FLOOD RISK ASSESSMENT

PROPOSED RESIDENTIAL DEVELOPMENT
LAND ADJACENT TO THE CHEQUERS,
3 MAIN STREET,
GEDNEY DYKE,
SPALDING.
PE12 0AJ.

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April 2024 Version 1

RMA

Contents

INTRODUCTION 1
APPLICATION SITE 1
Table 1: Flood Zones Definition 2
Table 2: Flood Risk Vulnerability Classification 2
Site Levels 2
DRAINAGE AUTHORITIES 3
Environment Agency 3
Flood Zones 3
Flood Map for Planning (Source EA) 3
Risk of Flooding from Rivers & Sea 3
Risk of Flooding from Rivers & Sea Map (Source EA) 4
Fluvial Flood Risk 4
Schemes in the Area 4
The Wash Defences 4
Breach Analysis to Wash Tidal Defences 5
Residual Flood Hazard South Holland District present day (1% fluvial/0.5% tidal) Map 6
Residual Flood Hazard South Holland District 2115 (1% fluvial/0.5% tidal) Map 6
Floor Levels 6
FLOODING FROM OTHER SOURCES 7
South Holland Internal Drainage Board 7
South Holland Internal Drainage Board Drainage Map 8
SURFACE WATER FLOODING 8
SEQUENTIAL APPROACH 9
Sequential & Exception Test 10
Policies Inset Map No 41 11
Environment Agency 2115 0.1% Breach Depth Map 12
DRAINAGE STATEMENT 12
Surface Water Drainage 12
Infiltration 13
Foul Drainage 13
CLIMATE CHANGE 13
Peak River Flow Allowances 13
Table 1 Peak Rainfall Intensity 14
Table 2 Peak Sea Level Rise 14
FLOOD PROTECTION 14
CONCLUSION 15

Figures

Map 1 Tidal Model Analysis Map
Plan 1 Location Plan,
Plan 2 Proposed Site Plan
Plan 3 Topographical Survey

Flood Risk Assessment Proposed Residential Development, Land Adjacent to The Chequers, 3 Main Street, Gedney Dyke, Spalding. PE12 0AJ

INTRODUCTION

The Government has placed increasing priority on the need to take full account of the risk associated with flooding at all stages of the planning and development process. This seeks to reduce the future damage to property and the risk to life from incidents of flooding. Their expectations relating to flooding are contained in the National Planning Policy Framework December 2023, (NPPF), which identifies how the issue of flooding is dealt with in the drafting of planning policy and the consideration of planning applications by avoiding inappropriate development in areas at risk from flooding and to direct development away from areas at highest risk.

The NPPF provides that development in areas at risk of flooding should be avoided and seeks to direct development away from areas at highest risk. There is a sequential, risk-based approach to the location of development avoiding where possible, flood risk to people and property managing any residual risk and taking account of the impacts of climate change.

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APPLICATION SITE

The site is located on land adjacent to the former public house (The Chequers) 3 Main Street, Gedney Dyke, Spalding PE12 0AJ and lies within the administrative area of South Holland District Council. The National Grid Reference for the centre of the site is TF34055 45181. **Plan 1**

This flood risk assessment has been prepared for an outline planning permission, for the erection of a single two storey dwelling. **Plan 2**

The National Planning Policy Framework Guidance NPPG defines three levels of flood risk depending upon the

annual probability of fluvial flooding occurring.

Zone 1 – Low Probability (<0.1%)

Zone 2 – Medium Probability (0.1 – 1.0%)

Zone 3 – High Probability (>1.0%)

The majority of proposed development site is shown to be within an area of Flood Zone 3a 'High Probability' as detailed on the Environment Agency's Flood Zone Maps without defences, and as defined in Table 1 of NPPG.. The maps indicate that the area would be flooded without flood defences. The north-east corner of the front garden area is in Flood Zone 1 and the south-east corner in Flood Zone 2.

Table 1: Flood Zones Definition

Flood Zone 3- High Probability
Definition. Land assessed as having a 1 in 100 or greater annual probability of river flooding (>1%) or a 1 in 200 or greater annual probability of flooding from the sea (>0.5%) in any year. The water-compatible and less vulnerable uses of land are appropriate in this zone. The highly vulnerable uses should not be permitted in this zone. The more vulnerable and essential infrastructure uses should only be permitted in this zone if the Exception Test is passed. Essential Infrastructure permitted in this zone should be designed and constructed to remain operational and safe for uses in times of flood. **Flood Risk Assessments requirements.** All proposals in this zone should be accompanied by a Flood Risk Assessment. **Policy aims.** Developers and local authorities should seek opportunities to: • reduce the overall level of flood risk in the area through the layout and form of the development and the appropriate application of sustainable drainage techniques. • relocate existing development to land with a lower probability of flooding. • create space for flooding to occur by allocating and safeguarding open space for flood storage.

Applying the Flood Risk Vulnerability Classification in Table 2 of NPPG, the proposed residential use for the land is classified as "More Vulnerable," Table 1 of NPPG states that such uses are permitted in Flood Zone 3, subject to the exceptions test.

Table 2: Flood Risk Vulnerability Classification

More Vulnerable
• Hospitals • Residential institutions such as residential care homes, children's homes, social services homes, prisons, and hostels. • Buildings used for: dwelling houses; student halls of residence; drinking establishments; nightclubs; and hotels. • Non-residential uses for health services, nurseries, and educational establishments • Landfill and sites used for waste management facilities for hazardous waste. • Sites used for holiday or short-let caravan and camping, subject to a specific warning and Evacuation Plan.

Site Levels

The topographical survey to OS datum, reveals that the site is generally flat with a fall east to west of approximately 770mm from 4,55mODN to 3.76mODN, the average ground level around the proposed building at 4.00mODN and Main Street at the site entrance is 4.50mODN. **Plan 4**

DRAINAGE AUTHORITIES

Environment Agency

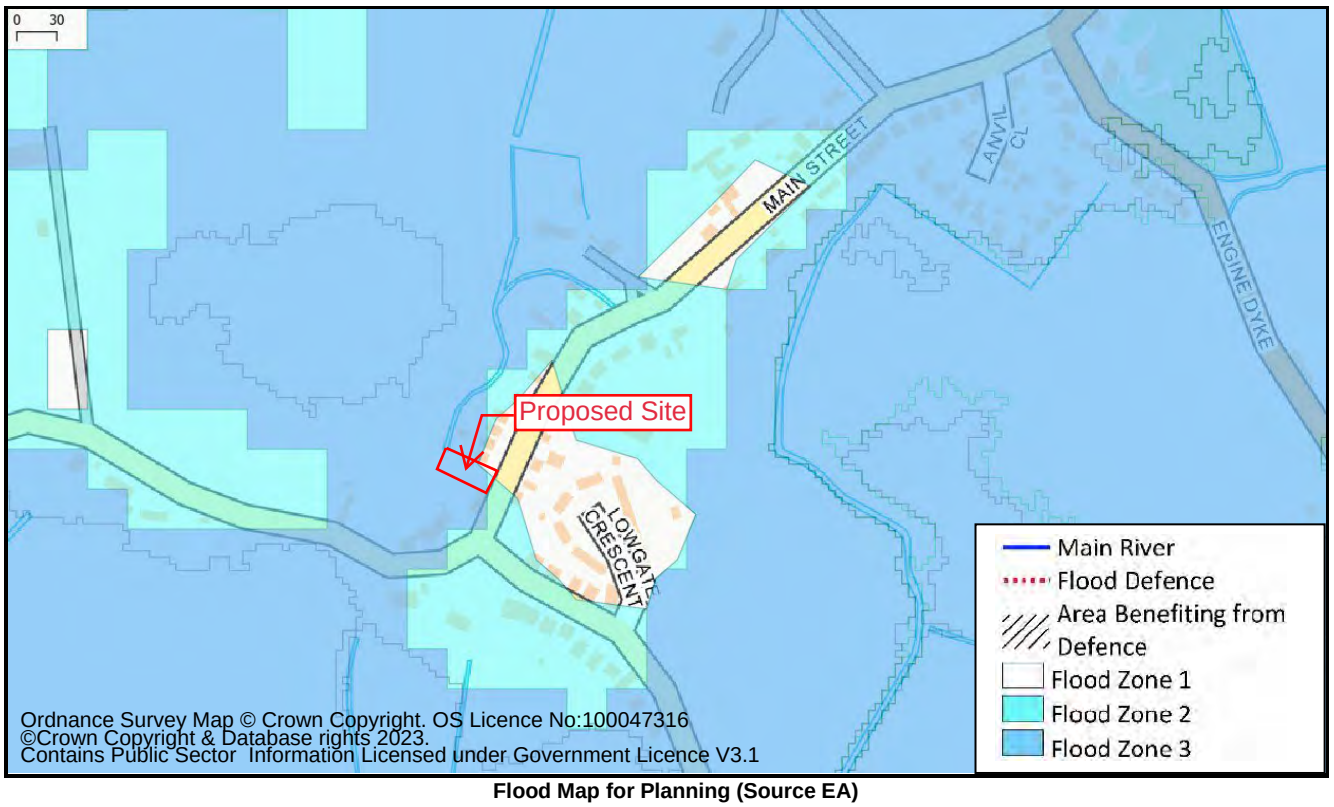
The Environment Agency has permissive powers for reducing the risk of flooding from designated main rivers and from the sea.

The following potential sources of flooding affecting the development site have been identified as:

- The Wash(Tidal)

The Flood Zone Map indicates the area at risk of flooding, **assuming no flood defences exist**, for a flood event with a 0.5% chance of occurring in any year for flooding from the sea, or a 1% chance of occurring for fluvial (river) flooding. It also 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. In some locations, there are many kilometres of raised flood defences. To meet the requirements of the National Planning Policy Framework, these defences are removed in their entirety to produce the Flood Map for Planning (Rivers and Sea). The map therefore shows the full extent of areas that would be at risk of flooding if no defences existed, and water could spread out across the floodplain.

Flood Zones

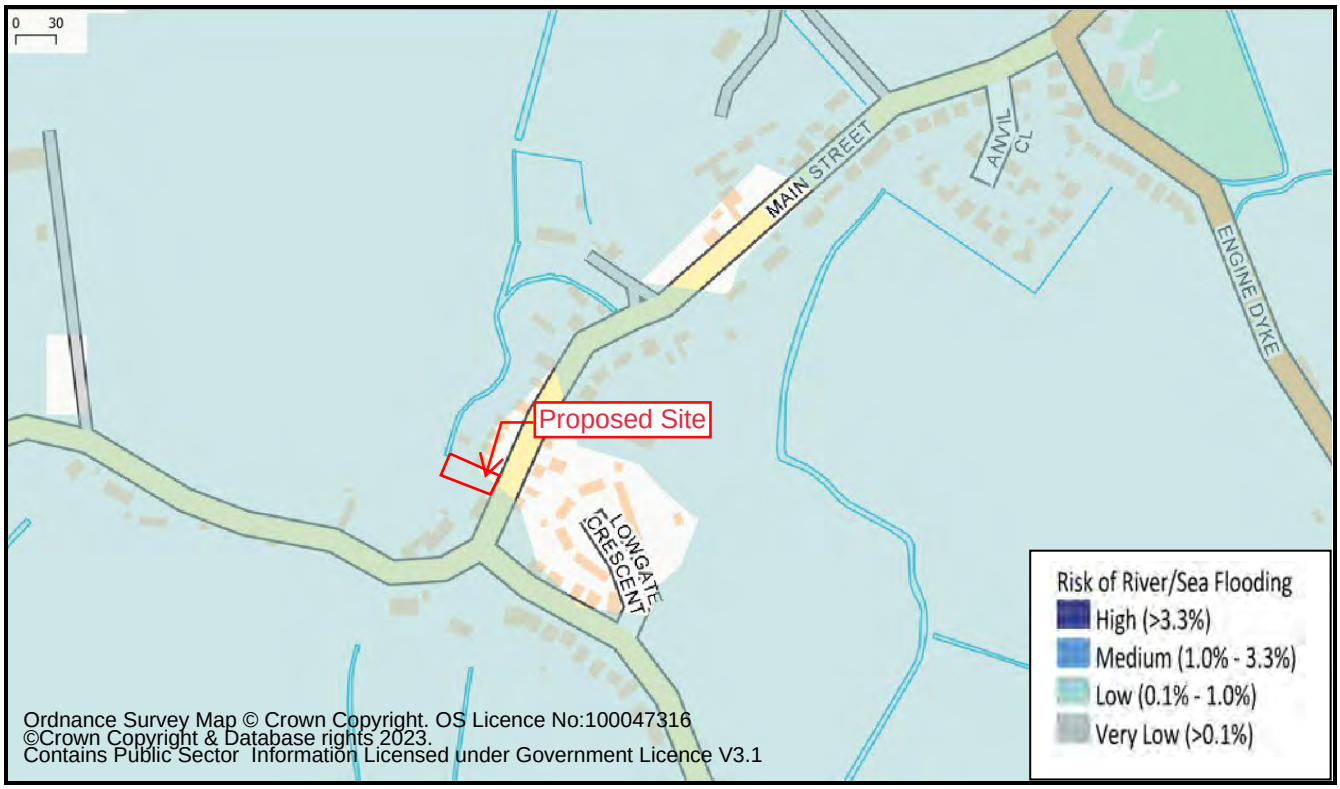


Flood Map for Planning (Source EA)

Risk of Flooding from Rivers & Sea

The Risk of Flooding from Rivers and Sea Map shows that the site is at a Very Low risk of flooding. Very Low

means that each year, this area has a chance of flooding of greater than 1 in 1000 (0.1%) This takes into account the effect of any flood defences that may be in this area. Flood defences reduce, but do not completely stop the chance of flooding as they can be overtopped or fail.



Risk of Flooding from Rivers & Sea Map (Source EA)

Fluvial Flood Risk

The site is not considered to be at risk from any Main River.

Tidal Flood Risk

The tidal Wash is therefore the main risk for flooding of the site, this source lies some 7.8Km east of the site.

Schemes in the Area

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

The Wash Defences

The Wash is located some 7.8Km east of the site, and the flood defences along the edge of the Wash, protecting this site, consist of earth embankments which are supplemented by saltmarsh. They are in good to fair condition and reduce the risk of flooding (at the defence) to a 0.67% (1 in 150) chance of occurring in any year. The Environment Agency inspect these defences routinely to ensure potential defects are identified.

Breach Analysis to Wash Tidal Defences

The base date for the data is 2017 for the East Coast and Wash: Immingham to the West Lighthouse Peak tide levels. The base date for the data is 2017 for the still water levels, the Peak tide levels Present Day (2017) at West lighthouse for the 50% confidence bound 0.5% (1 in 200year) is 5.82mODN. With climate change from Table 3 (2017 – 2124) 1.09m = 6.91mODN **Map 1**

Taking the precautionary approach, the Hazard Rating following a breach which in Flood Risk Assessment (FD 2320) Guidance for New Development Phase 2 R& D Technical Report these are classified as low <0.75, moderate 0.75-1.25, significant 1.25-2.50 and extreme >2.50 based upon an empirical measure of velocity and depth.

Flood Hazard			Description
	<0.75	Low	**Caution –** Flood Zone with shallow flowing water or deep standing water.
	0.75 – 1.25	Moderate	**Danger for Some -** (i.e. children) Danger Flood Zone with deep or fast flowing water.
	1.25 – 2.0	Significant	**Danger for Most –** Danger Flood Zone with deep fast flowing water.
	>2.0	Extreme	**Danger for All** – Extreme Danger Flood Zone with deep fast flowing water.

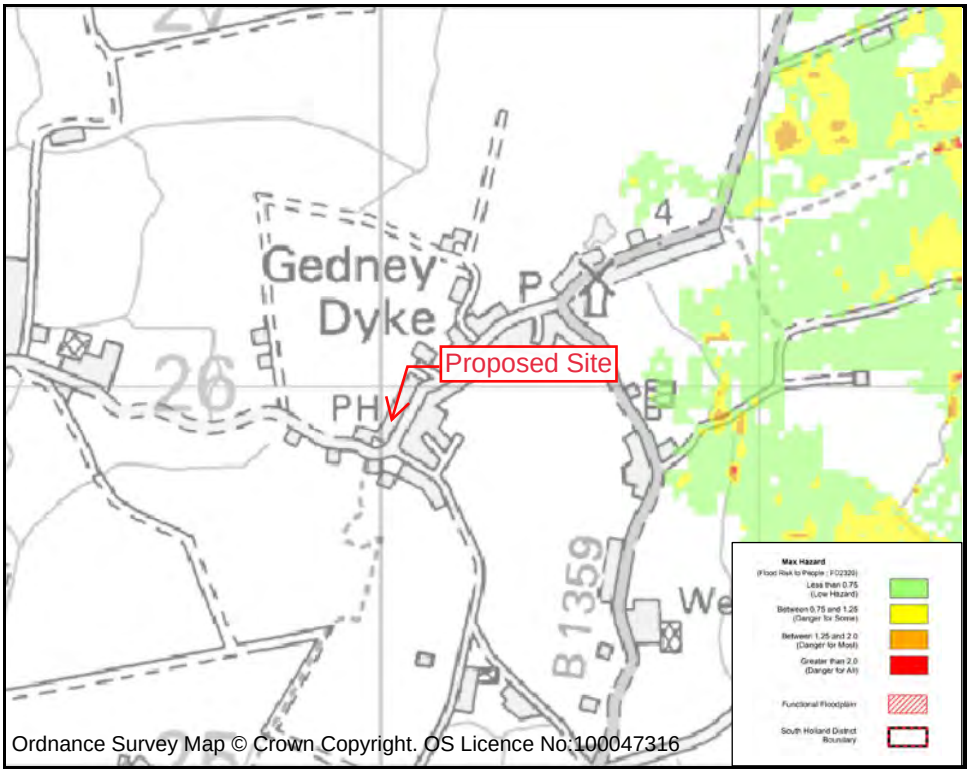
HR = d x (v + 0.5) +DF

Where V = Flood flow velocity (m/sec) D = Flood depth (m)

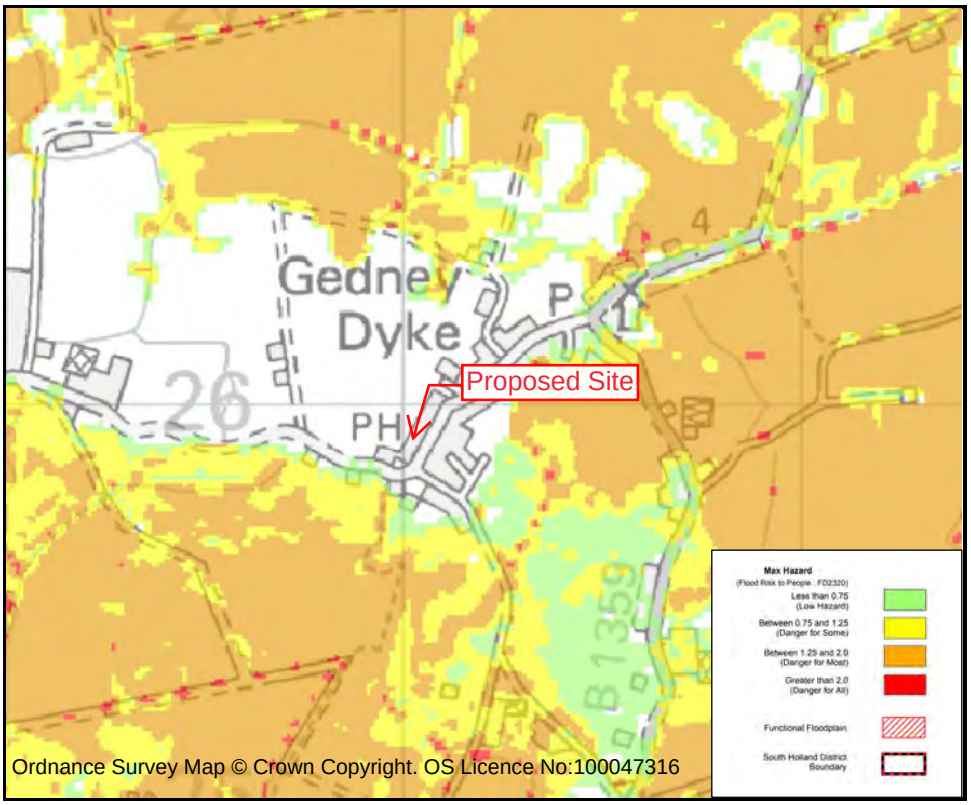
DF = A debris factor included to represent the greater damage, or risk of injury to people, that can occur if debris is swept along with the water. = 0.5 for depths <0.25 or 1.0 for depths

For the degree of Flood Hazard to be classified as low HR must be <0.75.

The SHDC SFRA (2017 Update) provides Tidal & Fluvial Hazard Mapping, for the District These show that for the present-day and the climate change for the Residual Flood Hazard, Depth and Velocity District –1% fluvial and 0.5% Tidal Event Probability that the site where the proposed development is to be located is within an area of no hazard.



Residual Flood Hazard South Holland District present day (1% fluvial/0.5% tidal) Map



Residual Flood Hazard South Holland District 2115 (1% fluvial/0.5% tidal) Map

Floor Levels

Requirements for FFL for More Vulnerable uses: The minimum mitigation measures required for developments that do not have ground floor sleeping shall be determined by the flood depths arising from the 2115 0.5% breach

scenario. The finished floor Level FFL of any new dwellings shall be informed by the flood depths.
The proposal for residential use “More Vulnerable” use falls Cell F8 of the South East Lincolnshire Standing Advice Matrix Flood Risk Mitigation Policy to ensure 'safe' development. requirements for FFL states:

- Depths of 0. – 0.25m FFL to be set 300mm above the existing ground level, with flood resilient construction incorporated to a minimum height of 300mm above the predicted flood level.

It is therefore proposed that the ground floor for the development proposal be raised 300mm above the existing ground level set at 4.30mODN, with flood resilient construction incorporated to a minimum height of 300mm above the predicted flood level.

FLOODING FROM OTHER SOURCES

Flooding is a natural process and can happen at any time from sources other than watercourses and the sea.

- Flooding from land can occur from intense rainfall, often over short duration of time that is unable to soak into the ground or enter the drainage system. However, with the natural topographic nature of the ground being flat, with no high ground around the site and the floor level being raised 300mm above the existing ground level, this will not cause any rapid inundation of the site and is likely only lead to local ponding of shallow depth and low velocity. It is concluded that flooding from this source is limited to minor isolated cases and is not of strategic significance as regards to flood risk.

- Groundwater flooding occurs when groundwater levels increase sufficiently for the water table to intersect the ground surface. Groundwater flooding can occur in a variety of geological settings including valleys, in areas underlain by chalk, and in river valleys with thick deposits of alluvium and river gravels. The area is not known to suffer from any groundwater problems.

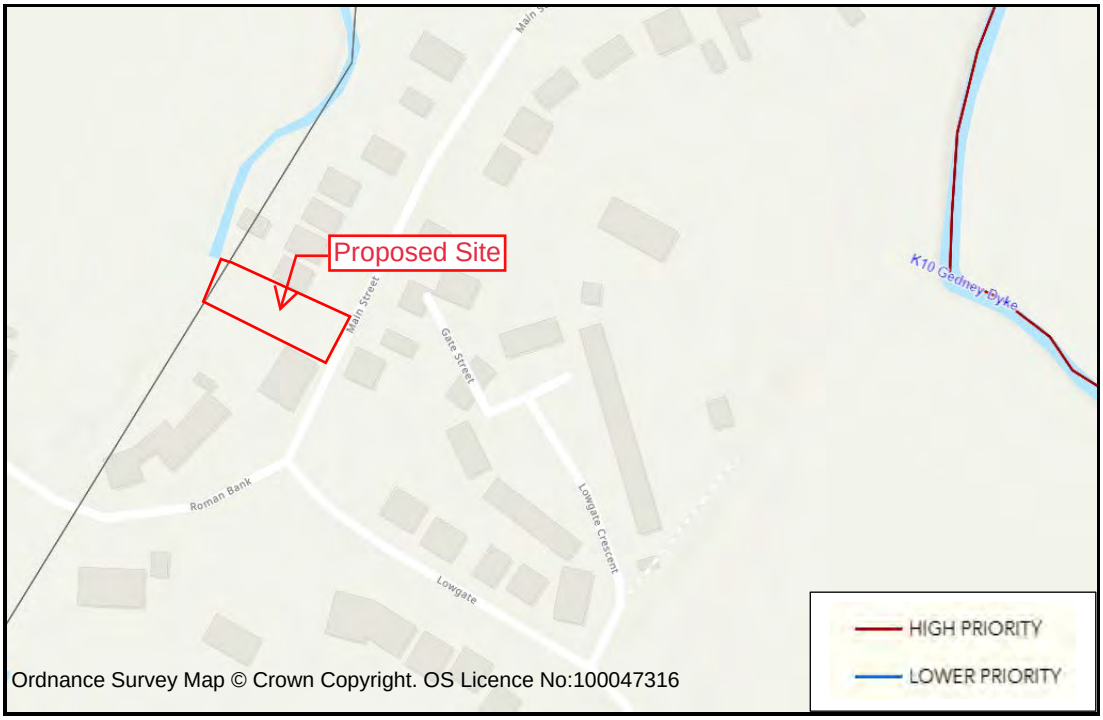
- Flooding from sewers can occur from overloading from heavy rainfall caused by blockages or having inadequate capacity. There are no public sewers serving the village.

- Non-natural or artificial sources of flooding such as reservoirs, lakes, or canals where water is stored above natural ground level could cause flooding if the structure fails or is over topped. There are no known sources within the vicinity of the site.

South Holland Internal Drainage Board

The proposed development site is located within the Fleet Haven catchment area of South Holland Internal Drainage Board. The Board are therefore responsible to operate and maintain the arterial fluvial system.

The Board do not have any maintained watercourses to close to the site.



South Holland Internal Drainage Board Drainage Map

The Board's prior written consent will be required for any of the following works:

- No person without the previous consent of the Board shall erect any building or structure, whether temporary or permanent, or plant any tree, shrub, willow or other similar growth within 9 metres of the landward toe of the bank where there is an embankment or wall or within 9 metres of the top of the batter where there is no embankment or wall, or where the watercourse is enclosed within 9 metres of the enclosing structure.

- No person shall, without the previous consent of the Board, for any purpose, by means of any channel, siphon, pipeline or sluice or by any other means whatsoever, introduce any water into the District or, whether directly or indirectly, increase the flow or volume of water in any watercourse in the District.

- The erection or alteration of any mill dam, weir or other like obstruction to the flow, or erection or alteration of any culvert within the channel of a riparian watercourse.

SURFACE WATER FLOODING

The site for the proposed change of use is shown on the Low-Risk scenario Surface Water flood maps, for the 1 in 1000-year event, not to be affected from surface water flooding.

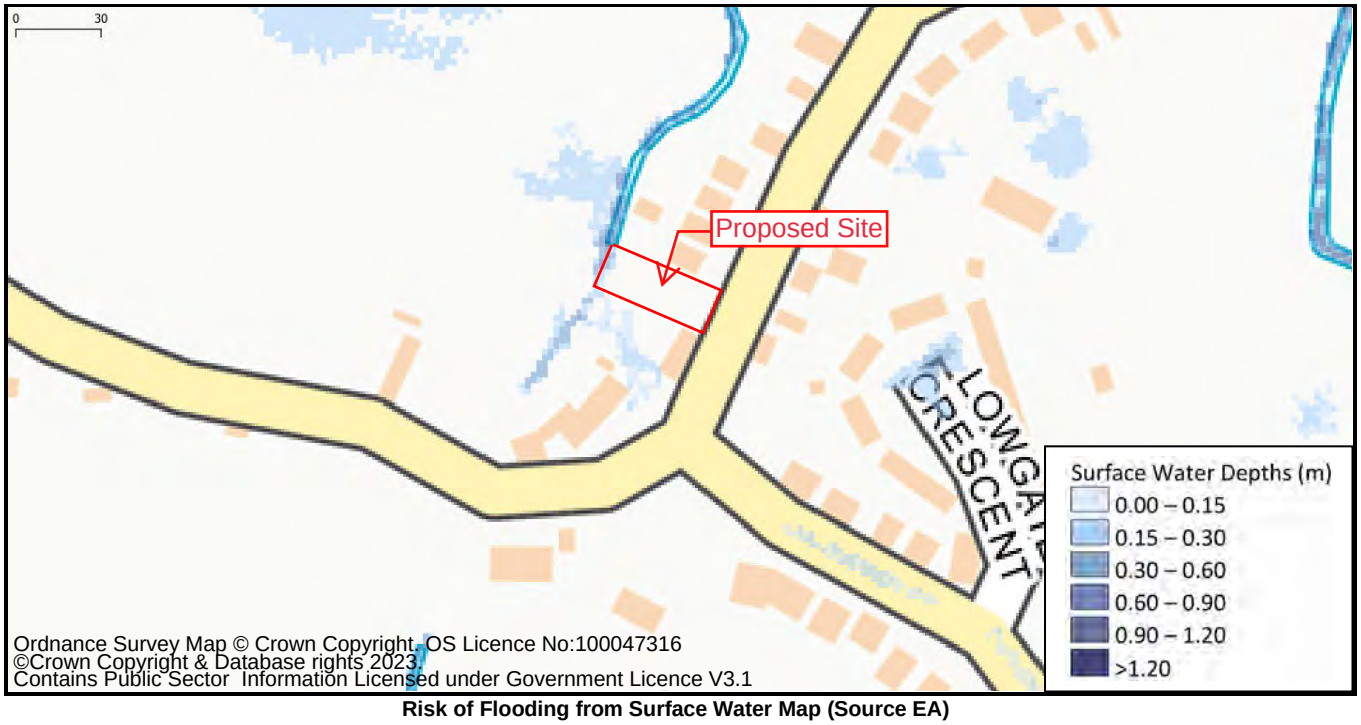
The maps for surface water and revised maps for river and sea flooding define the risk as High, Medium, Low and Very Low. The chance of flooding for the area defined in any given year is shown below:

- **High:** greater than 1 in 30 (3.3%).
- **Medium:** between 1 in 100 (1%) and 1 in 30 (3.3%).
- **Low:** between 1 in 1000 (0.1%) and 1 in 100 (1%).

- **Very Low:** less than 1 in 1000 (0.1%)

Unlike the fluvial mapping, which is based on a detailed hydraulic model, this mapping is based purely on applying rainfall to a digital terrain model. As such this mapping serves to represent a worst-case scenario which may well overstate the actual probability of flooding in this area.

There is a caveat on the Defra Data website, as to the use of these maps and that they are not to be used to identify that an individual property will flood. Because of the way they have been produced and the fact that they are indicative, these maps are not appropriate to act as the sole evidence for any specific planning or regulatory decision or assessment of risk in relation to flooding at any scale without further supporting studies or evidence.



Risk of Flooding from Surface Water Map (Source EA)

SEQUENTIAL APPROACH

When applying the sequential approach for flood risk in accordance NPPF the site would fall into Zone 3 (High Probability) as shown on the Environment Agency's Flood Map without defences in place.

The Environment Agency categorise land into one of three Flood Zones.

- Flood Zone 1 is Land having a less than 1 in 1,000 annual probability of river or sea flooding. (Shown as 'clear' on the Flood Map – all land outside Zones 2 and 3).

- Flood Zone 2 is Land having between a 1 in 100 and 1 in 1,000 annual probability of river flooding: or land having between a 1 in 200 and 1 in 1,000 annual probability of sea flooding. (Land shown in light blue on the Flood Map).

- Flood Zone 3a is Land having a 1 in 100 or greater annual probability of river flooding; or Land having a 1 in 200 or greater annual probability of sea flooding. (Land shown in dark blue on the Flood Map).

Applying the Flood Risk Vulnerability Classification in Table 2 of NPPG, the proposed residential use is classified as “More Vulnerable” use. Table 1 of NPPG states that such uses are appropriate in this zone (as summarised in Table 3 NPPG) subject to the exception test.

TABLE 3: Flood Risk Vulnerability and Flood Zones ‘Compatibility’

Flood Risk Vulnerability Classification		Essential Infrastructure	Water Compatible	Highly Vulnerable	More Vulnerable	Less Vulnerable
Flood Zone	Flood Zone 1	✓	✓	✓	✓	✓
	Flood Zone 2	✓	✓	Exception Test Required	✓	✓
	Flood Zone 3a	Exception Test Required	✓	×	Exception Test Required	✓
	Flood Zone 3b Functional Floodplain	Exception Test Required	✓	×	×	×

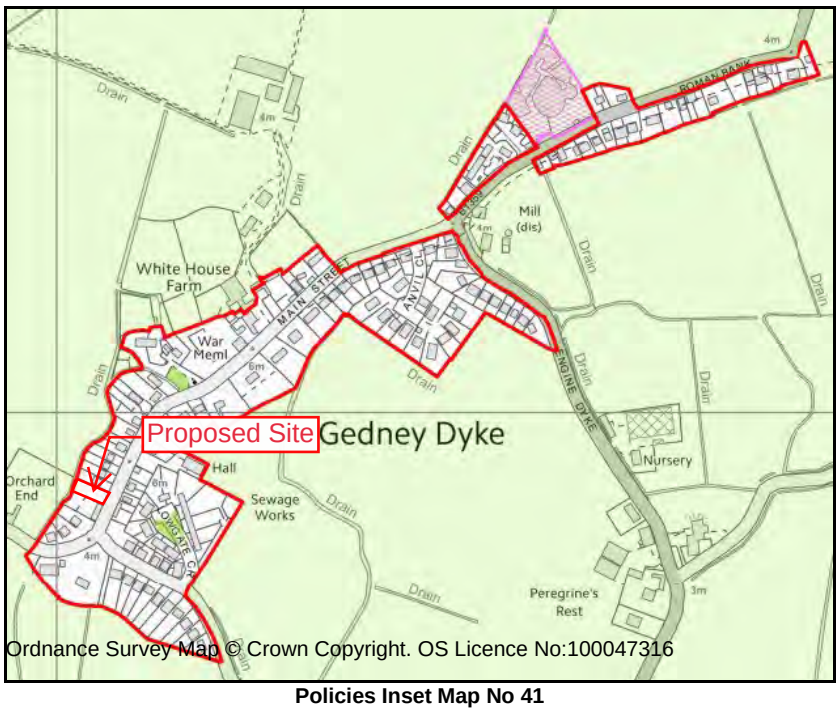
Sequential & Exception Test

NPPF Guidance Paragraphs 157 - 179 requires development within high areas of flood risk be determined using a sequential risk-based approach to the location of development to avoid where possible flood risk to people and property and manage any residual risk, taking account the impacts of climate change.

The aim of the Sequential Test is to steer new development to areas with the lowest probability of flooding. The NPPF states that development should not be permitted if there are reasonably available sites appropriate for the proposed development in areas with a lower probability of flooding. It is important to note that the Sequential Test does not specifically mean that sites such as this cannot be developed, rather that sites at less risk should be developed first.

The site lies within the settlement boundary for Gedney Dyke as shown on Policies Inset Map No 41 shown below. Policy 1 of the Local Plan sets the spatial strategy for the Plan area and identifies Gedney Dyke as an Other Service Centre.

Within the settlement boundaries of the Other Service Centres and Settlements (as shown on the Inset Maps) development will be permitted that supports their role as a service centre for the settlement itself, helps sustain existing facilities or helps meet the service needs of other local communities. Development will normally be limited to Committed sites and infill.



Policies Inset Map No 41

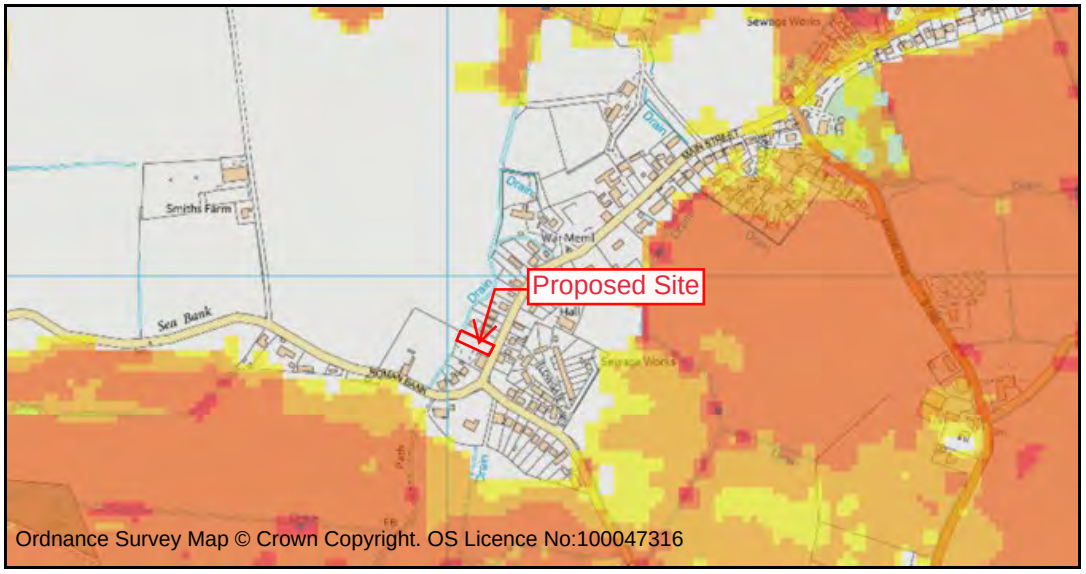
Policy 4 of the SELLP relates to the approach to flood risk and details how development proposals will be determined, including sequential testing and other relevant considerations.

The South East Lincolnshire Strategic Flood Risk Assessment (March 2017) is the basis for applying the Sequential Test. This concludes that large parts of South Holland between the River Welland and River Nene are within Flood Zone 3 so lower flood risk sites are limited Therefore, consistent with wider sustainability objectives, it is not realistically possible to direct all development to zones with a lower probability of flooding. As such, the document outlines a methodology whereby the SFRA hazard and depth maps (in that order) are to be utilised when determining flood risk and applying the sequential test.

The Environment Agency Flood Map identifies the site as being in Flood Zone 3 with a high probability of flooding. The Environment Agency Long Term Flood Risk maps show that: the site has a low risk of flooding from rivers or the sea (annual probability between 0.1% and 1%); the site is also at no risk of surface water flooding (annual probability less than 0.1%); the site is not within a risk of reservoir flooding.

The SHDC SFRA (2017 Update) provides Tidal & Fluvial Hazard Mapping, for the District These show that for the present-day and the climate change for the Residual Flood Hazard, Depth and Velocity District –1% fluvial and 0.5% Tidal Event Probability that the site where the proposed development is to be located is within an area of no hazard.

The maps from the Lincolnshire & Northamptonshire Area Tidal Breach Hazard Maps, for scenario year present day, and for climate change (2115) for the 1 in 1000-year event, shows that the site is not affected by a breach to the flood defences.



Environment Agency 2115 0.1% Breach Depth Map

Given that the SFRA and the Environment Agency information shows that the site is not at risk at the present day or 2115 for a 0.1% fluvial or 0.1% tidal event, the low probability of flooding means the Sequential Test is passed.

The development would provide some wider sustainability benefits to the community through a contribution (albeit small) towards housing supply for South Holland District Council, and other benefits including generating employment during the construction period and will provide wider sustainability benefits to the local community in helping the existing local and surrounding facilities, in neighbouring villages, long term viability.

The flood risk assessment demonstrates that the development will be safe for its lifetime and it will not increase flood risk elsewhere, therefore, satisfies the second part of the test.

The development passes the Sequential Test and Exception Test and is therefore suitable for the proposed location.

DRAINAGE STATEMENT

Surface Water Drainage

Applications for developments where the proposals will result in the increase the amount of surface water run-off require that an appropriate drainage strategy to be undertaken to ensure that the surface water discharge mimics the existing pre-development regime.

Any proposed surface water drainage system will need to be designed to account for the effects of climate change over the lifetime of the development. Based on the recommendations the proposed drainage systems should be sized for the critical 1 in 100-year storm event and to allow for a 40% increase in rainfall intensity for climate change.

In accordance with recognised guidance, Part H of the Building Regulations 2010 and National Planning Policy Framework, there is a hierarchy of where surface water should discharge. This hierarchy should be followed

where practicable, and is as follows:

1) Infiltration
2) Watercourse
3) Public sewer

Infiltration

a) Domestic curtilage roof area – it is proposed to discharge this to underground pipes, where required, with silt traps incorporated prior to connecting to cellular crate soakaways designed in accordance with BRE 365. A water butt of at least 220L internal capacity shall be installed to intercept rainwater draining from the roof of the building, to reduce the risk of flooding and demand for water by recycling and to increase the level of sustainability of the development.

b) The access and parking areas will be constructed using permeable materials to allow percolation into the ground as naturally occurs.

Foul Drainage

There are no public foul sewers serving the village therefore foul drainage from the proposed dwellings will be connected in underground pipes in accordance with Doc. H of the Building Regulations and connected into a package treatment works.

An application will be made to South Holland IDB to discharge the effluent into the culverted dyke at the rear of the site.

As there is a positive drainage system capable of receiving flows from the development there is no likely impact on neighbouring property.

CLIMATE CHANGE

Global warming is now recognised that it is likely to affect the frequency and severity of extreme events for both tidal and fluvial flooding. The Climate change allowances in the NPPF Guidance was updated on the 20th of July 2021.

Peak River Flow Allowances

For flood risk assessments use the Management Catchment Climate Changes for the peak river flow map. Management catchments are sub-catchments of River Basin Districts.

The site is located on the boundary of the Welland Management Catchment area and the Nene Management Catchment within the Anglian River Basin District, for sites within Flood Zone 2 or 3a and for “More Vulnerable” land uses, the Central allowances figures, in the Table below, should be used. In some locations the dominant

source of flooding will be from a neighbouring management catchment. The dominant source in this case is the Welland Catchment.

Peak River flow allowances within the Management Catchment Allowances				
River Basin District /Management Catchment	Allowance category	Total potential change anticipated for '2020s'. (2015 to2039)	Total potential change anticipated for '2050s'. (2040 to2069)	Total potential change anticipated for '2080s'. (2070 to2115)
Anglian/ Welland	Upper End	22%	26%	52%
	Higher Central	10%	10%	28%
	Central	5%	4%	17%

The effect of global warming on peak rainfall allowances is given in Table 1

Table 1 Peak Rainfall Intensity

Table 1 Peak rainfall intensity allowance in small and urban catchments (1961 to1990 baseline)			
Applies across all of England	Total potential change anticipated for 2010 to 2039	Total potential change anticipated for 2040 to 2059	Total potential change anticipated for 2060 to 2115
Upper End	10%	20%	40%
Central	5%	10%	20%

The annual sea rise due to climate change is given in NPPF and the recommended contingency allowances are stated in Table 2.

Table 2 Peak Sea Level Rise

Table 2 Peak Sea level allowance for each epoch in (mm) per year with cumulative sea level rise for each epoch in brackets (use 1981to 2000 baseline)						
Area of England) (Use River Basin	Allowance	2000 to 2035	2036 to 2065	2066 to 2095	2096 to 2125	Cumulative Rise 2000 to 2125 (m)
Anglian	Higher Central	5.8 (203mm)	8.7 (261mm)	11.6 (348mm)	13 (390mm)	1.20m
Anglian	Upper End	7 (245mm)	11.3 (339mm)	15.8 (474mm)	18.1 (543mm)	1.6m

FLOOD PROTECTION

Any impact of damage to the properties can be foreseen and mitigated against by relatively simple design and construction techniques. There are two forms of flood protection works: -

- **Flood-resistance or proofing works**: - these try to reduce the amount of water entering a building.
- **Flood-resilient works: -** these reduce the amount of damage caused by water entering the building.

The proposed amenity building will have the following resilient measures incorporated in the construction in accordance with "Improving the flood performance of new buildings" CLG (2007).

- New electrical services: electrical sockets, heating systems: boiler units and ancillary devices should

be installed at least 500mm above the ground floor level to minimise damage to electrical services New electric ring mains should be installed at high level with drops to ground floor sockets and switches.

- The ground floor for the building is to be raised 300mm above the existing ground level set at 4.30mODN.

- Avoid the use of mineral fibre insulation for any new ground floor (walls & floor) and use a rigid closed cell material as these retain integrity and have low moisture take-up.

- Where possible, all service entries should be sealed (e.g., with expanding foam or similar closed cell material). Closed cell insulation should be used for pipes which are below the predicted flood level.

- As this site is in Area 197 that is capable of receiving flood alert warnings from the Environment Agency Floodline Warning Direct system for the "Far extent of tidal flooding from the Wash between Gibraltar point and Admiralty Point and the Tidal River Witham, the Tidal River Welland and the Tidal River Nene." It is recommended that the property Owner contact the Environment Agency's Floodline on 0345 988 1188 to register the property to receive advance warning of flooding by telephone, mobile, fax, SMS text, email or pager. The Environment Agency aim to issue a 'severe flood warning' approximately 2 hours before existing defences are overtopped.

CONCLUSION

- The site does have the protection of flood defences which are well maintained by the Environment Agency.

- The majority of the site is shown to be within Flood Zone 3 'High Probability' as detailed on the Environment Agency's Flood Zone Maps without defences.

- The SHDC SFRA (2017 Update) provides Tidal & Fluvial Hazard Mapping, for the District These show that for the present-day and the climate change for the Residual Flood Hazard, Depth and Velocity District –1% fluvial and 0.5% Tidal Event Probability that the site, where the proposed development is to be located, is within an area of no hazard.

- The ground floor for the building is to be raised 1.0m above the existing ground level set at 4.30mODN.

- Any impact of damage to the property can be foreseen and mitigated against by relatively simple design and construction techniques. They will be constructed using materials which are flood resilient construction as outlined in the report.

- Flooding from other sources is unlikely to affect the site.

- No obvious constraints have been identified that may impact the proposed development and the type of mitigation measures that can be used to reduce the flood risk, there is no increase in the flood risk to others.

- It is therefore concluded that the proposed development can be constructed, safely and sustainably, to meet the requirements of NPPF and the polices of South Holland District Council.

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

Map 1



Environment Agency

Scale 1:550,000

N W E S

▲ East Coast and Wash

See separate data sheet for predicted flood levels

Created by the Partnerships and Strategic Overview Team, Lincoln

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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%
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

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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.

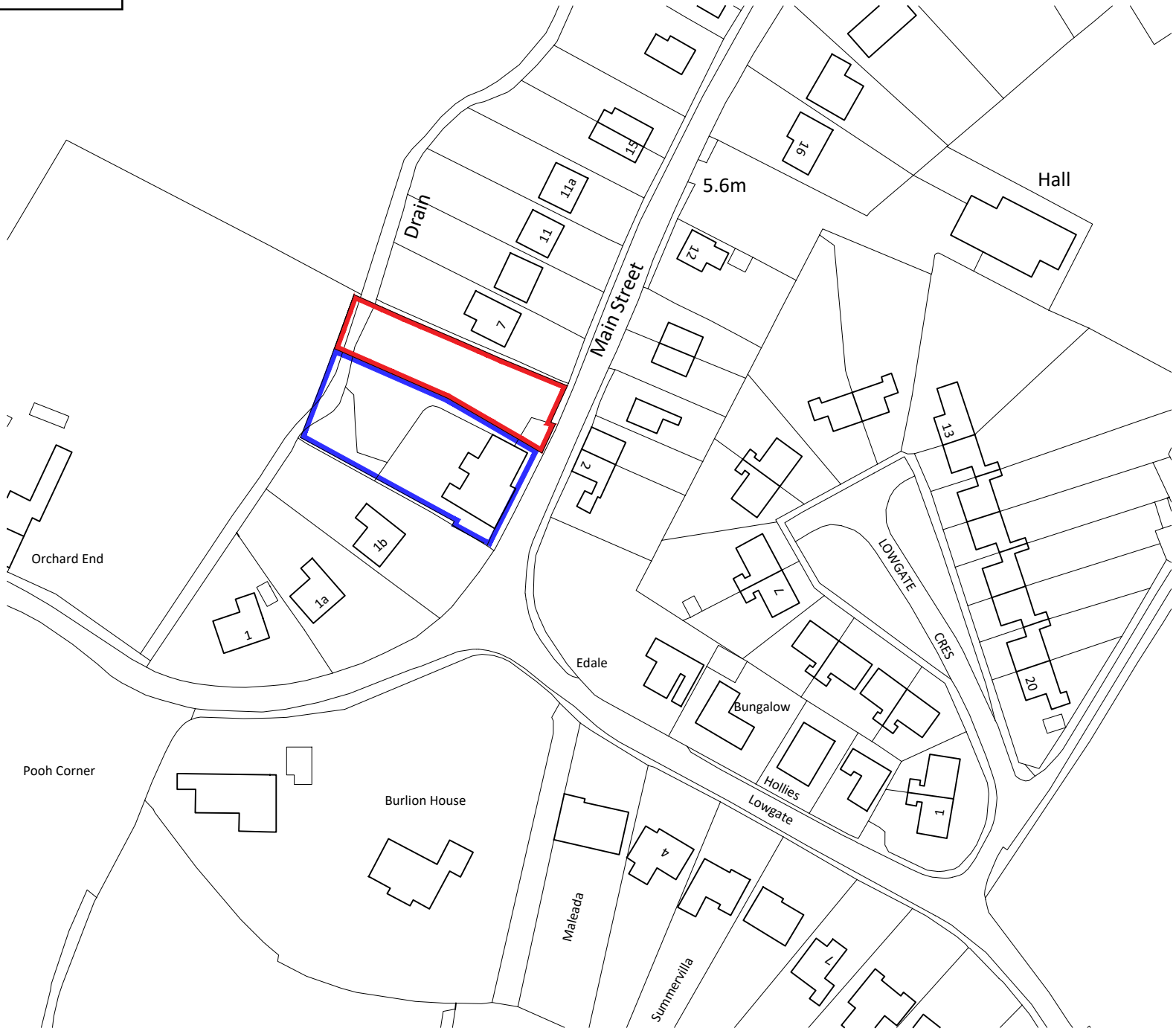
The following notes apply to Grand Sluice

- 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

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Plan 1



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N

0 10 20 30 40 50m

Rev	Description	Date
-	-	-

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Web: www.rdc-landplan.co.uk

Client
Nene Transport (Lincs) Ltd

Project
Residential Development
Land adjacent The Chequers, Gedney Dyke

Drawing
Location Plan

Scale @ A4	Date
1: 1250	08/04/24

Drawn By	Checked By
WW	-

Job Number	Status	Purpose of Issue
1185-11	OP	Outline Planning

Drawing No.	Rev
1185-11_OP_LP01	-

Plan 2



Notes

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N

0 2 4 6 8 10m

Rev	By	Description	Date
-	-		-

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Web: www.rdc-landplan.co.uk

Client
Nene Transport (Lincs) Ltd

Project
Residential Development
Land adjacent The Chequers, Gedney Dyke

Drawing
Proposed Site Plan

Scale @ A3	Date
1: 250	08/04/24

Drawn By	Checked By
WW	-

Job Number	Status	Purpose of Issue
1185-11	OP	Outline Planning

Drawing No.	Rev
1185-11_OP_SP02	-

Plan 3



NOTES

- FENCE
- HEDGE
- ELECTRIC
- BANK EDGE
- STORM LINE
- FOUL LINE
- TELECOM LINE
- GAS LINE
- LARSON PILES
- CHANNELS
- WATER MAIN
- TREE
- BOREHOLE
- STATION
- TBM
- MANHOLE
- GULLY
- BATTER
- WATER LVL
- GATE

1. THE POSITION OF THIS SURVEY IS BASED ON GPS OSTN15 GRID
2. ALL LEVELS RELATE TO HGTS TAKEN USING TRIMBLE VRS NOW
3. TREES SPREADS ARE DRAWN TO SCALE AND SHOW THE GENERAL/AVERAGE CANOPY SPREAD.
4. ALL BELOW GROUND LEVEL INFORMATION INCLUDING VOIDS, DRAINAGE & SERVICES HAVE BEEN IDENTIFIED FROM THE SURFACE LEVEL ONLY, THEREFORE PIPE SIZES ETC ARE ESTIMATIONS ONLY. ALL CRITICAL DIMENSIONS SHOULD BE CHECKED PRIOR TO THE COMMENCEMENT OF ANY SITE WORKS
5. EVERY EFFORT HAS BEEN MADE TO LOCATE AND SURVEY ALL VISIBLE FEATURES. IT SHOULD BE NOTED THAT SOME ITEMS MAY HAVE BEEN OBSCURED AT THE TIME OF THE SURVEY AND THEREFORE NOT SHOWN ON THIS DRAWING.
6. PHYSICAL BOUNDARY FEATURES SHOWN ON THIS DRAWING DO NOT NECESSARILY REPRESENT THE ACTUAL LEGAL BOUNDARIES. THIS INFORMATION SHOULD BE CONFIRMED WITH THE RELEVANT DOCUMENTATION.
7. THE CONTRACTOR MUST CHECK AND VERIFY ALL SITE LEVELS, DIMENSIONS, UTILITIES AND DRAINAGE DETAILS PRIOR TO THE COMMENCEMENT OF ANY SITE WORKS. ANY DISCREPANCIES MUST BE NOTIFIED TO CASTLE HILL SURVEYS LTD.
8. ALL SURVEY STATION CONTROL POINTS MUST BE CHECKED BY THE CONTRACTOR PRIOR TO STARTING ANY SITE WORKS.

Point	Easting	Northing	Elevation
J3	541066.721	325900.587	4.954
J4	541057.473	325880.640	4.172
J5	541048.349	325861.647	4.022

SURVEY DATE	01 / 03 / 2024	INITIALS	JT

REV	AMENDMENTS	DRN	DATE

Client:
ROBERT DOUGHTY CONSULTANCY

Project Title:
THE CHEQUERS
GEDNEY DYKE

Drawing Title:
TOPOGRAPHICAL SURVEY

Scale @ A2:	Date:
1 : 200	01 / 03 / 2024

Drawing No: C H S 2 4 - 4 2 - 0 1 | Rev:

C.A.D.Title: rdc the chequers gedney dyke\topo (chs 24-42-01).mjo

Drawn By:	Checked By:
JT	SRW

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