainage Strategy, 25 th September 2026

Operational completion requirement

Before first occupation, the site operator will complete the named-contact, resident-assistance, transport, temporary-accommodation and route-plan fields identified in this Appendix. A current copy will be held by the Site Flood Warden and deputy, issued to every household and kept available at the site office or other agreed management location.

A1 Purpose and status

This Flood Warning and Evacuation Plan forms part of the site-wide flood risk management arrangements for 22 residential mobile homes at The Orchards. It establishes the actions that the site operator, Site Flood Warden, deputy and residents will take before, during and after a flood warning.

The primary life-safety response is early evacuation while Blazegate and the onward road network remain dry and safe. Elevation of the mobile homes using the Flood Adaptive Platforms provides additional property protection and temporary refuge if evacuation is unexpectedly delayed or becomes unsafe. It does not replace early evacuation.

This is a live operational document. It will be completed before occupation, reviewed at least annually and updated whenever the site layout, residents' assistance needs, warning arrangements, evacuation routes or platform operating procedures change.

A2 Site and flood risk

The site is located on the southern side of Blazegate at Gedney and covers approximately 1.2 hectares. Access is from Blazegate. The site lies within defended Flood Zone 3a and within the South Holland Internal Drainage Board (IDB) district.

The principal risk is residual tidal flooding following a breach of the Wash or River Nene tidal defences. Environment Agency breach modelling indicates that present-day flooding at the site would generally be shallow and slow moving. Climate-change scenarios indicate that depths could increase to approximately 1.0 m during the 0.5% annual probability event and up to approximately 1.6 m during the more extreme 0.1% annual probability event by 2115.

Floodwater from a tidal breach is expected to develop over time and may rise and fall over successive tidal cycles. This provides an opportunity to evacuate following an official warning, provided action is taken early. Residents must not wait for floodwater to reach the site before leaving.

A3 Flood mitigation relevant to this plan

- Each occupied mobile home will be supported on a Flood Adaptive Platform™ capable of raising the accommodation to more than 1.6 m above the surrounding ground level, with the precise operating height confirmed at commissioning.
- The platform system will incorporate automatic activation in accordance with its approved operating protocol, manual controls, status and fault warnings, and battery backup.
- Platform activation will not delay evacuation. Residents will leave when the evacuation trigger is reached whether or not the lifting cycle has started or completed.
- Electrical controls and other vulnerable equipment will be located above the design flood level where practicable, and service connections will accommodate the full platform movement.
- The open platform structure will allow floodwater to pass beneath elevated units without materially obstructing floodplain storage or conveyance.
- The drainage systems provide site resilience but are not life-safety measures and will not delay evacuation.

A4 Management responsibilities

Role	Responsibilities
Site operator	Appoint the Site Flood Warden and deputy; maintain this plan, warning registrations, resident register and contact lists; ensure adequate transport and accommodation arrangements; maintain the Flood Adaptive Platforms, communication systems, surface-water and foul pumping stations, alarms, telemetry and package treatment plant; maintain appropriate power-failure and emergency-storage arrangements; arrange training, exercises and post-event reviews.
Site Flood Warden	Monitor warnings and forecasts; decide when the plan is activated; contact every occupied unit; coordinate evacuation and transport; maintain the evacuation log; liaise with the emergency services; report completion to the site operator.
Deputy Flood Warden	Assume the Flood Warden's role when required; assist with resident contact, vulnerable persons, route checks and accounting for evacuees.
Residents	Keep contact and assistance information current; register for flood warnings; follow instructions promptly; maintain a personal flood pack; use the agreed safe route; report arrival at the agreed destination; never enter floodwater.
Visitors and contractors	Follow instructions from the Flood Warden or resident host and leave the site when directed. Resident hosts are responsible for identifying visitors to the Flood Warden.

A5 Information to be completed before occupation

Item	Confirmed arrangement
Site Flood Warden	Name: [INSERT] Mobile: [INSERT] Email: [INSERT]
Deputy Flood Warden	Name: [INSERT] Mobile: [INSERT] Email: [INSERT]
Management location for plan and records	[INSERT]
Primary evacuation route	West along Blazegate towards Gedney, continuing via the route shown on Figure A2 to verified land in the centre of Holbeach outside the relevant flood extent. A distance of approximately 4 miles. Confirm final route before occupation.
Assembly or check-in location outside flood risk	[INSERT]
Primary temporary accommodation arrangements	[INSERT - household destinations and any operator-arranged contingency accommodation]

Item	Confirmed arrangement
Transport providers and accessible vehicles	[INSERT]
Flood Adaptive Platform™ technical support	Company: Flood Technology Group Ltd - 01405 801498

A6 Preparation and readiness

A6.1 Warning registration

The site lies within the Environment Agency warning coverage for Holbeach, Fleet, Gedney and surrounding areas. The Site Flood Warden and deputy will register to receive Environment Agency flood alerts and warnings by at least two communication methods. Every household will also register a contactable adult for the free warning service.

Registration is available at www.gov.uk/sign-up-for-flood-warnings or through Floodline on 0345 988 1188. Registration details will be checked annually and whenever a contact number or occupier changes.

A6.2 Resident register

The site operator will maintain a confidential register for all occupied units. It will record the information needed to complete a safe evacuation, including:

- names and current contact details for all residents;
- children, older people and residents with mobility, sensory, medical, communication or other assistance needs;
- pets and any assistance animals;
- whether the household has a suitable vehicle and licensed driver;
- the household's primary and backup temporary accommodation; and
- the named person or transport arrangement that will assist if the household cannot evacuate independently.

The register will be checked at least every six months and after each change of occupancy. Personal information will be held securely and used only for site management and emergency purposes.

A6.3 Personal flood preparation

Each household will keep a portable flood pack ready. It should contain prescribed medication, essential medical information, identification, insurance details, mobile telephone and charger or power bank, torch, battery radio where available, warm and waterproof clothing, basic first-aid items, bottled water, essential supplies for children, and suitable arrangements for pets.

Residents will know how to isolate electricity and water if instructed and if it is safe to do so. Isolation must not delay evacuation.

A6.4 Platform and communications readiness

The site operator will keep the Flood Adaptive Platforms, local flood monitoring, controls, alarms, batteries and manual override arrangements operational and maintained in accordance with the manufacturer's requirements. A full operational test will be undertaken before occupation and at least annually thereafter. The Site Flood Warden and deputy will be trained in the warning and status information that the platform system provides. Only trained and authorised persons will use manual controls.

The Flood Warden and deputy will keep charged mobile telephones and a current paper copy of the contact list. The site will not rely on a single telephone, messaging application, internet connection or power supply for communicating a warning.

A7 Activation triggers and required actions

The plan will be activated by the earliest relevant trigger. The Site Flood Warden will not wait for a particular warning code where credible information, local conditions or advice from the authorities indicates that earlier action is necessary.

Trigger	Required action
Normal conditions	Maintain warning registration, resident records, transport arrangements, flood packs and Flood Adaptive Platform™ readiness. Undertake annual training and an evacuation exercise.
Flood Alert or credible forecast of exceptional tide, defence concern or flooding	Activate the plan. Contact all occupied units. Confirm resident numbers and assistance needs. Check the proposed route using official information and local observations without entering any at-risk area. Confirm vehicles, drivers, accommodation and communication methods. Vulnerable residents may relocate early. Confirm platform system readiness.
Flood Warning, direction from the emergency services or local authority, or Site Flood Warden decision that safe access may deteriorate	Begin full evacuation immediately. Contact every occupied unit by more than one method. Prioritise residents requiring assistance. Record each departure and destination. Do not delay for platform operation, possessions or utility isolation.
Severe Flood Warning, floodwater affecting the site or route, or evacuation judged unsafe	Do not enter or drive through floodwater. Residents who have not left will remain in their elevated mobile homes as temporary refuge, call 999 if in danger, inform the Flood Warden of their location and occupants, and follow emergency-service instructions.
Warning no longer in force	Do not return solely because the warning has ended. The Site Flood Warden will confirm that access, utilities, platforms and units have been checked and that return is safe.

A8 Communication procedure

1. On activation, the Site Flood Warden will issue a clear message stating the warning received, the action required and the time by which residents must be ready or leave.
2. The warning will be sent by group text message or agreed messaging service and followed by direct telephone calls. Where there is no confirmation, the Flood Warden or deputy will knock at the unit if it remains safe to do so.
3. Each household must acknowledge the message. Lack of response will be treated as requiring direct follow-up.
4. The Flood Warden will record the time each unit was contacted, the response received, the number of people present, transport arrangements and eventual destination.
5. Information from the Environment Agency, emergency services and local authority will be relayed promptly. Residents must follow any instruction from the emergency services even where it differs from this plan.

A9 Evacuation procedure

A9.1 Decision to evacuate

Full evacuation will begin on receipt of an Environment Agency Flood Warning affecting the site, an instruction from the emergency services or local authority, or an earlier decision by the Site Flood Warden that conditions may deteriorate. This trigger is deliberately early because the access route could become unsafe before the maximum modelled depth develops at the site.

A9.2 Route

The primary route is west from the site access along Blazegate towards Gedney and then via the route identified on Figure A2 towards the agreed location in the centre of Holbeach outside the relevant flood extent - a distance of approximately 4 miles. Before directing residents onto the route, the Site Flood Warden will check current Environment Agency information, police and local-authority travel information and any reliable local observations.

The final route, destination and route are marked on Figure A2. The route will not be used if floodwater, debris, closure, fast-moving traffic or any other hazard makes it unsafe. Residents must not walk or drive through floodwater, irrespective of apparent depth. No independent alternative route has been identified, early evacuation is therefore required if the primary route is at risk.

A9.3 Household actions

1. Acknowledge the evacuation instruction immediately.
2. Collect household members, essential medication, the flood pack, mobile telephone, identification and pets. Take only readily available essential items.
3. Assist the person identified in the household or buddy plan.
4. Switch off services only where instructed, safe and immediately achievable. Do not delay departure.
5. Leave using the transport and route confirmed by the Flood Warden. Keep roads and the site access clear.
6. Proceed directly to the registered accommodation or check-in location and confirm safe arrival to the Flood Warden.
7. Do not return until authorised by the Site Flood Warden following advice from the relevant authorities.

A9.4 Warden actions

1. Open the evacuation log and confirm the number of occupied units, residents, visitors and contractors present.
2. Issue the evacuation instruction through all agreed methods and obtain acknowledgement from every occupied unit.
3. Deploy the deputy and transport support to residents requiring assistance.
4. Confirm that the primary route remains available and nominate an alternative (where required).
5. Record each household's departure time, vehicle, destination and arrival confirmation.
6. Undertake a final visual check only where this can be completed without entering or approaching floodwater. The Flood Warden must not place themselves at risk to perform a sweep.
7. Advise the emergency services of any person who remains on site, including their exact unit, number of occupants and assistance needs.
8. Report to the site operator when all persons are accounted for.

A10 Transport and assistance

The evacuation strategy will not depend on emergency-service rescue. Residents will normally leave in private vehicles while roads remain safe. Before occupation, the site operator will confirm sufficient contingency transport for every person who cannot use their own vehicle, including access to an appropriately adapted vehicle where required.

Residents requiring assistance will be prioritised and, where appropriate, moved during the Flood Alert stage rather than waiting for a Flood Warning. Each such resident will have a named buddy and a backup arrangement recorded in the resident register. Children will remain with a responsible adult. Pets will be transported in suitable carriers or restraints.

If a planned driver, vehicle or route is unavailable, the Flood Warden will use the recorded backup arrangement. No person will be instructed to remain on site merely because they do not have access to a vehicle.

A11 Temporary accommodation and accounting

Each household will identify a primary and backup temporary destination, such as family, friends or suitable commercial accommodation outside the affected area. The site operator will maintain contingency arrangements for any household whose planned accommodation becomes unavailable.

Households may travel directly to their registered destination, but must confirm arrival. The Flood Warden will maintain a single master record showing every resident, visitor and contractor as evacuated and accounted for, temporarily sheltering on site, absent from the site before activation, or requiring emergency assistance. The incident will not be treated as complete until every person is accounted for.

A12 Flood Adaptive Platform™ operation

The Flood Adaptive Platforms will operate in accordance with the approved manufacturer and commissioning protocol. Automatic activation may occur in response to the configured warning or local flood trigger. The Site Flood Warden will monitor system status but will not postpone evacuation while a platform is raising.

- Residents will keep clear of moving platform components and the area beneath a mobile home during operation.
- Only trained and authorised persons will use the manual activation or override controls.
- A fault, loss of mains electricity or failure of one platform will be reported immediately to the Site Flood Warden and technical support provider.
- No person will re-enter the site to activate, inspect or retrieve items from a platform once evacuation has begun or the route may be unsafe.
- Following activation, a platform will not be lowered or the mobile home reoccupied until it has been inspected and confirmed safe in accordance with the manufacturer's procedure.

A13 Temporary refuge when evacuation is unsafe

Temporary refuge is a last-resort response, not the planned evacuation strategy. It applies only where a resident remains on site and the evacuation route is already affected or the emergency services advise against travel.

1. Do not enter floodwater or attempt to leave by an unsafe route.
2. Remain in elevated mobile home and clear of external edges and moving platform components.
3. Call 999 if there is danger to life. Give the full site address, unit number, number and condition of occupants, and state that the mobile home is on an elevated Flood Adaptive Platform™.
4. Contact the Site Flood Warden and remain available by telephone or text. Conserve battery power and use the flood pack.
5. Do not use electrical or foul-drainage services where damage, inundation or isolation is suspected.
6. Follow emergency-service instructions and do not attempt self-rescue through floodwater.

A14 Recovery and return

A warning being removed does not, by itself, mean that the site is safe to reoccupy. Return will be authorised by the Site Flood Warden only after relevant advice has been considered and the access route, platforms, mobile homes, utilities, drainage and wastewater systems have been checked by competent persons where necessary.

- Do not enter standing water or areas containing debris, damaged covers, unstable ground or suspected electrical hazards.
- Treat floodwater and deposited silt as potentially contaminated. Use suitable protective clothing and hygiene precautions.
- Do not restore electricity, water, gas or wastewater equipment until the relevant system has been inspected and declared safe.
- Record damage using photographs and written notes before cleaning or disposal, where safe, and notify insurers promptly.
- Arrange inspection of every activated platform and associated service connection before lowering or reoccupation.
- Record the incident, actions taken, faults, near misses and lessons identified.

A15 Training exercises and review

The site operator will provide every household with an induction before occupation and whenever the plan is materially updated. The Site Flood Warden and deputy will receive role-specific training, including warning interpretation, communication, resident accounting, route decisions and platform-status procedures.

A site-wide exercise will be undertaken at least annually. It will test receipt of a warning, contacting every occupied unit, assistance and transport arrangements, route and destination information, and accounting for all residents. The exercise need not include physical platform movement where this conflicts with the manufacturer's testing arrangements, but the activation and status procedure will be discussed and checked.

This plan will be reviewed:

- before first occupation and at least annually thereafter;
- after any flood alert, warning, evacuation, platform activation or exercise;
- following any change to the site layout, access, warning area or evacuation route;
- when a resident's mobility, medical, communication or transport needs change; and
- following any material change to the platform operating protocol or Environment Agency information.

The review date, changes made and person responsible will be recorded in Table A4. Updated copies will replace earlier versions held by residents and site management.

A16 Emergency contacts

Organisation or role	Contact
Emergency services	999 - danger to life or immediate emergency
Environment Agency Floodline	0345 988 1188
Environment Agency flood information	www.gov.uk/check-flooding
Flood warning registration	www.gov.uk/sign-up-for-flood-warnings
South Holland District Council	01775 761161 - verify before occupation and record any out-of-hours number
Lincolnshire County Council	01522 782244 - verify before occupation
Site Flood Warden	[INSERT]
Deputy Flood Warden	[INSERT]
Site operator	[INSERT]
Flood Adaptive Platform™ technical support	Flood Technology Group Ltd – 01405 801 498
Electricity network emergency	105
Water supplier emergency	Anglian Water - 03457 145 145

A17 Quick action checklist

Stage	Flood Warden checklist
Flood Alert or credible early information	☐ Activate plan ☐ Contact every unit ☐ Open log ☐ Confirm vulnerable residents ☐ Check transport and destinations ☐ Check route information ☐ Confirm platform readiness ☐ Consider early relocation
Flood Warning or evacuation decision	☐ Issue leave instruction ☐ Prioritise assisted residents ☐ Confirm route ☐ Record departures ☐ Confirm arrivals ☐ Notify emergency services of anyone remaining ☐ Account for all persons
Route unsafe or Severe Flood Warning	☐ Stop departures ☐ Instruct temporary refuge ☐ Record exact locations and occupants ☐ Call 999 where necessary ☐ Maintain contact ☐ Follow emergency-service instructions
Recovery	☐ Confirm authority advice ☐ Inspect route and site ☐ Isolate hazards ☐ Arrange platform and utility checks ☐ Authorise return ☐ Record event ☐ Review plan

A18 Operational record templates

Table A1 - Resident assistance and transport register

Unit	Residents	Contact	Assistance needs	Vehicle or driver	Buddy or backup	Destination

Table A2 - Evacuation log

Unit or person	Warning confirmed	Departure time	Transport	Destination	Arrival confirmed	Notes

Continue the register for all 22 units and hold it securely. Record visitors separately during an incident.

Table A3 - Exercise or incident record

Item	Record
Date, time and warning or exercise scenario	
Flood Warden and deputy	
Units and people involved	
Time taken to contact all units	
Time taken to account for all persons	
Transport or route issues	
Flood Adaptive Platform™ fault or communication issues	
Lessons and corrective actions	
Responsible person and completion date	

Table A4 - Plan review record

Review date	Reason for review	Changes made	Reviewed by	Next review

A19 Supporting Figures

Figure A1 - Final site layout

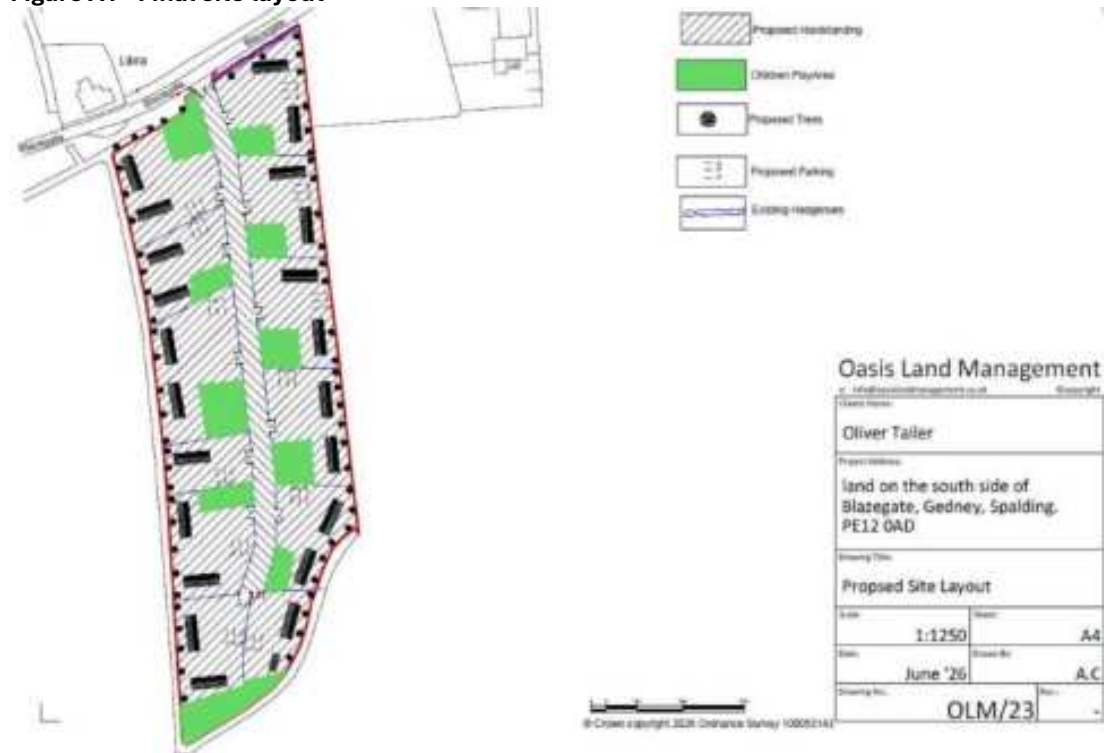
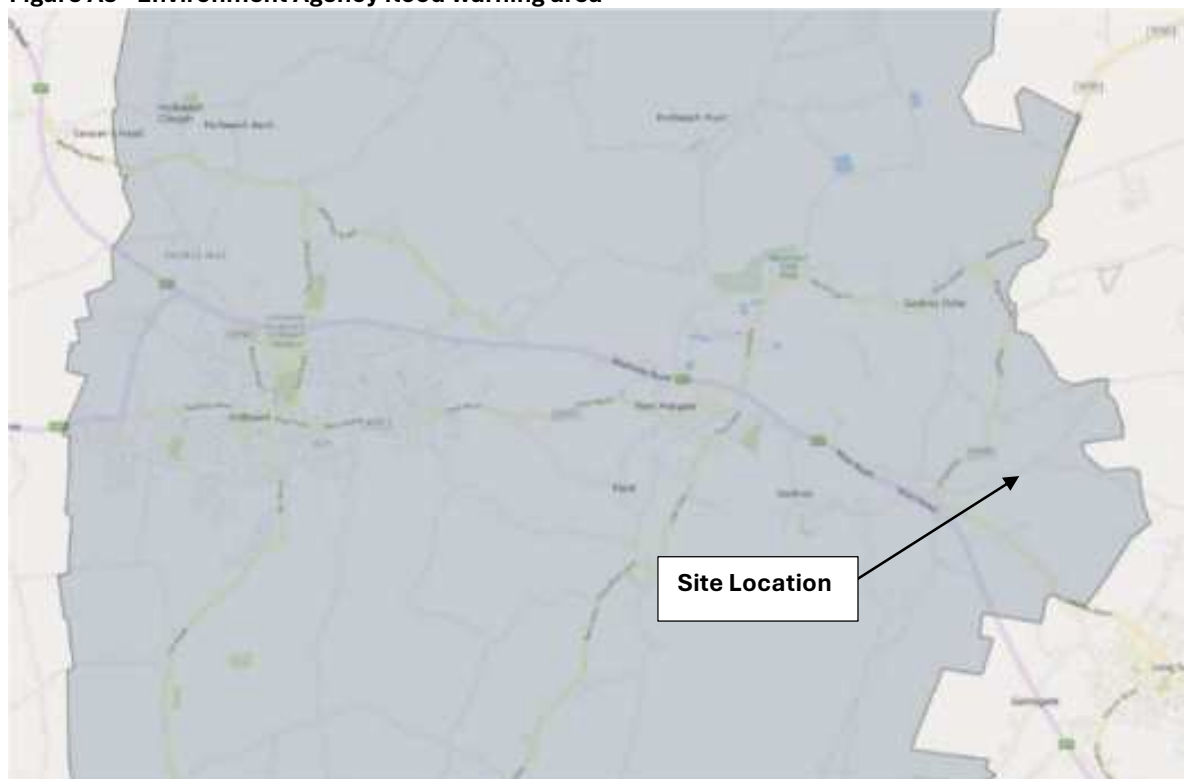


Figure A2 - Evacuation routes and destination – distance of approximately 4 miles



Figure A3 - Environment Agency flood warning area



A20 Plan acceptance

The site operator confirms that the operational fields and figures in this plan have been completed, the arrangements are available and deliverable, and copies have been issued to the Site Flood Warden, deputy and all occupied households.

Role	Name	Signature	Date
Site operator			
Site Flood Warden			
Deputy Flood Warden			

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Appendix B – Environment Agency flood risk & tidal breach mapping

Simon Gilliland
simon@floodtg.com

Our ref: EIR2026/30508
Date: 24 July 2026

Dear Simon,

Flood Risk Information for Blazegate, Gedney, Spalding PE12 0AB.

The flood risk information for the above site is set out below and attached. It is important you read any contextual notes on the maps provided.

If you are preparing a Flood Risk Assessment (FRA) for this site, please note this information may not be sufficient by itself to produce an adequate FRA to demonstrate the development is safe over its lifetime. Additional information may be required to carry out an appropriate assessment of all risks, such as the consequences of a breach in the flood defences.

We aim to review our information on a regular basis, so if you are using this data more than twelve months from the date of this letter, please contact us again to check it is still valid.

Please read the letter in full as the information covered has been updated in **May 2026**.

1. Flood Map for Planning

The attached map includes the current Flood Map for Planning for your area. The map indicates the Area at Risk of Flooding (Flood Zone 3) and the Extreme Flood Outline (Flood Zone 2) **assuming no flood defences exist**.

The Area at Risk of Flooding shows the land that could be impacted from a flood with a 0.5% or greater chance of occurring in any year for flooding from the sea, or a 1% or greater chance of occurring in any year for fluvial (river) flooding.

The Extreme Flood Outline shows the land that could be impacted from a flood which has between a 1% and 0.1% chance of occurring in any year for fluvial (river) flooding, or between a 0.5% and 0.1% annual probability of sea flooding, or the highest recorded historic extent if greater.

In some locations, such as around the fens and the large coastal floodplains, showing the area at risk of flooding assuming no defences may give a slightly misleading picture in that if there were no flood defences, water would spread out across these large floodplains. This flooding could cover large areas of land but to relatively shallow depths and could leave pockets of locally slightly higher land as isolated dry islands. It is important to understand the actual risk of the flooding to these dry islands, particularly in the event of defence failure.

The Flood Map for Planning also shows the location of formal raised flood defences and flood storage reservoirs. It represents areas at risk of flooding for present day only and does not take account of climate change.

The Flood Map for Planning only indicates the extent and likelihood of flooding from rivers or the sea. It should also be remembered flooding may occur from other sources such as surface water sewers, road drainage, etc.

2. Recorded Flood Outlines

With regards to the history of flooding I can advise we do not have any records of flooding in this area. It is possible recent flooding may have occurred which we are currently investigating, therefore this information may be subject to change.

It is possible other flooding may have occurred which other risk management authorities, such as the Lead Local Flood Authority (i.e. top tier council) or Internal Drainage Board (where they exist) have responsibility.

3. Schemes in the area

There are no ongoing capital projects to reduce or sustain the current flood risk to this area.

4. Fluvial Flood Risk Information

This site is not considered to be at risk of flooding from main rivers.

The site may be at risk from local ordinary watercourses for which other risk management authorities, such as the Lead Local Flood Authority (i.e. top tier council) or Internal Drainage Board (where they exist) have responsibility.

5. Tidal Flood Risk Information

This site is considered to be at risk from tidal flooding.

5.1 Tidal Defence Information

The existing tidal defences protecting this site consist of earth embankments.

They are in fair condition and reduce the risk of flooding (at the defence) to a 0.67% (1 in 150) chance of occurring in any year. We inspect these defences routinely to ensure potential defects are identified.

Refer to paragraph 3 for details of any ongoing capital projects to reduce the flood risk to this site.

5.2 Tidal Flood Levels

The attached data sheets show our current best estimate for extreme tide levels.

Please read the information notes on the data sheets.

5.3 Tidal Hazard Mapping

For certain locations we have carried out modelling to map the maximum values of flood depth, velocity and hazard rating (danger to people) resulting from overtopping and / or breaching of defences at specific locations for a number of scenarios.

At present this information is available along the full coastal / tidal floodplain, except the tidal Witham Haven in Boston (upstream of Hobhole) where only breaching and not overtopping has been modelled and the tidal River Welland upstream of Fosdyke Bridge where neither breaching nor overtopping are available.

The number of locations we have this information for is expected to increase in time.

The attached maps show the maximum values of flood depth, velocity and hazard rating (danger to people) resulting from breaching of the defences at specific locations for the scenarios below. For some locations the breach mapping also includes flooding from overtopping if this is expected in that scenario. The location of modelled tidal breaches is shown on a separate attached map.

5.3.1 Tidal Hazard Mapping – Breaches

The attached maps show the maximum values of flood depth, velocity and hazard rating (danger to people) resulting from simulated breaching of defences for the following scenarios:

- Year 2006 0.5% (1 in 200) chance
- Year 2006 0.1% (1 in 1000) chance
- Year 2115 0.5% (1 in 200) chance
- Year 2115 0.1% (1 in 1000) chance

5.3.2 Tidal Hazard Mapping - Overtopping

Your site is not affected by overtopping of the defences for the present day (2006) and climate change (2115) scenarios, though may be at risk from breaching.

6. Development Planning

If you would like local guidance on preparing a flood risk assessment for a planning application, please contact our Sustainable Places team at LNplanning@environment-agency.gov.uk. It will help if you mention this data request and attach your site location plan.

We offer free preliminary advice. More detailed support—including review of draft Flood Risk Assessments (FRAs) and meetings—is available on a chargeable basis. Our current rate is £119.37 per hour (plus VAT), which covers staff time. Further details can be found on our website: <https://www.gov.uk/guidance/developers-get-environmental-advice-on-your-planning-proposals>

General advice on flood risk assessment for planning applications can be found on GOV.UK at <https://www.gov.uk/guidance/flood-risk-assessment-for-planning-applications>

We have provided information on risk of breach where it is available. If you are intending on using this information to prepare a Flood Risk Assessment you will need to check if the data meets your requirements. You may need to carry out further assessment (or modelling) for sites that are at residual risk (including from breach of defences), or additional locations or scenarios.

Climate change will increase flood risk due to overtopping of defences. Please note, unless specified otherwise, the climate change data included has an allowance for 20% increase in flow. Updated guidance on how climate change could affect flood risk to new development - 'Flood risk assessments: climate change allowances' was

published on GOV.UK in **July 2021**. The appropriate updated climate change allowance should be applied in a Flood Risk Assessment.

You should also consult the Strategic Flood Risk Assessment produced by your local planning authority.

7. Permitting Information

Under the Environmental Permitting (England and Wales) Regulations 2016, permission must be obtained from the Environment Agency for any proposed activities which will take place:

- in, over, under or within 8 metres of a main river (16 metres if tidal)
- on or within 8 metres of a flood defence structure or culvert (16 metres if tidal)
- on or within 16 metres of a sea defence
- within 16 metres of any main river, flood defence (including a remote defence) or culvert for quarrying or excavation
- in a flood plain more than 8 metres from the river bank, culvert or flood defence structure (16 metres if tidal) if planning permission has not already been granted for the works

For further guidance and advice please visit our website: <https://www.gov.uk/guidance/flood-risk-activities-environmental-permits> or contact our local Partnerships and Strategic Overview team by email at psown@environment-agency.gov.uk. The team will be able to advise if an environmental permit or exemption registration is required and the fee applicable.

Please note that a permit is separate to and in addition to any planning permission granted. The applicant should not assume that such a permit will automatically be forthcoming once planning permission has been granted, and we would advise them to consult with us at the earliest opportunity.

8. Data Licence and Other Supporting Information

We respond to requests for recorded information we hold under the Freedom of Information Act 2000 (FOIA) and the associated Environmental Information Regulations 2004 (EIR).

This information is provided in accordance with the Open Government Licence which can be found here: <http://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/>

Further information on flood risk can be found on the GOV.UK website at:
<https://www.gov.uk/browse/environment-countryside/flooding-extreme-weather>

Rights of appeal

If you are not satisfied with our decision, you can contact us within two calendar months to ask for the decision to be reviewed. We will then conduct an internal review of our response to your request and give you our decision in writing within 40 working days.

If you are not satisfied with the outcome of the internal review, you can then make an appeal to the Information Commissioner Office, the statutory regulator for EIR and the Freedom of Information Act 2002. The address is: Information Commissioner's Office, Wycliffe House, Water Lane, Wilmslow, Cheshire. SK9 5AF.

Tel: 0303 123 1113 (local rate) or 01625 545 745 (national rate) | Fax: 01625 524 510
Email: casework@ico.org.uk | Website: www.ico.org.uk

9. Other Flood Risk Management Authorities

The information provided with this letter relates to flood risk from main river or the sea. The Flood Map for Surface Water can be viewed at <https://www.gov.uk/check-long-term-flood-risk>

Additional information may be available from other risk management authorities, such as the Lead Local Flood Authority (ie top tier council) or Internal Drainage Board (where they exist).

I hope we have correctly interpreted your request. If you have any queries or would like to discuss the content of this letter further please contact Jo Henry using the email address below and quoting our EIR reference number above.

Yours sincerely,

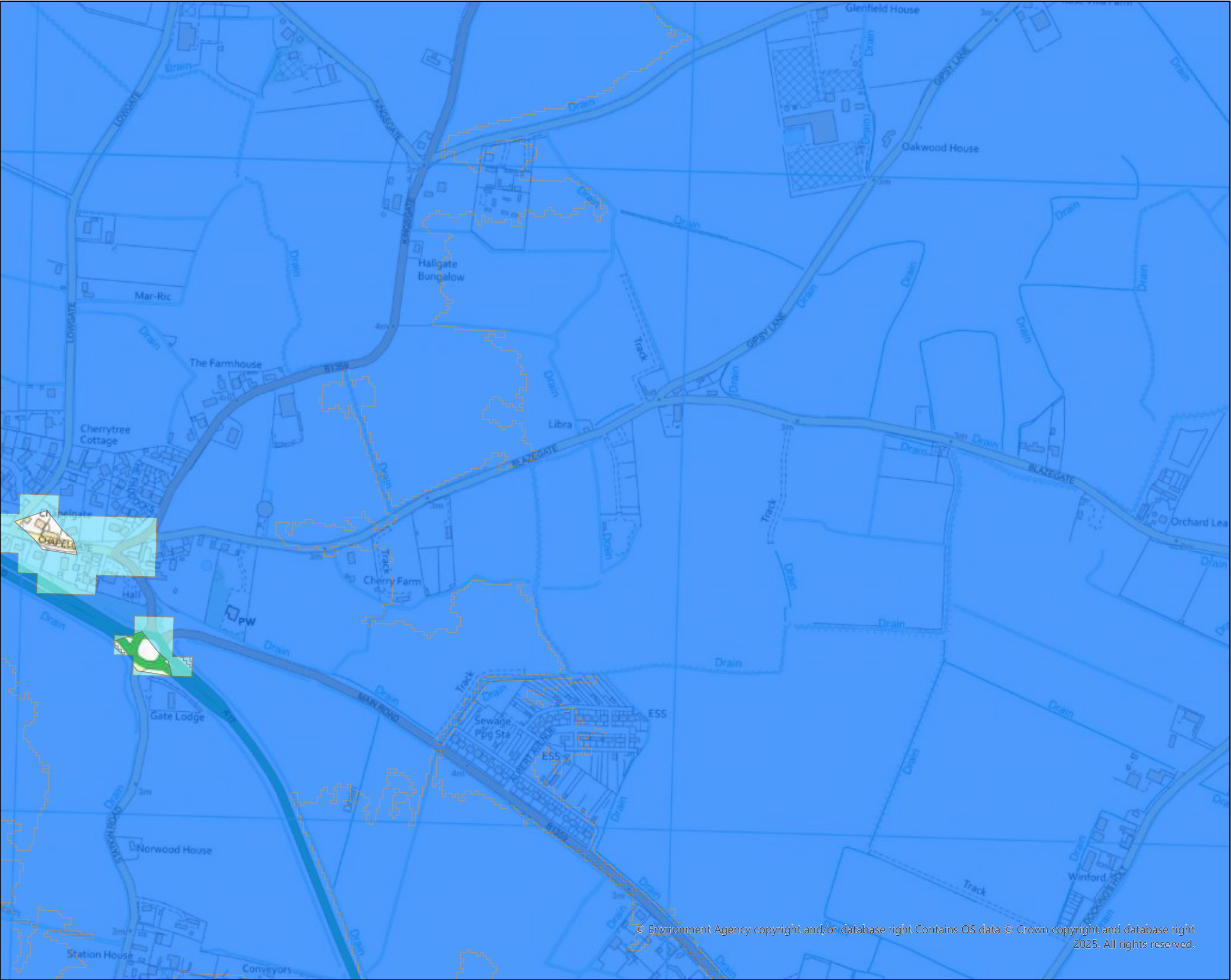


Jo Henry
Engagement Officer
Partnerships and Strategic Overview Team

for John O'Neill
Welland and Nene Partnerships and Strategic Overview Team Leader
e-mail PSOWN@environment-agency.gov.uk

Enc.
Flood Map for Planning
Tidal Level Data Sheets - Map and Tables
Tidal Breach Points – Locations Map
Hazard Mapping – Breaching

Flood Map centred on TF 42347 24534 - created July 2026 [Ref: EIR2026/30508]



Scale 1:10,000

N

Legend

- Statutory Main Rivers
- Raised Defences
- Flood Storage Areas

Flood Zones 2 and 3 Rivers and Sea

- Flood Zone 2
- Flood Zone 3

Dark blue shows the area that could be affected by flooding, either from rivers or the sea, if there were no flood defences. This area could be flooded:

- from the sea by a flood that has a 0.5% (1 in 200) or greater chance of happening each year.
- or from a river by a flood that has a 1% (1 in 100) or greater chance of happening each year.

Light blue shows the extent of the Extreme Flood Outline, which represents the extent of a flood event with a 0.1% chance of occurring in any year, or the highest recorded historic extent if greater.

These two colours show the extent of the natural floodplain if there were no flood defences or certain other manmade structures and channel improvements. Sites outside the two extents, but behind raised defences, may be affected by flooding if the defences are overtopped or fail.

Created by the Partnerships and Strategic Overview Team, Kettering

East Coast and Wash - 2018 Coastal Flood Boundary [CFB] Dataset

Key Node Points



East Coast and Wash: Immingham to the West Lighthouse

2018 Coastal Flood Boundary Extreme Sea Levels

CFB REF	LOCATION	EASTING	NORTHING	ANNUAL CHANCE (1 IN X) OF TIDE LEVEL IN METRES ODN																						
				1			10			50			100			200			300			1000				
				Confidence Bound			Confidence Bound			Confidence Bound			Confidence Bound			Confidence Bound			Confidence Bound			Confidence Bound				
				2.5%	50%	97.5%	2.5%	50%	97.5%	2.5%	50%	97.5%	2.5%	50%	97.5%	2.5%	50%	97.5%	2.5%	50%	97.5%	2.5%	50%	97.5%	2.5%	50%
3888	Immingham	520440	417625	4.16	4.17	4.19	4.50	4.53	4.62	4.73	4.80	5.00	4.83	4.93	5.19	4.93	5.06	5.41	4.98	5.14	5.55	5.15	5.38	6.01		
3890	Haborough Marsh	522100	416512	4.14	4.15	4.17	4.48	4.51	4.60	4.70	4.77	4.97	4.80	4.90	5.16	4.90	5.03	5.38	4.94	5.10	5.51	5.11	5.34	5.97		
3898	Grimsby	529295	413162	3.98	3.99	4.01	4.31	4.34	4.43	4.53	4.60	4.80	4.61	4.71	4.97	4.71	4.84	5.19	4.74	4.90	5.31	4.88	5.11	5.74		
3906	Buck Beck	534709	407369	3.87	3.88	3.90	4.19	4.23	4.31	4.41	4.50	4.68	4.50	4.61	4.86	4.61	4.75	5.10	4.64	4.82	5.22	4.80	5.05	5.66		
3910	Tetney	538035	405537	3.85	3.86	3.89	4.17	4.22	4.30	4.40	4.50	4.67	4.49	4.61	4.86	4.60	4.75	5.10	4.63	4.82	5.21	4.80	5.06	5.66		
3918	Donna Nook	544641	401997	3.82	3.83	3.86	4.14	4.19	4.27	4.38	4.48	4.65	4.47	4.60	4.85	4.58	4.74	5.10	4.63	4.82	5.22	4.81	5.08	5.68		
3928	Saltfleet	549131	393360	3.78	3.79	3.82	4.11	4.16	4.26	4.36	4.46	4.64	4.47	4.59	4.86	4.57	4.74	5.11	4.63	4.83	5.25	4.83	5.11	5.74		
3942	Boygrift	555131	380860	3.72	3.74	3.77	4.06	4.11	4.22	4.33	4.43	4.65	4.43	4.57	4.87	4.56	4.73	5.13	4.62	4.83	5.28	4.85	5.15	5.82		
3968	Gibraltar Point	557652	356181	4.16	4.17	4.20	4.51	4.56	4.67	4.76	4.85	5.08	4.85	4.97	5.27	4.94	5.10	5.49	4.99	5.18	5.63	5.14	5.41	6.09		
3992_14	Hobhole	535990	340116	4.96	4.97	5.01	5.40	5.44	5.56	5.66	5.76	5.98	5.78	5.90	6.20	5.88	6.04	6.44	5.92	6.11	6.57	6.03	6.31	6.99		
	Grand Sluice*	532366	344510	4.93	4.94	4.98	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3		
3992_9	Boston Barrier	532754	342852	4.93	4.94	4.98	5.41	5.45	5.57	5.73	5.83	6.05	5.85	5.97	6.27	5.93	6.09	6.49	5.94	6.13	6.59	5.98	6.26	6.94		
3992_5	Fosdyke Bridge	531886	332234	4.87	4.88	4.92	5.31	5.35	5.47	5.58	5.68	5.90	5.71	5.83	6.13	5.82	5.98	6.38	5.87	6.06	6.52	6.01	6.29	6.97		
4008	West Lighthouse	550094	329971	4.87	4.88	4.91	5.21	5.26	5.37	5.46	5.56	5.78	5.56	5.68	5.98	5.66	5.82	6.21	5.71	5.90	6.35	5.86	6.14	6.81		
-	Marsh Road	525988	324065	-	5.04	-	-	5.44	-	-	5.73	-	-	5.85	-	-	5.98	-	-	-	-	-	-	-		
-	Wisbech	546110	309940	-	4.83	-	-	5.25	-	-	5.53	-	-	5.66	-	-	5.78	-	-	-	-	-	-	-		
-	Dog-in-a-Doublet	527200	299287	-	3.67	-	-	4.00	-	-	4.22	-	-	4.32	-	-	4.42	-	-	-	-	-	-	-		

See next page for notes

East Coast and Wash: Immingham to the West Lighthouse

2018 Coastal Flood Boundary Extreme Sea Levels

NOTES:

The following notes apply to all CFB sites (ie all on table excluding Marsh Road, Wisbech, Dog-in-a-Doublet)

- The base date for the data is 2017.
- The levels are still water levels. Depending on the use of the data it may be necessary to consider wave heights and / or joint probability analysis of water level and other variables.
- Levels for other annual chance probabilities are available if required.
- For additional information relating to the 2018 Coastal Flood Boundary Extreme Sea Levels or to access the full dataset for the above sites or intermediate locations refer to the Defra Metadata Catalogue at <https://deframetadata.com/geonetwork/srv/eng/catalog.search#/metadata/84a5c7c0-d465-11e4-b0bd-f0def148f590>

The following notes apply to all Marsh Road, Wisbech, Dog-in-a-Doublet

- The base date for the data is 2006
- The levels are still water levels. Depending on the use of the data it may be necessary to consider wave heights and / or joint probability analysis of water level and other variables.
- Levels for other annual chance probabilities are available if required.
- These levels will be updated as their respective tidal river models are updated.

The following notes apply to Grand Sluice

- Grand Sluice remains the tidal limit for the River Witham.
- The data is based on CFB 2018 data for Boston Barrier site, capped at 5.3mAOD to reflect use of the barrier which raises for tides above this level.
- The base date for the data is 2017
- The levels are still water levels. Depending on the use of the data it may be necessary to consider wave heights and / or joint probability analysis of water level and other variables.
- For additional information relating to the 2018 Coastal Flood Boundary Extreme Sea Levels or to access the full dataset for the above sites or intermediate locations refer to the Defra Metadata Catalogue at <https://deframetadata.com/geonetwork/srv/eng/catalog.search#/metadata/84a5c7c0-d465-11e4-b0bd-f0def148f590>



★ **Modelled Breach Locations**

0 3.5 7 14
Kilometers

This map indicates the location of where we have modelled the consequence of breaches in the defences along the coastline and tidal rivers. We have mapped the maximum values of Hazard Rating (Danger to People), Depth and Velocity.

We have not assumed that all breaches occur at the same time, but have modelled each breach individually and overlaid the results to find the maximum values.

Our modelling only considers the consequences of a breach, it does not make any assumption about the likelihood of a breach occurring. Our defences generally provide a good standard of flood defence but a risk of breaching remains.

Please contact the Environment Agency for information on how these maps are used in the management of flood risk.

General Enquiries No: 03708 506 506.
Weekday calls cost 5p plus up to 6ppm from BT Weekend Unlimited. Mobile and other providers charges may vary.

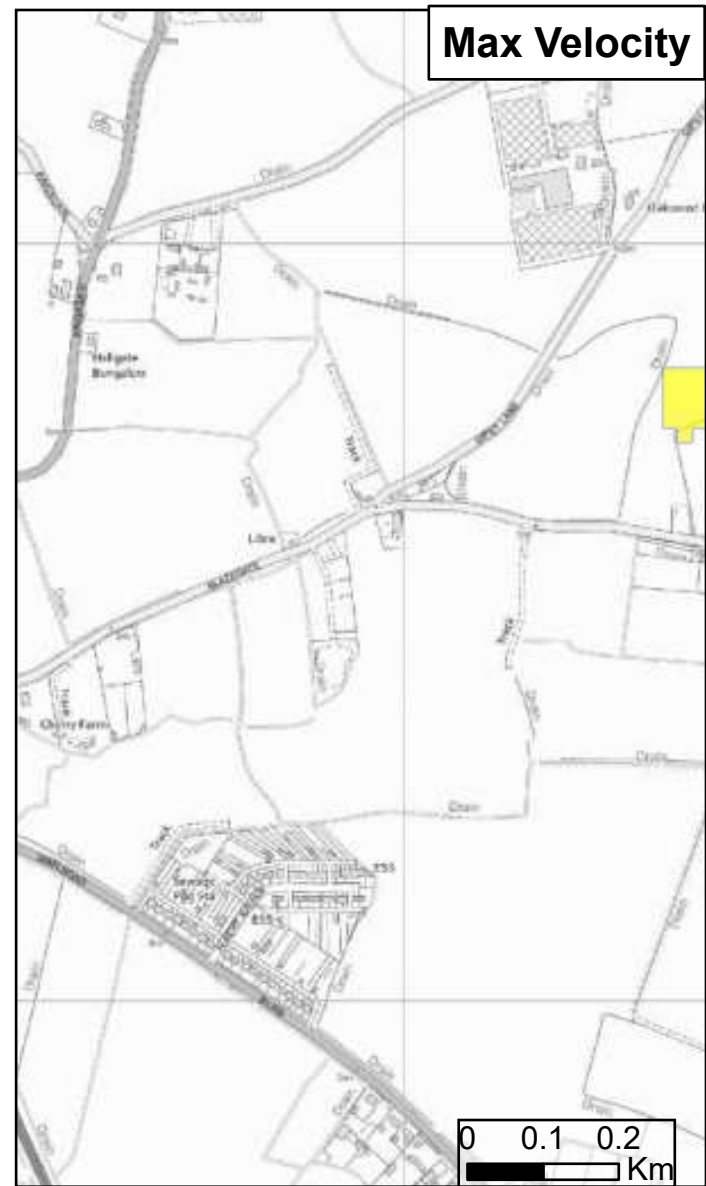


Produced by the Partnership and Strategic Overview Team, Lincoln
General Enquiries No: 03708 506 506

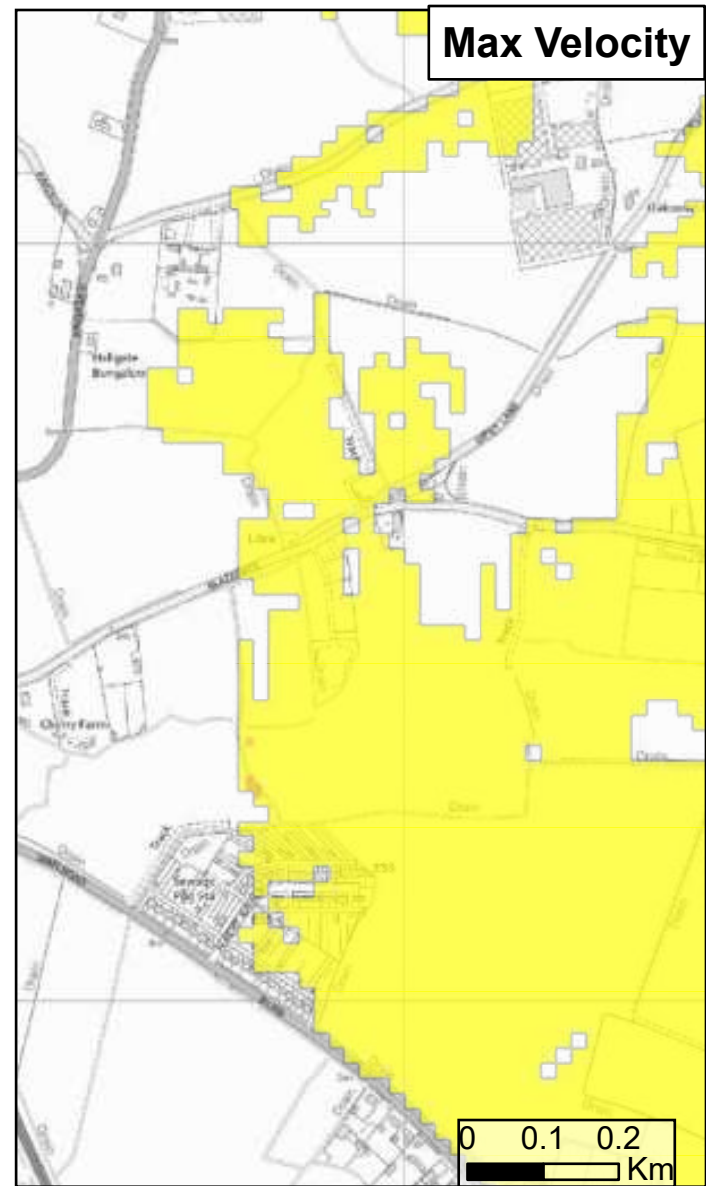
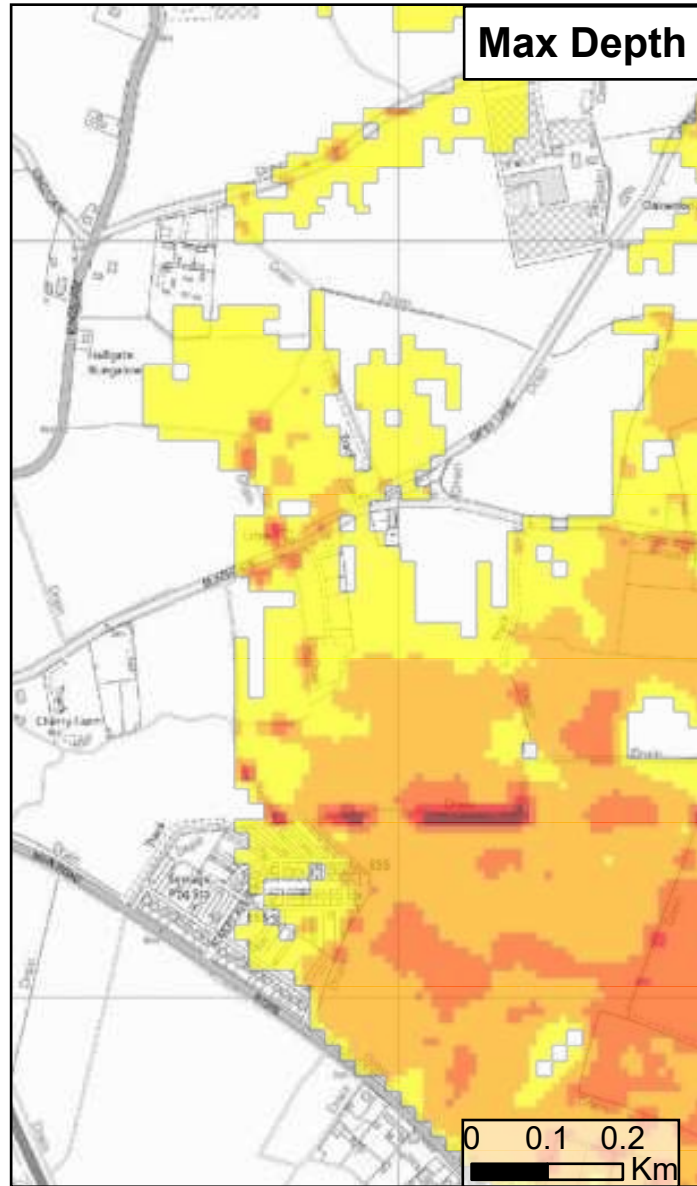
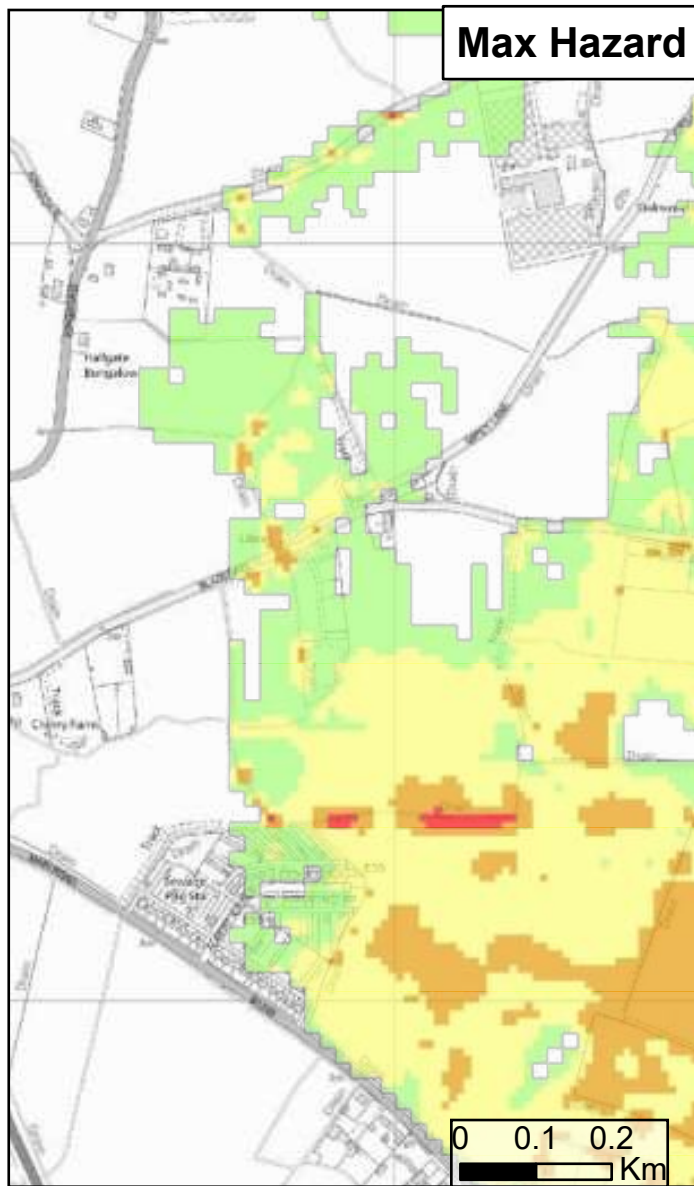
Northern Area Tidal Hazard Mapping

Location of Modelled Breaches

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★ Modelled Breach Locations - see also the accompanying plan "Location of Modelled Breaches"								 Lincolnshire and Northamptonshire Breach Hazard Mapping Map Centred on TF 42347 24534 Scale: 1:10,000 © Environment Agency copyright and/or database rights 2026. © Crown Copyright and Database Rights 2026 OS AC0000807064.
Max Hazard (Flood Risk to People : FD2320) Less than 0.75 (Low Hazard) Between 0.75 and 1.25 (Danger for Some) Between 1.25 and 2.0 (Danger for Most) Greater than 2.0 (Danger for All)		Max Depth (m) 0 - 0.25 0.25 - 0.50 0.50 - 1.0 1.0 - 1.6 1.6 +		Max Velocity (m/s) 0 - 0.3 0.3 - 1.0 1.0 - 1.5 1.5 - 2.5 2.5 +		This map shows the level of flood hazard to people (called a hazard rating) if our flood defences are breached at certain locations, for a range of scenarios. The hazard rating depends on the depth and velocity of floodwater, and maximum values of these are also mapped. The map is based on computer modelling of simulated breaches at specific locations. Each breach has been modelled individually and the results combined to create this map. Multiple breaches, other combinations of breaches, different sized tidal surges or flood flows may all give different results. The map only considers the consequences of a breach, it does not make any assumption about the likelihood of a breach occurring. The likelihood of a breach occurring will depend on a number of different factors, including the construction and condition of the defences in the area. A breach is less likely where defences are of a good standard, but a risk of breaching remains.		
Date Printed	July 2026	Scenario year	2006	Scenario Annual Chance	0.5% (1 in 200)	EIR Number	EIR2026-30508	
General Enquiries No: 03708 506 506. Weekday Daytime calls cost 5p plus up to 6p per minute from BT Weekend Unlimited. Mobile and other providers' charges may vary								



★ Modelled Breach Locations - see also the accompanying plan "Location of Modelled Breaches"							
Max Hazard (Flood Risk to People : FD2320)		Max Depth (m)		Max Velocity (m/s)			
	Less than 0.75 (Low Hazard)		0 - 0.25		0 - 0.3		
	Between 0.75 and 1.25 (Danger for Some)		0.25 - 0.50		0.3 - 1.0		
	Between 1.25 and 2.0 (Danger for Most)		0.50 - 1.0		1.0 - 1.5		
	Greater than 2.0 (Danger for All)		1.0 - 1.6		1.5 - 2.5		
			1.6 +		2.5 +		
Date Printed	July 2026	Scenario year	2006	Scenario Annual Chance	0.5% (1 in 1000)	EIR Number	EIR2026-30508

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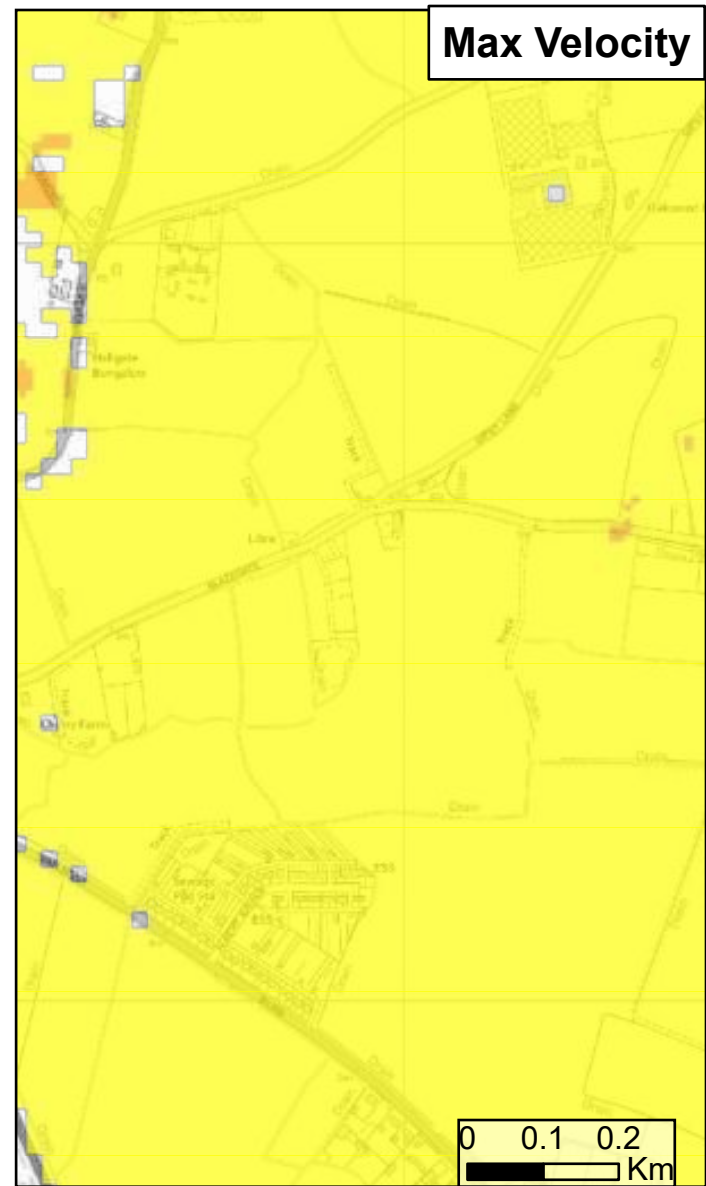
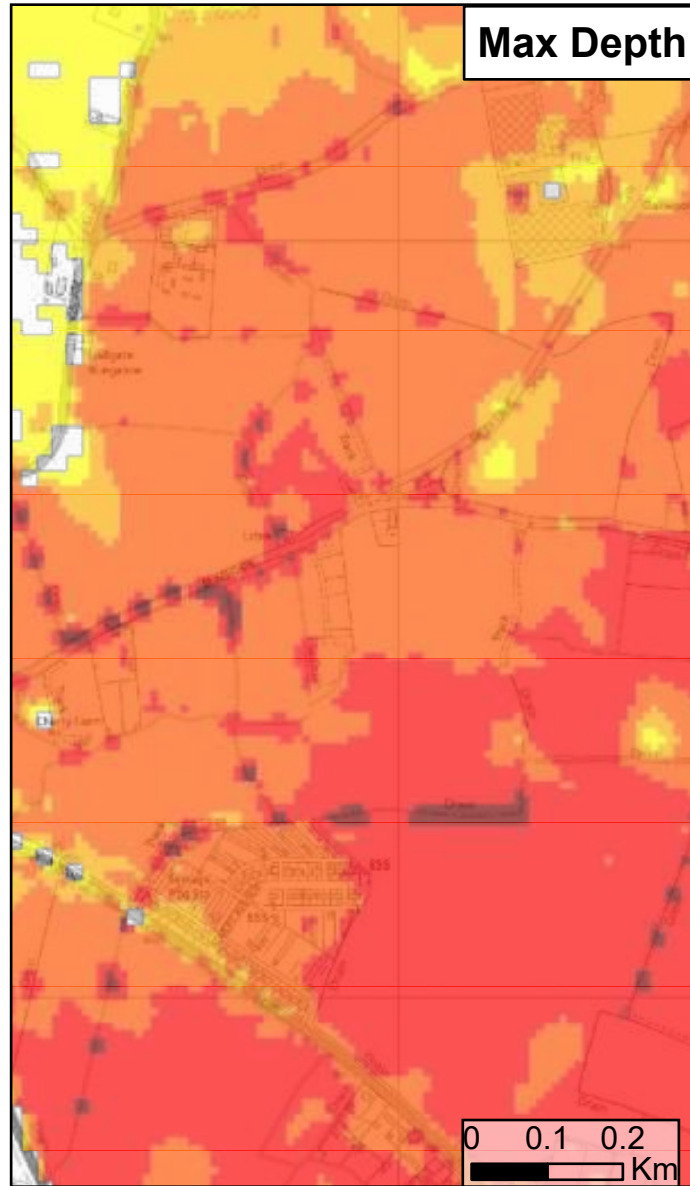
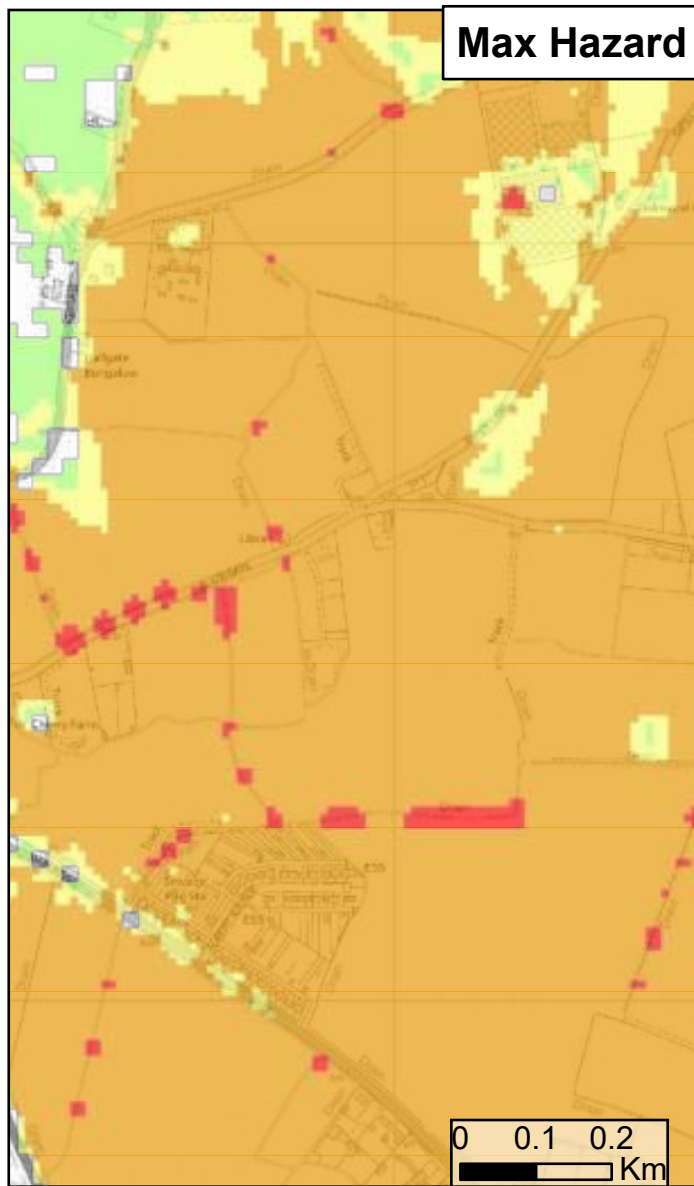


Lincolnshire and Northamptonshire Breach Hazard Mapping

Map Centred on TF 42347 24534

Scale: 1:10,000

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★ Modelled Breach Locations - see also the accompanying plan "Location of Modelled Breaches"

Max Hazard (Flood Risk to People : FD2320)		Max Depth (m)		Max Velocity (m/s)	
	Less than 0.75 (Low Hazard)		0 - 0.25		0 - 0.3
	Between 0.75 and 1.25 (Danger for Some)		0.25 - 0.50		0.3 - 1.0
	Between 1.25 and 2.0 (Danger for Most)		0.50 - 1.0		1.0 - 1.5
	Greater than 2.0 (Danger for All)		1.0 - 1.6		1.5 - 2.5
			1.6 +		2.5 +
Date Printed	July 2026	Scenario year	2115	Scenario Annual Chance	0.5% (1 in 200)
				EIR Number	EIR2026-30508

This map shows the level of flood hazard to people (called a hazard rating) if our flood defences are breached at certain locations, for a range of scenarios. The hazard rating depends on the depth and velocity of floodwater, and maximum values of these are also mapped.

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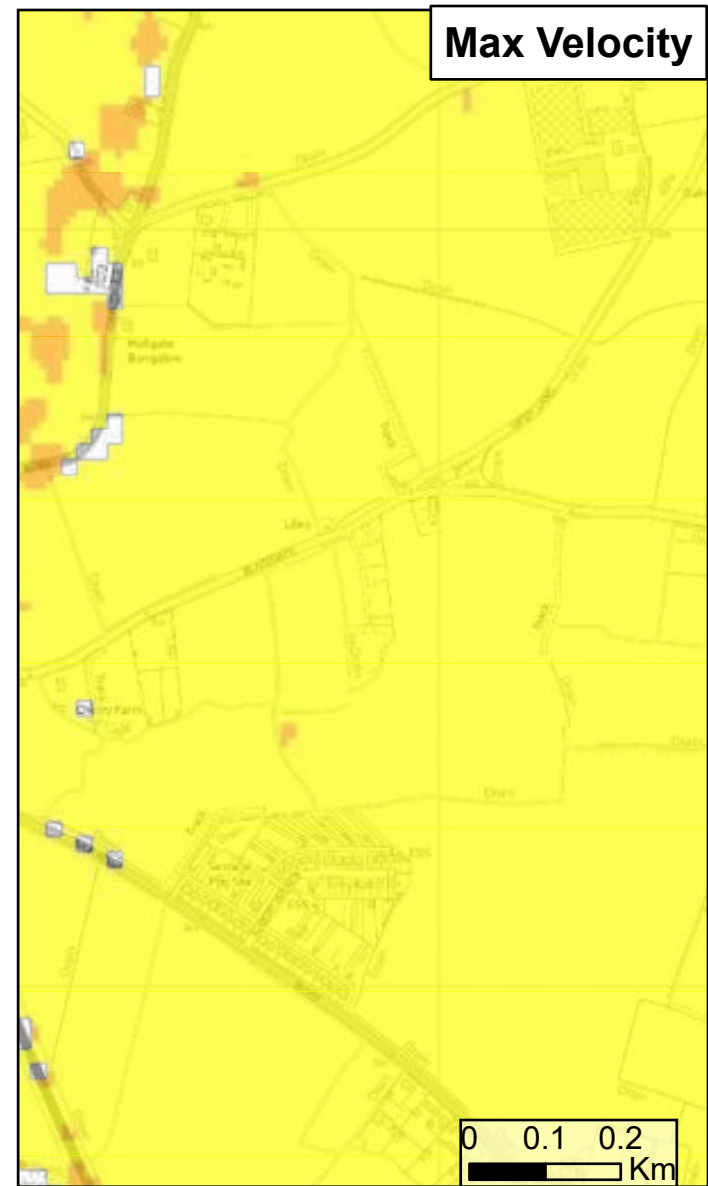
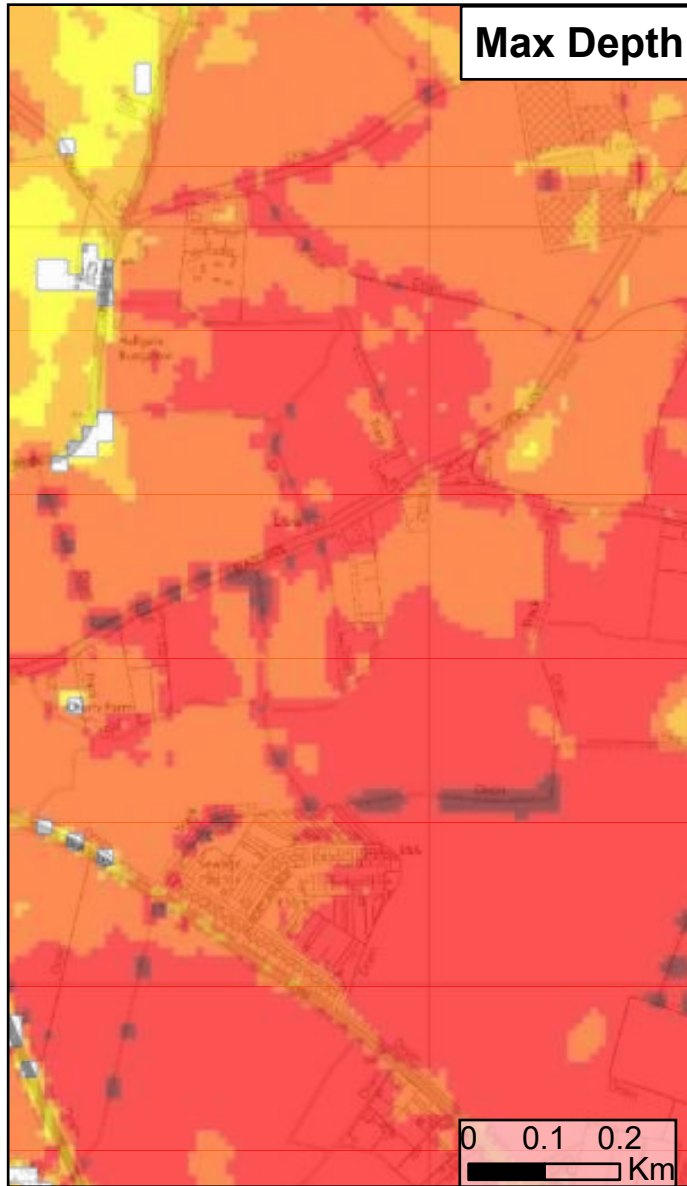


Lincolnshire and Northamptonshire Breach Hazard Mapping

Map Centred on TF 42347 24534

Scale: 1:10,000

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★ **Modelled Breach Locations** - see also the accompanying plan "Location of Modelled Breaches"

Max Hazard (Flood Risk to People : FD2320)			Max Depth (m)			Max Velocity (m/s)		
	Less than 0.75 (Low Hazard)			0 - 0.25			0 - 0.3	
	Between 0.75 and 1.25 (Danger for Some)			0.25 - 0.50			0.3 - 1.0	
	Between 1.25 and 2.0 (Danger for Most)			0.50 - 1.0			1.0 - 1.5	
	Greater than 2.0 (Danger for All)			1.0 - 1.6			1.5 - 2.5	
				1.6 +			2.5 +	
Date Printed	July 2026	Scenario year	2115	Scenario Annual Chance	0.1% (1 in 1000)	EIR Number	EIR2026-30805	

This map shows the level of flood hazard to people (called a hazard rating) if our flood defences are breached at certain locations, for a range of scenarios. The hazard rating depends on the depth and velocity of floodwater, and maximum values of these are also mapped.

The map is based on computer modelling of simulated breaches at specific locations. Each breach has been modelled individually and the results combined to create this map. Multiple breaches, other combinations of breaches, different sized tidal surges or flood flows may all give different results.

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General Enquiries No: 03708 506 506. Weekday Daytime calls cost 5p plus up to 6p per minute from BT Weekend Unlimited. Mobile and other providers' charges may vary



**Lincolnshire and Northamptonshire
Breach Hazard Mapping**

Map Centred on TF 41899 24512

Scale: 1:10,000

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Appendix C – Appeal decision dated 5 July 2024

Appeal Decision

Hearing held on 11 June 2024

Site visit made on 11 June 2024

by A Owen MA BA(Hons) MRTPI

an Inspector appointed by the Secretary of State

Decision date: 5 July 2024

Appeal Ref: APP/A2525/W/24/3339458

Land at The Orchards, Blazegate, Gedney, Spalding PE12 0AD

- The appeal is made under section 78 of the Town and Country Planning Act 1990 (as amended) against a refusal to grant planning permission.
 - The appeal is made by Mr John Rooney against the decision of South Holland District Council.
 - The application Ref is H06-0532-23.
 - The development is change of use of agricultural land to provide 5 Gypsy/Traveller family pitches each having a static mobile home, dayroom, parking for a tourer and 2 vehicle spaces together with a treatment plant, the laying of hardstanding and associated ancillary works.
-

Decision

1. The appeal is allowed and planning permission is granted for a change of use of agricultural land to provide 5 gypsy/traveller family pitches each having a static mobile home, dayroom, parking for a tourer and 2 vehicle spaces together with a treatment plant, the laying of hardstanding and associated ancillary works at The Orchards, Blazegate, Gedney, Spalding, PE12 0AD in accordance with the terms of the application, Ref H06-0532-23, subject to the conditions in the attached schedule.

Preliminary Matters

2. The appellant and his wider family have been on the site since 2021. The development subject of this appeal is therefore retrospective. Indeed, an Enforcement Notice has been served and is in effect. This requires the use of the land for residential purposes to cease, all caravans and other associated works to be removed and the land to be returned to its previous condition.
3. It is not disputed by the Council that all of the occupants of the site are Irish travellers and meet the definition of gypsies and travellers as set out in Annex 1 of the Planning Policy for Traveller Sites (PPTS). From the evidence before me, I have no reason to disagree.

Main Issue

4. The main issue is whether the development and its occupiers are at unacceptable risk from flooding.

Reasons

5. It is not disputed by the parties that the site is within flood zone 3a. This is defined in the national Planning Practice Guidance (the 'PPG') as being land

which has a high probability of flooding i.e. a 1% or greater annual probability of river flooding or a 0.5% or greater annual probability of sea flooding. It is agreed that the risk of flooding at this site is from the sea. It is also not disputed that the development, by primarily comprising caravans, falls into the classification of 'highly vulnerable' development as set out in the National Planning Policy Framework (the 'Framework'). The PPG says that highly vulnerable development in flood zone 3a should not be permitted, though it is noted that this national guidance takes no account of flood defences, and it is agreed that there are defences against tidal flooding in the District. Nonetheless, policy 4 of the South East Lincolnshire Local Plan (the 'Local Plan'), which relates to flooding, reflects this guidance in stating that caravans will not be permitted in areas at risk of flooding. Similarly, Local Plan policy 20, which relates to gypsy and traveller sites, says that such accommodation will not be permitted in flood zone 3a.

6. However, the explanatory text to policy 4 acknowledges that much of the land in South Holland is at significant risk of flooding and so identifies the need to facilitate development in a way that is resilient to flooding. To that end, the policy generally allows for development in flood zones 2 and 3 subject to a number of criteria, including where a site specific flood risk assessment identifies the predicted flood risk level and demonstrates flood resistance and resilience measures.
7. It is agreed by the parties that the flood risk at the appeal site primarily arises from a failure or breach of the sea defences, and that these defences comprise an earth embankment around 7km from the site. The Environment Agency would aim to fix the breach within 72 hours of it occurring.
8. Two breach scenarios have been modelled; a 1 in 200 year flood event (0.5% annual probability) and, due to the highly vulnerable nature of the development, a 1 in 1000 year flood event (0.1% annual probability). Both scenarios were modelled based on such events happening now, and in 2115.
9. The data shows that were either event to happen now there would be very little impact on the site. Flood water could reach the site, but it would be very shallow; less than 0.25m, and slow moving and therefore it is considered to be a low hazard.
10. Were such flood events to happen in 2115, the hazard would be greater as flood water would be deeper as a result of climate change. A 1 in 200 year event could result in flood water at the site being up to 1m in depth and a 1 in 1000 year event could result in water at the site reaching a depth of up to 1.6m. In both scenarios the water would be slow moving.
11. However it was agreed by both parties that as the risk is from tidal flooding, the depth of water would rise and fall with the tides. These maximum depths would only occur after a number of high tides, with the depth of water at the site increasing with each high tide. Indeed after the first high tide, the water may not reach the site at all. It is also the case that other obstacles, such as historic defences between the site and the sea, may impede the flow of flood water. No account of these is made in the modelling.
12. Clearly, were flood water depths to reach 1.6m or even 1m at the site this could be dangerous to the residents. However it is more likely, in my view, that even in these most serious flood events, because of the slow rate of increase in

the depth of flood water and because it would rise and fall, occupiers would take the opportunity to evacuate the site during one of the low tide times, before these dangerous depths of flood water were reached. This evacuation would be prompted by text alerts from the Environment Agency warning the residents of imminent flood events, starting from a basic flood alert to a severe flood warning.

13. Notwithstanding the above, paragraph 173 of the Framework and Local Plan policy 4 both advise that applications should be supported by site specific flood-risk assessments and should demonstrate that there are no other reasonably available sites appropriate for the development with a lower risk of flooding. The Council accept there are no public gypsy and traveller sites in the district and do not dispute there is no availability for the appellant and his family on other private sites. This demonstrates there are no other sequentially preferable sites, and hence the sequential test is passed.
14. As the PPG states the proposal should not be permitted, the exception test is not applicable. This test would require the development to demonstrate wider sustainability benefits to outweigh the flood risk, and that the development would be safe for its lifetime and without increasing flood risk elsewhere. However even if the exception test did need to be passed, the appellant suggests the provision of 5 gypsy and traveller pitches to the provision in the District is a wider sustainability benefit. The Council do not dispute this. The parties also agree that the development does not increase flood risk elsewhere.
15. With regard to making the development safe, it has been proposed that the dayrooms would be built with floor levels 1.6m above ground level and that static homes would also be set 1.6m above ground level on brick plinths. This would allow for damage to most possessions to be avoided. However were residents to take refuge in those spaces, they would be surrounded by deep floodwater at times of the severest flood events. Although the static mobiles and day rooms would provide a safe space for a short amount of time, the occupiers would ultimately need to be rescued, which would place additional burden on emergency services. However, as set out above, it is more likely that the occupants would vacate the site, prompted by text alerts from the Environment Agency, before floodwater reached dangerous depths. As such I am satisfied the exception test would be passed.
16. Consequently, whilst there is conflict with some parts of policies 4 and 20 and the PPG, I find that that conflict is outweighed by the specific circumstances here as set out above such that the residents are not at unacceptable risk of flooding.
17. Though not included in the reason for refusal, the Council identify conflict with Local Plan policy 1 in their officer's report, as this states that in the countryside, development will be limited to that which is necessary to such a location or meets the needs of the area in terms of community benefits. The Council accept they do not have a sufficient supply of gypsy and traveller sites. I consider, therefore, that this development would go towards meeting the needs of that community. I also note that in the explanatory text to the policy it states that some housing may be justified in the countryside, such as gypsy and traveller accommodation. As such whilst the site is detached from Gedney, which itself only has limited facilities, there is no conflict with Policy 1.

Other Matters

18. For the hearing, a second main issue on the agenda was whether there were any other considerations, such as the need and supply of gypsy and traveller sites in the district and the personal circumstances of the appellant and his family, that outweighed any harms. However as I have found no harm in respect of the main issue, I need not consider this second issue further.
19. Concerns have been raised by some neighbours regarding the loss of wildlife and the effect on the appearance of the area. Whilst any loss of habitat is regrettable, a planning condition can be applied which would secure a net gain in biodiversity. Also, the site is fairly well screened by vegetation along its boundaries, supplemented by a fence along its eastern side. Though it is proposed to raise dayrooms and static mobiles substantially above ground level, it is likely that the boundary vegetation would continue to provide a good degree of screening such that there would be no adverse visual impact.
20. I understand the land has been used for agriculture in the past but, as set out in the officer's report, that use has not been maintained. In any case, even if the development has resulted in a loss of active agricultural land, I have no substantive evidence to demonstrate that the loss of this area is detrimental to agricultural production.
21. There is also concern that dogs from the site have caused a nuisance to a neighbour. However I have no substantive evidence of this, and the plans show entrance gates to be provided. There is also concern that the site is being used as a commercial operation. A planning condition can be imposed to ensure no business is carried out at the site.
22. The development generates a modest amount of traffic and although Blazegate is narrow, I do not consider this is likely to have resulted in an adverse effect on highway safety. Furthermore, although visibility to the right from the access is poor, the plans show the existing hedge on the frontage being removed and replaced further into the site to ensure satisfactory visibility. The lack of objection from Lincolnshire County Council supports my view. I have seen photos of caravans being moved onto the site and the disruption that caused. However as the static mobiles are all now on site, any additional deliveries of this nature would be rare.
23. The occupation of the site before obtaining planning permission and the continued occupation in breach of the Enforcement Notice constitutes intentional unauthorised development. Furthermore as the appellant has owned the site for many years before moving onto it, there has been considerable opportunity to achieve permission before occupation. However the lack of any other suitable gypsy and traveller sites is also a consideration. Overall I give modest weight to this matter.

Conditions

24. At the hearing it was agreed that, as the development has already commenced, many of the conditions proposed by the Council would need to be reworded as, as drafted, they referred to details being submitted before development commenced. In addition the suggested condition relating to the commencement of development is not necessary. I have slightly amended the

wording of some of the conditions to better reflect the advice in the PPTS and the Framework.

25. It is necessary to impose conditions limiting the occupation of the site to gypsies and travellers, the number of pitches, and specifying the approved plans in the interests of certainty. The condition preventing commercial activities is necessary to maintain the character of the area and the living conditions of nearby occupiers.
26. The conditions which relate to the flood warning and evacuation plan, the flood risk assessment and site drainage are necessary in the interests of keeping the occupants of the site safe from flooding.
27. The condition relating to the submission of a biodiversity management plan is imposed in the interests of supporting biodiversity and has a longer compliance period than the others as the appellant has advised that currently the lead in time for such work is lengthy. The condition reflects their advised timescales, which I consider to be reasonable. The condition relating to details of levels is necessary to protect the character and appearance of the area.
28. The Council had suggested a condition withdrawing permitted development rights for curtilage buildings and means of enclosure. However the PPG advises that such conditions may not pass the test of reasonableness or necessity, and in this case, I do not consider the condition is necessary. Curtilage buildings would not benefit from permitted development anyway, and means of enclosure would not be likely to be visible from beyond the site past the existing boundary vegetation.

Conclusion

29. Overall despite some limited conflicts with the development plan and national policy, the site and its residents are not at an unacceptable risk from flooding, for the reasons set out above, and therefore the development accords with the development plan as a whole. There are no other considerations which suggest a decision other than in accordance with the development plan. As such the appeal is allowed.

A Owen

INSPECTOR

Schedule of Conditions

- 1) The development hereby permitted shall be carried out in accordance with the following approved plans: 20/BLAZE/01 and 20/BLAZE/02 Rev C.
- 2) The site shall not be occupied by any persons other than gypsies and travellers, defined as persons of nomadic habit of life whatever their race or origin, including such persons who on grounds only of their own or their family's or dependants' educational or health needs or old age have ceased to travel temporarily or permanently, but excluding members of an organised group of travelling showpeople or circus people travelling together as such.
- 3) There shall be no more than 5 pitches on the site, and on each of the pitches there shall be parking for a tourer, and no more than one dayroom and one static mobile home at any one time.
- 4) No commercial activities shall take place on the site, including the storage or sale of materials, machinery, vehicles or waste.
- 5) The use hereby permitted shall cease and all caravans, structures, equipment and materials brought onto the land for the purposes of such use shall be removed within **28 days** of the date of failure to meet any one of the requirements set out in (i) to (iv) below:
 - i) Within **three months** of the date of this decision a scheme for the means of foul and surface water drainage disposal to separate systems shall have been submitted for the written approval of the local planning authority and the scheme shall include a timetable for its implementation.
 - ii) If within **11 months** of the date of this decision the local planning authority refuse to approve the scheme or fail to give a decision within the prescribed period, an appeal shall have been made to, and accepted as validly made by, the Secretary of State.
 - iii) If an appeal is made in pursuance of ii) above, that appeal shall have been finally determined and the submitted scheme shall have been approved by the Secretary of State.
 - iv) The approved scheme shall have been carried out and completed in accordance with the approved timetable. Upon implementation of the approved scheme specified in this condition, the scheme shall thereafter be maintained.

In the event of a legal challenge to this decision, or to a decision made pursuant to the procedure set out in this condition, the operation of the time limits specified in this condition will be suspended until that legal challenge has been finally determined.
- 6) The use hereby permitted shall cease and all caravans, structures, equipment and materials brought onto the land for the purposes of such use shall be removed within **28 days** of the date of failure to meet any one of the requirements set out in (i) to (iv) below:
 - i) Within **three months** of the date of this decision a scheme showing full details of the existing and proposed site levels and proposed floor levels of the buildings, hard surfaced areas and garden/amenity areas,

including any mitigation measures arising as a consequence (for example increased height of boundary treatment) shall have been submitted for the written approval of the local planning authority and the scheme shall include a timetable for its implementation;

ii) If within **11 months** of the date of this decision the local planning authority refuse to approve the scheme or fail to give a decision within the prescribed period, an appeal shall have been made to, and accepted as validly made by, the Secretary of State.

iii) If an appeal is made in pursuance of ii) above, that appeal shall have been finally determined and the submitted scheme shall have been approved by the Secretary of State.

iv) The approved scheme shall have been carried out and completed in accordance with the approved timetable. Upon implementation of the approved scheme specified in this condition, the scheme shall thereafter be maintained.

In the event of a legal challenge to this decision, or to a decision made pursuant to the procedure set out in this condition, the operation of the time limits specified in this condition will be suspended until that legal challenge has been finally determined.

- 7) The use hereby permitted shall cease and all caravans, structures, equipment and materials brought onto the land for the purposes of such use shall be removed within **28 days** of the date of failure to meet any one of the requirements set out in (i) to (iv) below:

i) Within **six months** of the date of this decision a Biodiversity Net Gain Plan to demonstrate a net gain in biodiversity on-site, supported by a Biodiversity Management Plan setting out how the biodiversity enhancements will be managed and monitored for the lifetime of the development shall have been submitted for the written approval of the local planning authority and the scheme shall include a timetable for its implementation.

ii) If within **14 months** of the date of this decision the local planning authority refuse to approve the scheme or fail to give a decision within the prescribed period, an appeal shall have been made to, and accepted as validly made by, the Secretary of State.

iii) If an appeal is made in pursuance of ii) above, that appeal shall have been finally determined and the submitted scheme shall have been approved by the Secretary of State.

iv) The approved scheme shall have been carried out and completed in accordance with the approved timetable. Upon implementation of the approved scheme specified in this condition, the scheme shall thereafter be maintained.

In the event of a legal challenge to this decision, or to a decision made pursuant to the procedure set out in this condition, the operation of the time limits specified in this condition will be suspended until that legal challenge has been finally determined.

- 8) The use hereby permitted shall cease and all caravans, structures, equipment and materials brought onto the land for the purposes of such use shall be removed within **28 days** of the date of failure to meet any one of the requirements set out in (i) to (iv) below:
- i) Within **three months** of the date of this decision a Flood Warning and Evacuation Plan (the FWEP) shall have been submitted for the written approval of the local planning authority and the FWEP shall include a timetable for its implementation. The FWEP shall include (but not be limited to):
- The name of the designated flood warden who will assume overall responsibility for the management of the FWEP;
 - The trigger for an evacuation of this site which shall be the issue of Flood Alert code(s) issued by the Environment Agency and the same shall bear the meaning set out in 'Flood Warnings: what they are and what they do' (or any successor document published by the Environment Agency);
 - The arrangements made by the operator of the site to register for, receive and continue to receive all forms of Flood Alert/Warning from the Environment Agency's Flood Warning system;
 - The arrangements that will be made to ensure every occupier of each caravan is able to leave the site immediately in the event of the issue of a trigger for evacuation, including the arrangements that will be made to ensure persons who may not be able to use their own private car are able to leave the site with the assistance of the operator;
 - Details of how the need for evacuation will be communicated to any occupiers of a caravans who are on site at the time of the issue of a trigger for evacuation;
 - Provision for the periodic review and updating of the FWEP.
- ii) If within **11 months** of the date of this decision the local planning authority refuse to approve the FWEP or fail to give a decision within the prescribed period, an appeal shall have been made to, and accepted as validly made by, the Secretary of State.
- iii) If an appeal is made in pursuance of ii) above, that appeal shall have been finally determined and the submitted FWEP shall have been approved by the Secretary of State.
- iv) The approved FWEP shall have been carried out and completed in accordance with the approved timetable. Upon implementation of the approved FWEP specified in this condition, the FWEP shall thereafter be maintained.
- In the event of a legal challenge to this decision, or to a decision made pursuant to the procedure set out in this condition, the operation of the time limits specified in this condition will be suspended until that legal challenge has been finally determined.
- 9) The development shall be carried out in accordance with the mitigation measures detailed in the submitted flood risk assessment (ref ECL0712a/NKF Planning Consultancy, dated May 2023). These mitigation measures shall be fully implemented within **three months** of the date of

this decision and subsequently retained and maintained thereafter throughout the lifetime of the development.

APPEARANCES

FOR THE APPELLANT

Neil Langley	Agent
Phillip Brown	Gypsy & Traveller Consultant
Tim Ellingham	Flood Risk Consultant

FOR THE COUNCIL

Daniel Allen	Principal Planning Officer
Mark Simmonds	Development Manager
Rebecca Flint	Planning Officer for the Environment Agency
Heather Tysoe	Flood Risk Advisor for the Environment Agency

Appendix D – Greenfield runoff & surface water storage calculation

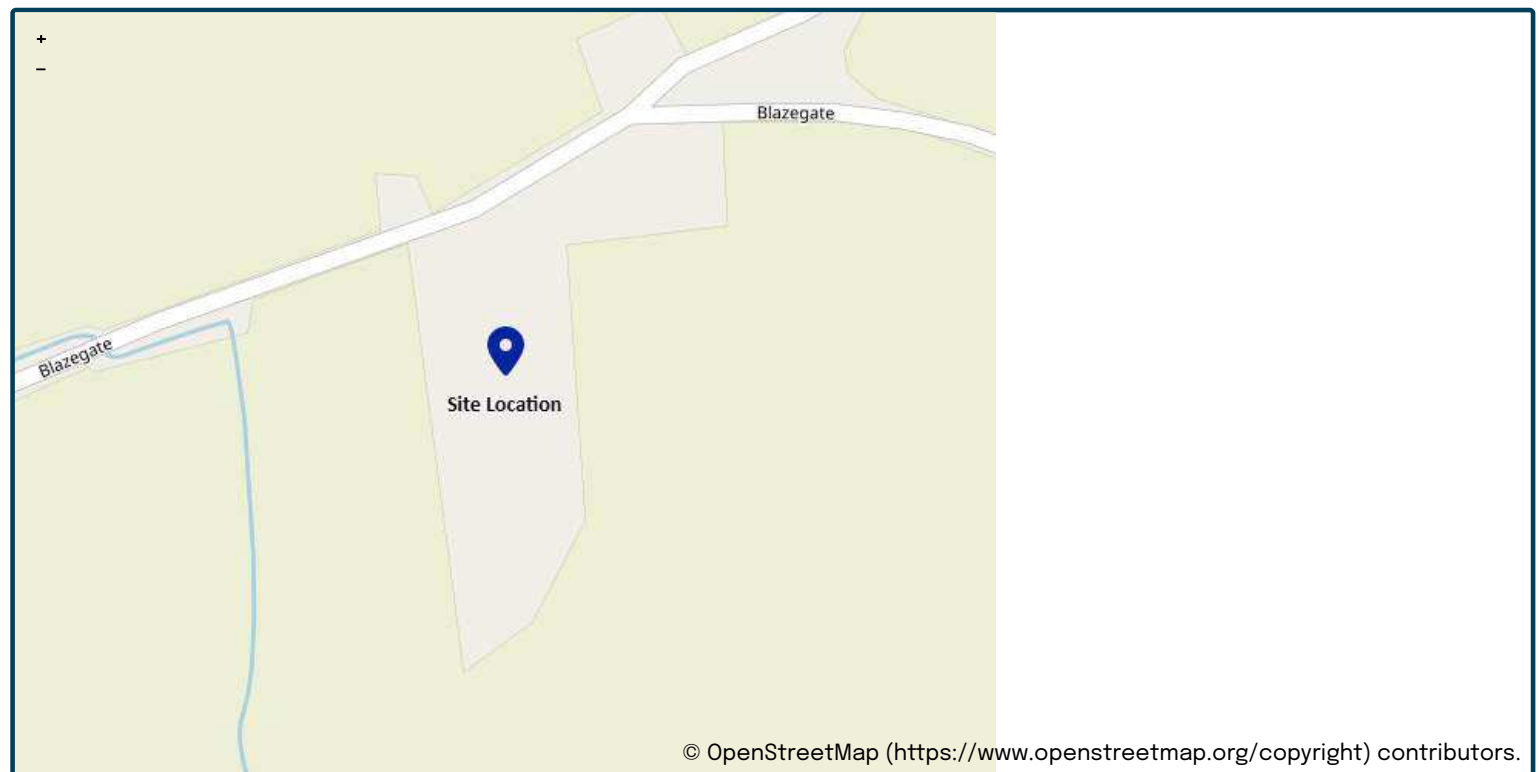
This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance “Rainfall runoff management for developments”, SC030219 (2013), the SuDS Manual C753 (CIRIA, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Project details

Date	18/09/2026
Calculated by	Gilliland Advisory
Reference	GA-003
Model version	2.2.3

Location

Site name	The Orchards, Blazegate
Site location	Gedney Spalding



Site easting (British National Grid)	541901
Site northing (British National Grid)	324518

Site details

Total site area (ha)	1.2	ha
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Greenfield runoff

Method

Method	FEH statistical (2025)
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FEH statistical (2025)

	<u>My value</u>	<u>Map value</u>
SAAR9120 (mm)	619	mm
BFIHOST19scaled	0.682	
QMed-QBar conversion	1.124	1.124
QMed (l/s)	1.1	l/s
QBar (FEH statistical 2025) (l/s)	1.3	l/s

Growth curve factors

	<u>My value</u>	<u>Map value</u>
Hydrological region	5	5
1 year growth factor	0.87	
2 year growth factor	0.89	
10 year growth factor	1.65	
30 year growth factor	2.45	
100 year growth factor	3.56	
200 year growth factor	4.21	

Results

Method	FEH statistical (2025)
Flow rate 1 year (l/s)	1.1
Flow rate 2 year (l/s)	1.1
Flow rate 10 years (l/s)	2.1
Flow rate 30 years (l/s)	3.1
Flow rate 100 years (l/s)	4.5
Flow rate 200 years (l/s)	5.3

Please note runoff estimation is subject to significant uncertainty. Results are therefore normally reported to only 1 decimal place. Where 2 decimal places are provided, this does not indicate accuracy to this level, it has been adopted to prevent ‘zero’ figures from being reported. Outputs less than 0.01 l/s are reported as 0.01 l/s.

Disclaimer

This report was produced using the Greenfield runoff rate estimation tool (2.2.3) developed by HR Wallingford and available at uksuds.com (<https://www.uksuds.com/>). The use of this tool is subject to the UK SuDS terms and conditions and licence agreement, which can both be found at uksuds.com/terms-conditions (<https://www.uksuds.com/terms-conditions>). The outputs from this tool have been used to estimate Greenfield runoff rates. The use of these results is the responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency, Centre for Ecology and Hydrology, Wallingford Hydrosolutions or any other organisation for the use of these data in the design or operational characteristics of any drainage scheme.

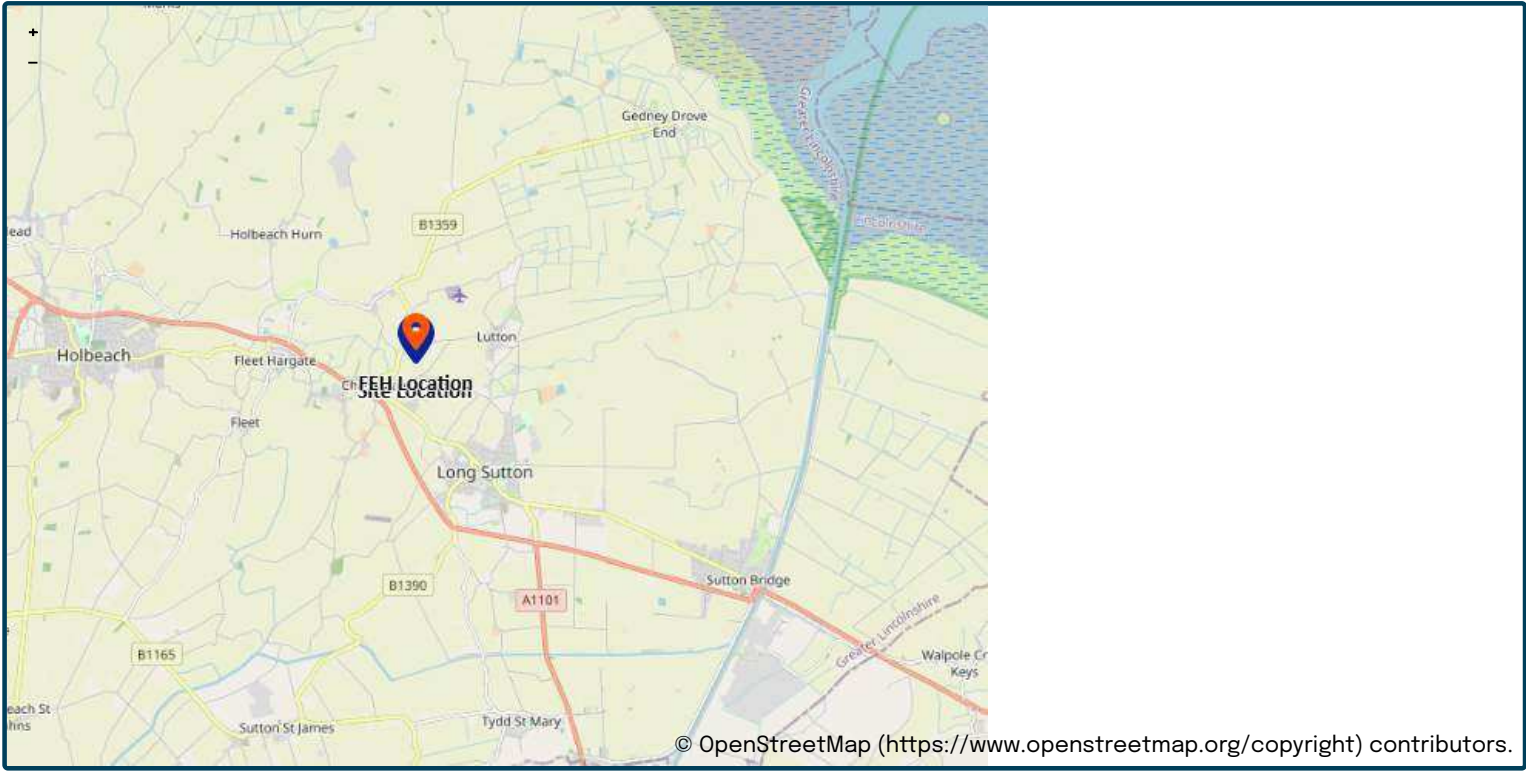
This is an estimation of the storage volume requirements that are needed to meet normal best practice criteria in line with Environment Agency guidance “Rainfall runoff management for developments”, SC030219 (2013), the SuDS Manual C753 (CIRIA, 2015) and the non-statutory standards for SuDS (Defra, 2015). It is recommended that the total storage volume for the site is distributed across the site using multiple SuDS and that hydraulic modelling software is used to undertake and finalise the detailed design of the drainage system.

Project details

Date	23/09/2026
Calculated by	Gilliland Advisory
Reference	GA-003
Model version	2.2.3

Location

Site name	The Orchards, Blazegate
Site location	Gedney, Spalding



Site easting (British National Grid)	541901
Site northing (British National Grid)	324506

Site areas

Total site area (ha)

ha

Roof area

Total roof area (ha)

0.1

ha

Contributing roof area (ha)

0.1

ha

Non-contributing roof area (ha)

0

ha

Paved area

Total paved area (ha)

0

ha

Contributing paved area (ha)

0

ha

Non-contributing paved area (ha)

0

ha

Grass / vegetated area

Total grass / vegetated area (ha)

0

ha

Contributing grass / vegetated area (ha)

0

ha

Non-contributing grass / vegetated area (ha)

0

ha

Total area

Total contributing area (ha)

0.1

ha

Contributing areas with urban creep allowance

Urban creep allowance factor

+0% (no creep)

Storage design parameters

Storage base shape

Circular

Storage design depth (m)

1

m

Storage side slope (1 in x)

1 in 1

Storage voids ratio (%)

100% (all voids)

Storage volume design return period (years)

1:100 years

Discharge flow rate from the site

Method

Type of site	Greenfield
Specify the method	FEH statistical (2025)

FEH statistical (2025)

	<u>My value</u>		<u>Map/default value</u>
SAAR9120 (mm)	619	mm	
BFIHOST19scaled	0.68		
QMed (l/s)	0.1	l/s	
QMed-QBar conversion	1.124		1.124
Total area for greenfield runoff calculation (ha)	0.1	ha	0.1
QBar (l/s)	0.1	l/s	
Hydrological region	5		5
Return period (years)	Qbar (1:2.3 years)		
Growth curve factor	1		

Final discharge rate

Runoff calculation method	FEH statistical (2025)
Design flow rate (l/s)	0.1 l/s

Blockage risk

Specify the method	Flow rate		
Minimum discharge flow rate to prevent blockage	1l/s		
	<u>My value</u>		<u>Calculated value</u>
Design orifice diameter (mm)	21	mm	21
Flow rate of orifice (l/s)	0.92	l/s	

Rainfall and runoff

Rainfall input type	FEH22 CSV file
	FEH_Point_Rainfall_FEH22_AM_541902_324517.csv
Distance from FEH location to site (km)	0 km
Climate change allowance factor	140%

Model results

- **Maximum discharge flow rate:** 0.9 (l/s)
- **Outflow orifice diameter:** 21 (mm)
- **Storage base diameter:** 10 (m)
- **Storage base area:** 86 (m²)
- **Storage total volume:** 104 (m³)
- **Storage total water volume:** 104 (m³)
- **Storm return periods run:** 1, 2, 10, 30, 100, 200 (years)
- **Storm durations run:** 15, 30, 60, 120, 180, 240, 360, 540, 720, 900, 1080, 1440, 1800, 2160, 2880, 3600, 4320, 5040, 5760 (minutes)

Return Period (years)	Critical Duration (minutes)	Peak Flow Rate (l/s)	Max Depth (m)	Max water volume (m ³)	Max storage volume (m ³)
1	540	0.5	0.25	23	23
2	540	0.5	0.32	29	29
10	540	0.7	0.59	57	57
30	540	0.8	0.77	77	77
<u>100</u>	<u>900</u>	<u>0.9</u>	<u>1.00</u>	<u>104</u>	<u>104</u>
200	1080	1.0	1.17	125	125

Please note runoff estimation and storage volume estimation are subject to uncertainty. Storage volume results are therefore reported to the nearest 1 m³ value, unless storage volumes are less than 10 m³, in which case, storage volumes are provided to 1 decimal place.

Disclaimer

This report was produced using the surface water storage volume design tool (2.2.3) developed by HR Wallingford and available at [uksuds.com](https://www.uksuds.com/) (<https://www.uksuds.com/>). The use of this tool is subject to the UK SuDS terms and conditions and licence agreement, which can both be found at [uksuds.com/terms-conditions](https://www.uksuds.com/terms-conditions) (<https://www.uksuds.com/terms-conditions>). The outputs from this tool have been used to estimate surface water storage volumes for the whole site based on a limiting discharge rate from the site. The use of these results is the responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency, Centre for Ecology and Hydrology, Wallingford Hydrosolutions or any other organisation for the use of these data in the design or operational characteristics of any drainage scheme.

HR Wallingford are not responsible for any rainfall data shared that is subject to licensing terms imposed by UK Centre for Ecology & Hydrology's Flood Estimation Handbook web service (<https://fehweb.ceh.ac.uk/Home/Terms> (<https://fehweb.ceh.ac.uk/Home/Terms>)).

Appendix E – Anglian Water asset plan



(c) Crown copyright and database rights 2026 Ordnance Survey AC0000813445
Data updated: 31/08/26

Scale: 1:1250
Map Centre: 541904,324508

Date: 18/09/26
Our Ref: 2214271 - 1

Wastewater Plan A3
Powered by digdat

Foul Sewer				
Surface Sewer		Outfall*		Sewage Treatment Works
Combined Sewer				
Final Effluent		Inlet*		Public Pumping Station
Rising Main*				
Private Sewer*		Manhole*		Decommissioned Pumping Station
Decommissioned Sewer*				

*(Colour denotes effluent type)

spgilliland@hotmail.com

Orchards, Blazegate



This plan is provided by Anglian Water pursuant its obligations under the Water Industry Act 1991 sections 198 or 199. It must be used in conjunction with any search results attached. The information on this plan is based on data currently recorded but position must be regarded as approximate. Service pipes, private sewers and drains are generally not shown. Users of this map are strongly advised to commission their own survey of the area shown on the plan before carrying out any works. The actual position of all apparatus MUST be established by trial holes. No liability whatsoever, including liability for negligence, is accepted by Anglian Water for any error or inaccuracy or omission, including the failure to accurately record, or record at all, the location of any water main, discharge pipe, sewer or disposal main or any item of apparatus. This information is valid for the date printed. This plan is produced by Anglian Water Services Limited (c) Crown copyright and database rights 2026 Ordnance Survey AC0000813445. This map is to be used for the purposes of viewing the location of Anglian Water plant only. Any other uses of the map data or further copies is not permitted. This notice is not intended to exclude or restrict liability for death or personal injury resulting from negligence.

Appendix F – Flood Adaptive Platform™ technical information



Revolutionising flood protection for holiday parks
Innovative solutions for safety, growth, and peace of mind



FUTURE-PROOFING HOLIDAY PARKS WITH
CUTTING-EDGE FLOOD ADAPTIVE PROTECTION TECHNOLOGY

What is the **Flood Adaptive Platform?**

Twelve years in the making, the **Flood Adaptive Platform (FAP)** is a groundbreaking mechanical jack system designed to detect and react to flood conditions by automatically elevating above rising water. Rigorous testing in flood environments, in conjunction with the University of Liverpool and HR Wallingford, has confirmed its safety and effectiveness.

This technology has been successfully applied to modular buildings and mobile homes, demonstrating its ability to protect people and property from flooding. Beyond holiday parks, it has the potential to safeguard a wide range of infrastructure across many different sectors, from utilities and energy to commercial and transportation.



Key features and benefits of the Flood Adaptive Platform:

- **Smart sensors:** Detect flooding within 15 seconds and trigger elevation.
- **Robust design:** Tested for 40 mph impact, 80 mph wind, and 1-metre wave conditions, ensuring resilience.
- **Energy efficiency:** Low-carbon, off-site assembly reduces greenhouse gas emissions by up to 90% compared to other methods of flood risk mitigation.
- **Cost-effective:** Costs 40% less to install, operate, and maintain than flotation-based systems.
- **Regulatory compliance:** Fully adheres to UKCA and CE standards for quality and safety.

Key benefits of the Flood Adaptive Platform for mobile home, caravan and holiday lodge owners:

- ✓ It's safe, reliable, affordable and offers a great return on your investment.
- ✓ It will help you generate additional income by unlocking land for development.
- ✓ New build and retrofit tested systems are available now.
- ✓ It's fully insurable through Compass, with product warranty plus an annual test and service included as standard.
- ✓ It offers improved flood warning and site evacuation, thanks to our real-time sensor technology.

Flood Early Warning System



Through our partnership with **Radio Data Networks (RDN)**, the UK's most trusted and reliable smart environmental risk reduction solution provider, we're able to offer a highly advanced Flood Early Warning System to any site at risk of flooding.

The Flood Early Warning System can be customised to the site owner's specific requirements by our team of flood risk experts, providing them with highly accurate updates as a flood event unfolds to support the timely and safe evacuation of people before flooding actually occurs. It uses unobtrusive, state-of-the-art, smart water sensors, which are deployed at strategic locations around a site and work seamlessly with our other products, including the Flood Adaptive Platform.

Flood warning communications can be customised to the individual user's requirements and sent by text message, telephone call, WhatsApp message or via a range of other digital platforms.

The Flood Early Warning System's integrated smart camera has night vision functionality, providing additional reassurance and helping site owners to make informed decisions in a flood emergency.

All sensor status and flood warning information is stored securely and can be accessed remotely via a live digital dashboard. The Flood Early Warning System operates 24 hours a day for 365 days of the year, giving complete peace of mind to both the owners and residents of any site at risk of flooding.



Flood Technology Group

Leading innovation in flood resilience

Launched in 2023, Flood Technology Group is a leader in the field of flood adaptive technology and a benchmark for quality. An association of companies, it brings together a range of innovative products, services and solutions with a proven ability to adapt to flood water as it rises.

By working together, we're using our collective knowledge and experience in the rapidly evolving flood technology field to develop and champion flood adaptive technology that will future-proof homes and infrastructure against the increased flood risk posed by our changing climate.

Flood Technology Group is uniquely positioned to help protect communities in flood risk areas by offering a complete flood adaptive technology solution to local authorities, developers and home owners.



The start of innovation

Where it all began



Andrew Parker

Founder and Managing Director
of Flood Technology Group



Simon Gilliland

Chief Executive of
Flood Technology Group

Flood Technology Group was founded by Andrew Parker, who designed the groundbreaking Hadley FloodSAFE House and the mechanical jack system on which it sits.

Andrew, whose background is in domestic construction, has spent the last decade honing and testing his products, working with experts at the University of Hull's Flood Innovation Centre, the Department of Civil and Environmental Engineering at the University of Liverpool and the HR Wallingford hydraulics research laboratory near Oxford.

Flood Technology Group's Chief Executive, Simon Gilliland, is a Chartered Engineer with a wealth of experience in flood risk management and the water environment sector. Simon is a Fellow of the Institution of Civil Engineers and a member of the Department for Environment, Food and Rural Affairs' Property Flood Resilience Roundtable.

Flood Technology Group is proud to be working with Phoenix Sustainable Investments, an award-winning developer of sustainable energy and innovation projects. Together, they have an unparalleled wealth of knowledge, capability and expertise in the field of flood technology.



Prana Leisure Group & Flood Technology Group partnership



Prana Leisure Group is proud to partner with **Flood Technology Group** to revolutionise how holiday park owners and holiday home owners adapt to the the growing threat posed by climate change. By combining more than **50 years of expertise** in the holiday park industry with ground-breaking flood adaptive technology, we deliver unparalleled safety, security and peace of mind for park owners and their customers.





Experts driving the **partnership**

At Prana Leisure Group, the leadership team brings a wealth of experience to the partnership with Flood Technology Group, ensuring effective solutions for holiday park owners.



Robert Kingsley

Co-Founder and Director of Prana Leisure Group, brings over 25 years of expertise in sales, marketing, and development within the holiday park sector, specializing in strategies that drive growth and innovation.



Andrew Evans

Managing Director of Prana Leisure Group, has extensive experience in the holiday park industry, having previously overseen 66 parks nationwide as Sales Director for the UK's largest holiday park operator.

Prana Leisure Group offers expertise in sales operations, growth strategies, park planning, land acquisitions, and development within the holiday and residential park industry. Both Robert and Andrew share a commitment to delivering measurable results and fostering long-term relationships with clients and partners.

Acting as the sales and marketing arm of Flood Technology Group, Prana Leisure Group provides strategic expertise to drive the adoption and success of the Flood Adaptive Platform.

This collaboration ensures that park owners benefit not only from cutting-edge flood adaptive technology but also from a robust marketing strategy that attracts new customers and fosters growth.

The mechanics of safety and resilience

How does it work?

A series of industry-approved smart sensors are installed around the platform to detect a flood event.

Within 15 seconds, these sensors trigger the control panel, which initiates the mechanical jacks to automatically lift the whole structure above the water level, to a maximum height of 2 metres. They keep it above the water level until it's safe for the structure to return to ground level.

The Flood Adaptive Platform is 40 mile per hour impact tested, 80 mile per hour wind tested and one metre wave tested. It has the ability to rise from ground level to a maximum height of 2 metres in approximately 30 minutes, which is quicker than the fastest rate of flood inundation recorded in the UK.

Cost-effective and simple to construct, it's made with tried and tested off-the-shelf components and can run off mains, battery or generator power. As well as an ability to operate using back-up power systems, the robust, fail-safe design that we've developed is not dependent on microprocessors, making the Flood Adaptive Platform less prone to electrical failure, although it can also be operated manually.





Applications of flood adaptive technology

The Flood Adaptive Platform is a versatile solution designed to address flood risks across a variety of applications. Initially developed for mobile homes and holiday lodges, it has proven effective in safeguarding modular buildings and other infrastructure. Whether protecting residential properties, commercial establishments, or public utilities, this adaptable technology ensures safety, sustainability, and resilience in flood-prone areas.

Protecting your **holiday and residential parks**

SAFEGUARDING HOLIDAY PARKS WITH INNOVATION

By applying our innovative technology to mobile homes and holiday lodges, we can support the safe development of prime plots of land adjacent to bodies of water and in areas of flood risk, thanks to its proven ability to keep people and property safe throughout a flood event.

This is particularly important in flood-prone and coastal areas, where the impact on tourism hits business owners hard. There are approximately 365,000 caravan holiday homes and an additional 100,000 residential park homes in the UK, with around 73,000 holiday caravans and 10,000 park homes at moderate or significant risk of flooding. In the region of 20,000 caravan pitches in the UK are not even being used due to flood risk, according to data from the National Caravan Council.

We're delighted to be working with tourism businesses in several different areas of the country to help them future-proof their operations against the growing flood risk that we face.

Both new build and retrofit tested versions of our **Flood Adaptive Platform** are available to suit all mobile home types, including single, twin and bespoke units.



Expanding resilience to **housing and infrastructure**

ADAPTIVE HOUSING SOLUTIONS FOR HIGH FLOOD RISK AREAS

Our technology has also been applied to modular buildings, such as the Hadley FloodSAFE House, which we developed in partnership with Hadley Group.

A low carbon, steel-framed house, which is manufactured off-site, it looks just like a normal house but, because it sits on our Flood Adaptive Platform, it has the ability to keep the contents safe and dry. Modular build techniques are routinely used in affordable and social housing developments, which makes our technology a hugely attractive prospect for local authorities and housing developers across the UK and beyond.

As well as keeping people and their property safe, our unique products have the potential to reduce the pressure on the emergency services during flood events and drastically reduce the clean-up costs associated with flooding. What's more, they also offer local authorities and developers huge potential for development in areas of high flood risk, which would previously have been considered off-limits.

We believe that our flood adaptive technology can play an important role in attracting inward investment to areas where greater flood resilience is needed, as well as helping to negate the need for costly, carbon heavy flood mitigation work.



Our partners



Our Flood Adaptive Platform has been rigorously tested in conjunction with **HR Wallingford** and **University of Liverpool**

Our Flood Adaptive Platform technology is endorsed by **Compass**, which provides specialist insurance cover for holiday and residential park customers.



We are proud to be an Associate Member of the **British Holiday & Home Parks Association** and the **National Caravan Council**.

From challenge to solution: **A case study**

How we created the world's first flood adaptive holiday lodges in Warwickshire.

During the early part of 2024, we worked with Avon Estates in Warwickshire to create the first fully flood adaptive holiday lodges in the UK.

We did this by retrofitting our ground-breaking Flood Adaptive Platform to two existing luxury holiday lodges on Avon Estates' site at Stratford-upon-Avon, which overlooks the River Avon and has previously been affected by flooding.

Thanks to the Flood Adaptive Platform on which they sit, when rising flood water is detected, these two lodges will now automatically lift above the water level, to a maximum height of 2.1 metres above the ground, and remain there until it's safe to return to ground level.

We're really excited by the potential that the Flood Adaptive Platform offers, particularly for riverside holiday parks like ours, where the close proximity to the water is a major draw for people. The fact that the technology could be retrofitted to an existing lodge with minimum disruption was a huge plus for us and we're proud to be working in partnership with the Flood Technology Group to showcase the UK's first flood adaptive holiday lodges. This type of technology really is a game-changer for the mobile home and holiday lodge sector.

Nic Allen, Avon Estates





Discover how our flood adaptive technology can safeguard your mobile home, holiday lodge or caravan while adding value to your holiday park. Get in touch with us today to discuss solutions tailored to your needs.

If you're looking to protect your buildings, infrastructure or assets from the risk of flooding, contact us to learn more about how our innovative products can provide peace of mind and long-term resilience.

Contact Details:

Email: info@floodtg.com

Telephone: 01405 819 913

Visit the website: floodtechnologygroup.com

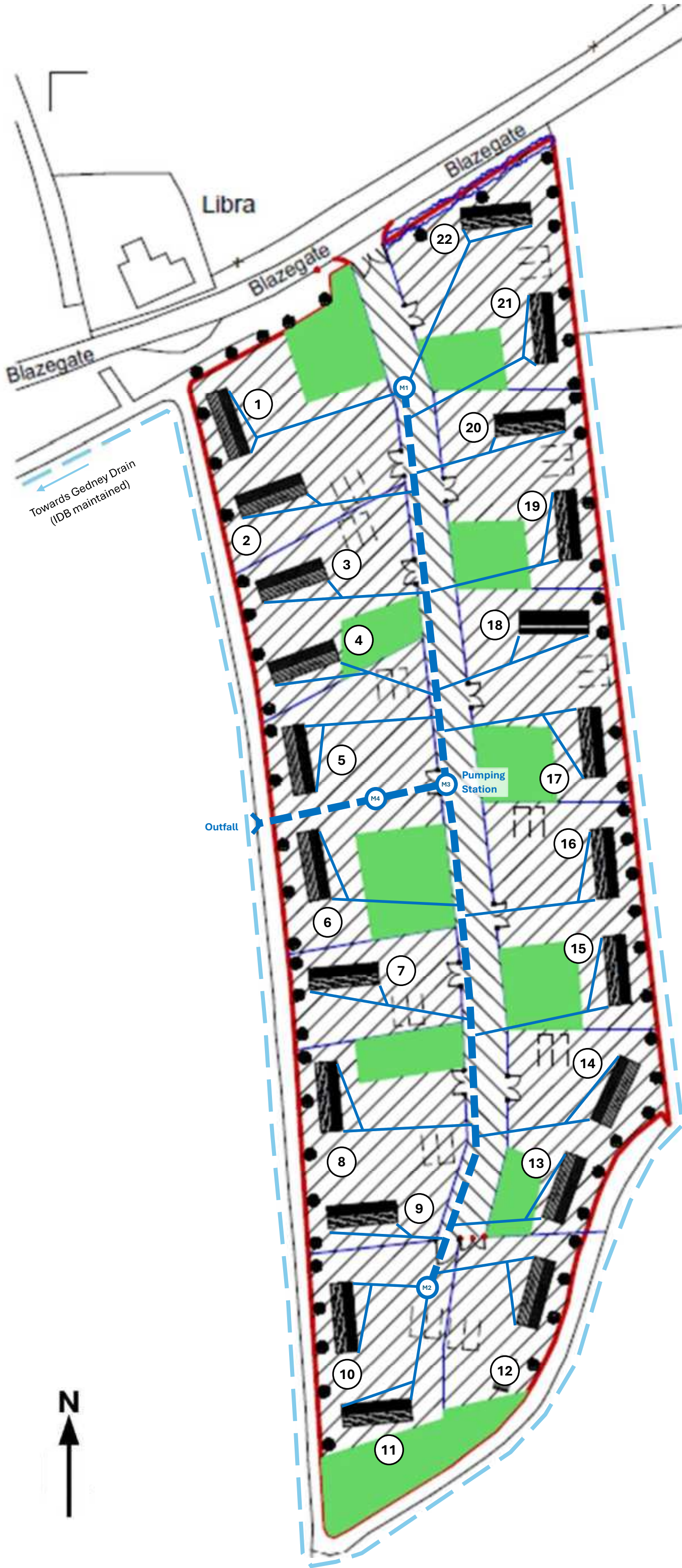
Office:

Write to us at:

Junction House, Heck Lane, Great Heck,
North Yorkshire, DN14 0B



Appendix G – Proposed surface water and foul drainage layouts



- Notes:**
- A. Each caravan roof, approximately 45m², will drain to the proposed surface-water system. Caravans 1-5 and 17-22 will connect to M1-M3; caravans 6-16 will connect to M2-M3. No foul drainage will connect to this system.
 - B. Storage pipes M1-M3 and M2-M3 will each be approximately 70m long, laid at 1:500 toward M3 and comprise HDPE twin-wall pipe, or similar approved, with a minimum 1,000mm clear internal diameter. The actual internal diameter will be confirmed with the manufacturer.
 - C. Each storage pipe will provide approximately 55m³, giving approximately 110m³ combined storage. Detailed hydraulic design will confirm at least 104m³ usable storage between the pump-control and maximum design water levels.
 - D. The system will accommodate the 1% AEP rainfall event plus 40% climate-change allowance without flooding of the development.
 - E. Minimum cover to the external pipe crown will be 650mm, subject to the manufacturer's structural design, traffic loading and installation requirements. Final levels will be confirmed from the topographic survey and selected pipe dimensions. Indicative invert depths are approximately 1.7-2.0m below ground level.
 - F. M1 and M2 will be minimum 2,100mm internal-diameter terminal access chambers providing inspection and jetting access.
 - G. M3 will be a specialist-designed surface-water pumping-station wet well, minimum 2,400mm internal diameter, receiving both storage pipes. Final dimensions, pipe penetrations and structural details will be confirmed by the specialist suppliers.
 - H. M3 will contain duty and standby pumps, automatic changeover, level controls, isolating and non-return valves, and a high-level alarm with telemetry.
 - I. A rising main will convey flows from M3 to M4. Pump duty, rising-main diameter, operating levels, cycling frequency and emergency operating arrangements will be confirmed by the specialist supplier.
 - J. M4 will be a minimum 1,200mm internal-diameter watertight break-pressure/discharge chamber, sized through detailed design. It will discharge by gravity through a minimum 150mm-diameter pipe to the adjacent land-drainage ditch.
 - K. The pumping and flow-control arrangement, including any attenuation required at M4, will ensure that the final discharge to the ditch does not exceed 1.0 litre/second, unless otherwise agreed with the South Holland Internal Drainage Board.
 - L. M4 will incorporate energy dissipation. The ditch outfall will include a formed headwall, erosion protection and non-return flap valve, with levels designed for expected ditch-water conditions.
 - M. Roof connections will include suitable trapped gullies, silt traps or catchpits to minimise sediment and debris entering the storage pipes.
 - N. The receiving ditch will be cleared and regraded where required. The final discharge rate, outfall location and works affecting the ditch will be agreed with the South Holland Internal Drainage Board before construction.
 - O. Pipes, chambers and the pumping station will be watertight and designed for traffic loading, groundwater and flotation. HDPE components will be positively anchored in accordance with manufacturer's structural and buoyancy calculations.
 - P. Chambers within trafficked areas will have sealed D400 covers. Suitable access will be provided for inspection, jetting, pump removal and maintenance.
 - Q. Finished levels will direct exceedance flows away from caravans and toward the access road and perimeter drainage system.
 - R. Gravel roads and plots will remain unconnected permeable surfaces. No formal attenuation or infiltration credit is assigned to these areas.
 - S. Electrical equipment, control kiosks, alarms and isolation points will be safely accessible and positioned above, or otherwise protected against, the design flood level.
 - T. The drainage system will be inspected, tested and commissioned before occupation. An operation and maintenance plan will be provided to the site operator and retained for the lifetime of the development.
 - U. This is a planning-stage drainage strategy based on supplied layout OLM/23 and is not a construction drawing. Detailed drainage design will be completed before construction.
 - V. Do not scale from this drawing. All dimensions, levels and locations are indicative and must be verified on site before commencing work. Any discrepancy must be reported to the designer.

Legend:

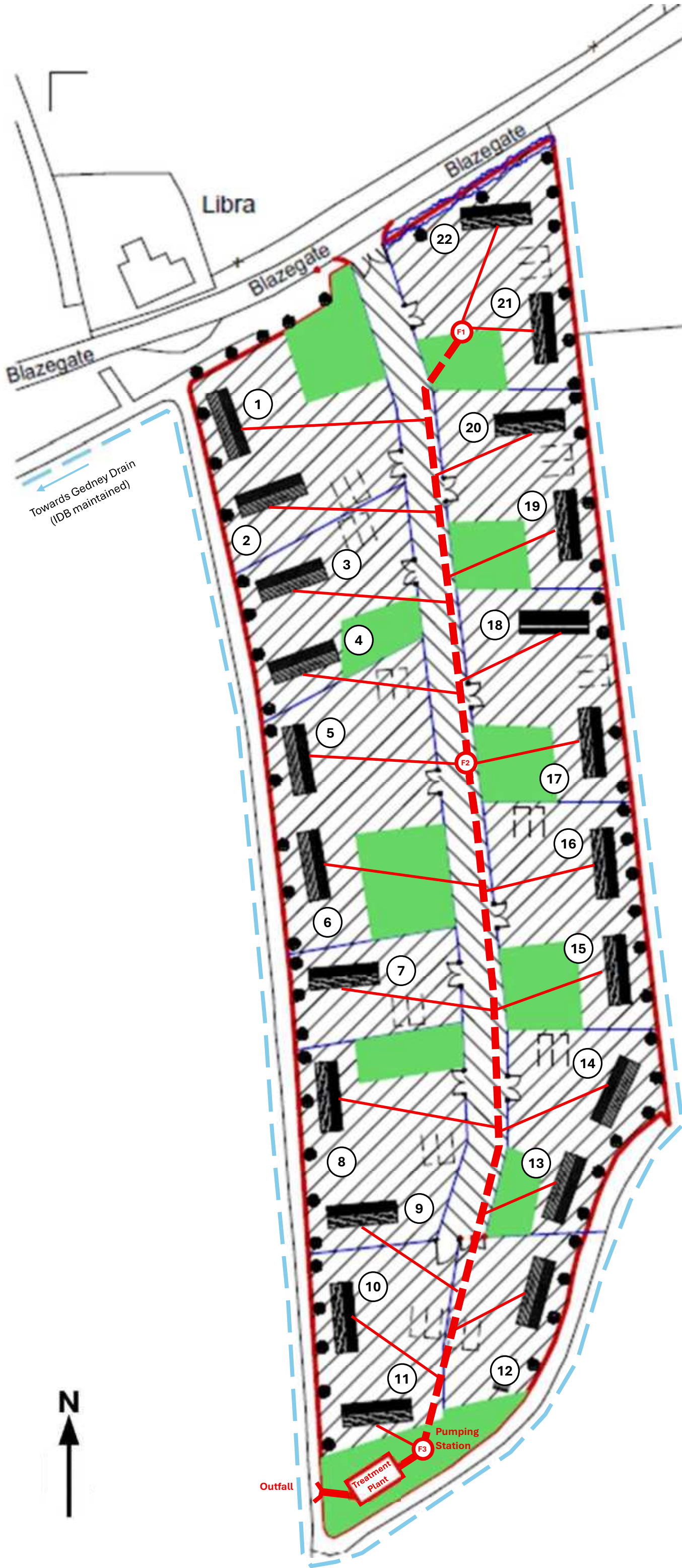
- Land drainage ditch
- Carrier drain
- Access chamber
- Static caravan (22 No.)
- Green space
- Parking bays
- Proposed trees
- Gravel surfacing

Project: The Orchards
Project Ref: GA-003
Address: Blazegate, Spalding, PE12 0AD
Drawing Title: Surface Water Drainage Plan
Version: 1
Date: 25th September 2026

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- Notes:**
- A. Foul flows from all 22 mobile homes will discharge through individual gravity connections to a communal foul sewer running from north to south through the development.
 - B. The foul system will remain entirely separate from the surface-water system. No roof water, surface runoff, groundwater or ditch water will connect to the foul drainage.
 - C. Individual caravan connections will comprise minimum 110mm-diameter foul pipes, provisionally laid at not flatter than 1:80.
 - D. The communal foul sewer will be minimum 150mm nominal internal diameter and provisionally laid at 1:150 from chamber F1 towards a foul pumping station F3 at the southern end of the site.
 - E. The communal foul sewer is approximately 200m long, giving an indicative total fall of approximately 1330mm.
 - F. Minimum cover will be 600mm in non-trafficked areas and 900mm beneath the access road. Pipes with less cover will receive manufacturer-approved structural protection.
 - G. Based on relatively level ground and 900mm road cover, indicative foul-sewer invert depths are approximately:
 - 1.0–1.1m below ground level at the northern end (F1);
 - 1.5–1.6m below ground level near the centre of the site (F2); and
 - Approximately 2.4m below ground level at F3 (pumping station).
 - H. Final cover levels, gradients and inverts will be confirmed on site before construction.
 - I. Plot inspection chambers will be 450mm or 600mm internal diameter, subject to depth and configuration. Manholes serving the communal sewer will be minimum 1,200mm internal diameter.
 - J. Manhole chambers will be provided at junctions, changes in direction or gradient and suitable maintenance intervals. Maximum spacing between manholes will generally not exceed 90m.
 - K. Chambers within trafficked areas will have sealed D400 covers. Covers outside trafficked areas will be selected for the applicable loading.
 - L. F3 will comprise a specialist-designed watertight foul pumping-station wet well, provisionally minimum 1,800mm internal diameter and approximately 2.8–3.3m overall depth.
 - M. F3 will include duty and standby pumps, automatic changeover, level controls, isolating and non-return valves, a high-level alarm with telemetry and appropriate emergency storage.
 - N. A generator connection or equivalent contingency will be provided for prolonged power failure.
 - O. A dedicated rising main, provisionally 63–75mm internal diameter, will convey foul flows from F3 to the package sewage treatment plant. Final diameter, material and pump duty will be confirmed by the specialist supplier.
 - P. The treatment plant will be located within the southern treatment area. Allow an indicative plant footprint of 9m x 3m within an approximately 11m x 5m maintenance area.
 - Q. The treatment plant will have a preliminary minimum capacity of 66 population equivalent and 9.9m³/day. Final sizing will be based on confirmed bedroom and occupancy information, with allowance for a plant of up to approximately 125 population equivalent.
 - R. The treatment plant footprint will include access covers, ventilation, control kiosk and safe servicing access. Tanker access for desludging will be maintained.
 - S. Treated effluent will discharge by gravity through a minimum 450mm internal-diameter sampling chamber and minimum 150mm-diameter outfall pipe to the adjacent ditch.
 - T. The treated-effluent outfall will be laid at a positive gradient and include a formed headwall, erosion protection and non-return protection where required.
 - U. Final outfall levels will account for expected ditch-water levels and prevent backing-up into the treatment plant.
 - V. The pumping station, treatment plant, chambers and pipework will be watertight and designed for groundwater, traffic loading and flotation. Lightweight units will be positively anchored to manufacturer-designed reinforced-concrete slabs.
 - W. Electrical equipment, kiosks, alarms and isolation points will be positioned above, or otherwise protected against, the design flood level.
 - X. The Environment Agency environmental permit and any South Holland Internal Drainage Board consent will be obtained before discharge commences.
 - Y. The complete system will be inspected, tested and commissioned before occupation.
 - Z. This is a planning-stage strategy and is not a construction drawing. Detailed drainage design will be completed before construction.
 - AA. Do not scale from this drawing. All dimensions, levels and locations are indicative and must be verified on site. Any discrepancy must be reported to the designer before work commences.

Legend:

	Land drainage ditch
	Carrier drain
	Access chamber
	Static caravan (22 No.)
	Green space
	Parking bays
	Proposed trees
	Gravel surfacing

Project: The Orchards
Project Ref: GA-003
Address: Blazegate, Spalding, PE12 0AD
Drawing Title: Foul Drainage Plan
Version: 1
Date: 25th September 2026

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