FLOOD RISK ASSESSMENT

PROPOSED RESIDENTIAL DEVELOPMENT
LAND OFF WINDMILL LANE,
GOSBERTON RISEGATE,
SPALDING,
PE11 4ES

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FLOOD RISK ASSESSMENT PROPOSED RESIDENTIAL DEVELOPMENT LAND OFF WINDMILL LANE, GOSBERTON RISEGATE, SPALDING, PE11 4ES.

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 off Windmill Lane, Gosberton Risegate, Spalding, PE11 4ES within the South Holland District Council's administrative area. The National Grid Reference is TF 22115 30339**. Plan 1**

This flood risk assessment has been prepared for a planning application for the erection of 6 No single storey bungalows and access. **Plans 2, 3, 4, 5 & 6.**

Planning permission Ref H08-0965-22 was granted planning permission for 4 No dwellings which consisted of 2 No two storey and 2 No single storey.

The Site would be classed as Non-Major Development applying the National Planning Policy Guidance (NPPG)

as the site is to be developed for less than 1 Hectare.

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 Environment Agency Flood Map identifies the site as being within Flood Zones 2 and Flood Zone 3, with the eastern half of the site within flood zone 2 (Medium Probability) and the north western part within flood zone 3 (High Probability) as detailed on the Environment Agency's Flood Zone Maps **without defences**, and as defined in Table 1 of NPPF.

Table 1: Flood Zones Definition (Ignoring the presence of defences)

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 development is classified as “More Vulnerable”, with Table 1 of NPPG stating that such uses are appropriate in these zones, 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

A topographical survey has been undertaken for the proposed development and it reveals that the site is reasonably level. Windmill Road level at the site entrance is shown to be around 3.25mODN and the lowest levels are within the central area of the site at around 3.00mODN with the highest levels on parts of the northern boundary of the site at around 3.40mODN, with the average taken as 3.15mODN **Plan 7**

DRAINAGE AUTHORITIES

Environment Agency

The Environment Agency is responsible for reducing the risk of flooding from designated main rivers and from the sea.

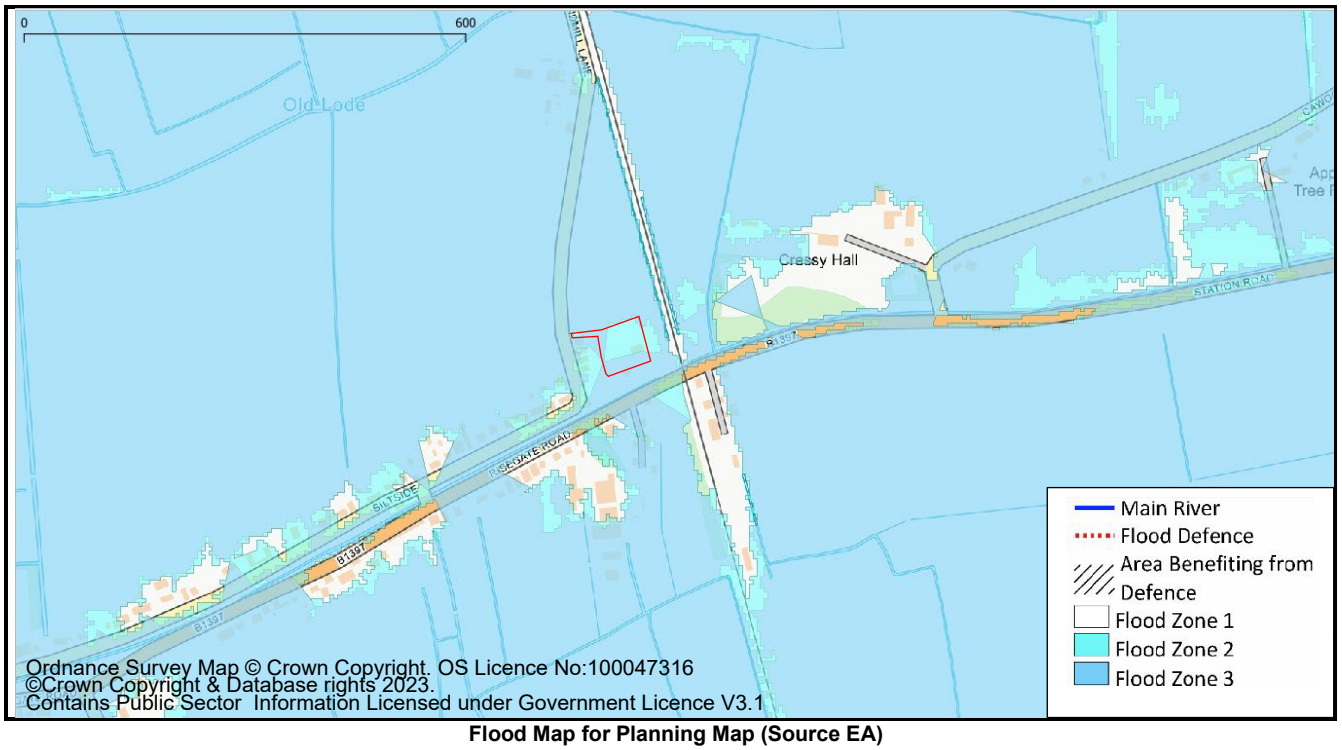
The following potential sources of flooding affecting the development site have been identified as:

- The River Glen.

The Flood Zone Maps identify river catchments over 3 sq. km. These maps are a theoretical estimate of areas that could be inundated should no defence exist. In practice, current standards of protection would result in flood envelopes substantially less than shown by these maps. The maps make no allowance for local, site-specific features.

Flood Zones

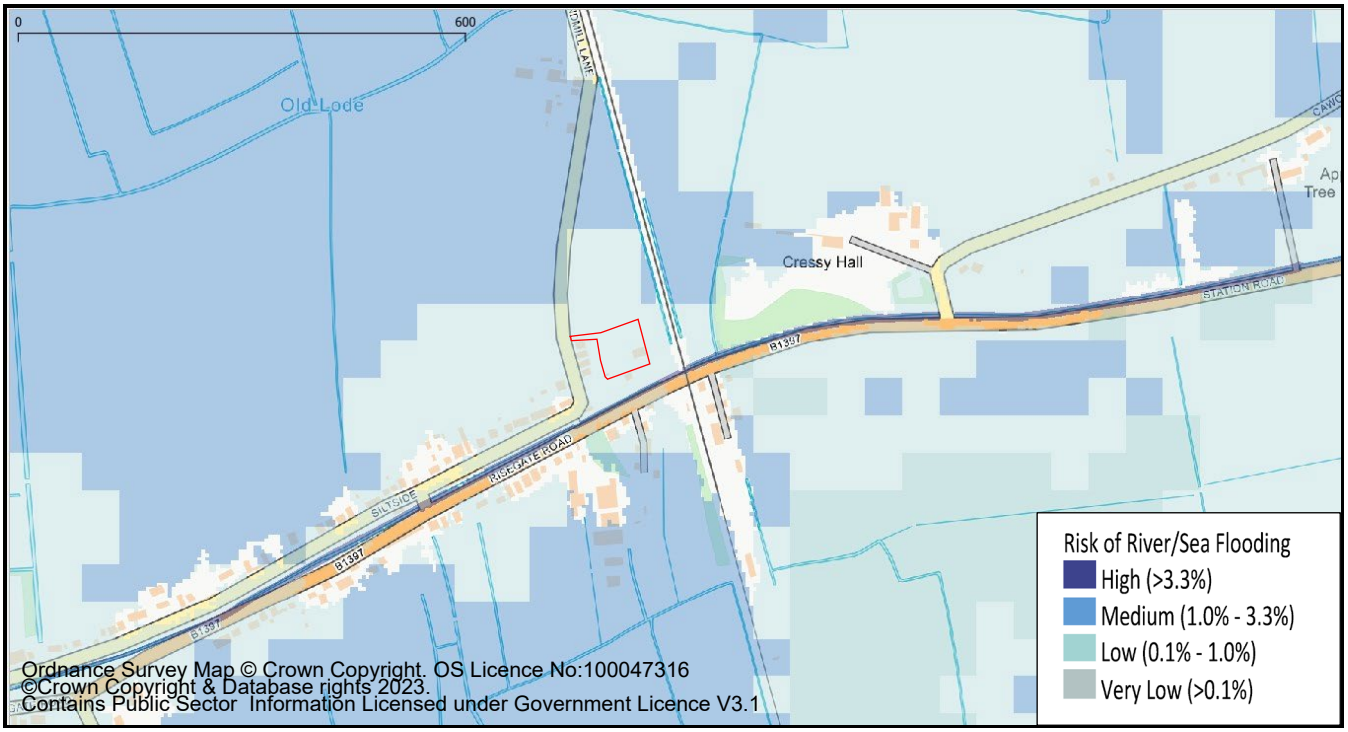
These maps show that the site is considered at no risk from tidal/fluvial flooding as it is all located within an area zoned as Flood Zone 3. The maps indicate that the area would be flooded without flood defences, which are in place, (with an annual probability of more than 0.5% i.e., return frequency of less than 1 in 200 years for tidal flooding or more than 1.33% return frequency of less than 1 in 100 years for fluvial flooding).



Flood Map for Planning Map (Source EA)

Risk of Flooding from Rivers & Sea

The Risk of flooding from Rivers and Sea shows that the site is at very low risk of flooding. Very Low means that each year, this area has a chance of flooding of less 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)

Tidal Flooding

The Environment Agency has confirmed that whilst the site is within a tidal flood zone, i.e. assuming no tidal defences exist, it is not at risk of tidal flooding in either a overtopping or breaching of defences scenario, today or with an allowance for climate change.

River Glen

The River Glen lies some 3.3km to the south of the site. The existing fluvial defences reducing the risk of flooding from main river to this site consist of earth embankments. They are in fair condition and reduce the risk of flooding (at the defence) to a 1% (1 in 100) chance of occurring in any year. The Environment Agency inspect these defences routinely to ensure potential defects are identified.

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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.

HR = d x (v + 0.5) +DF

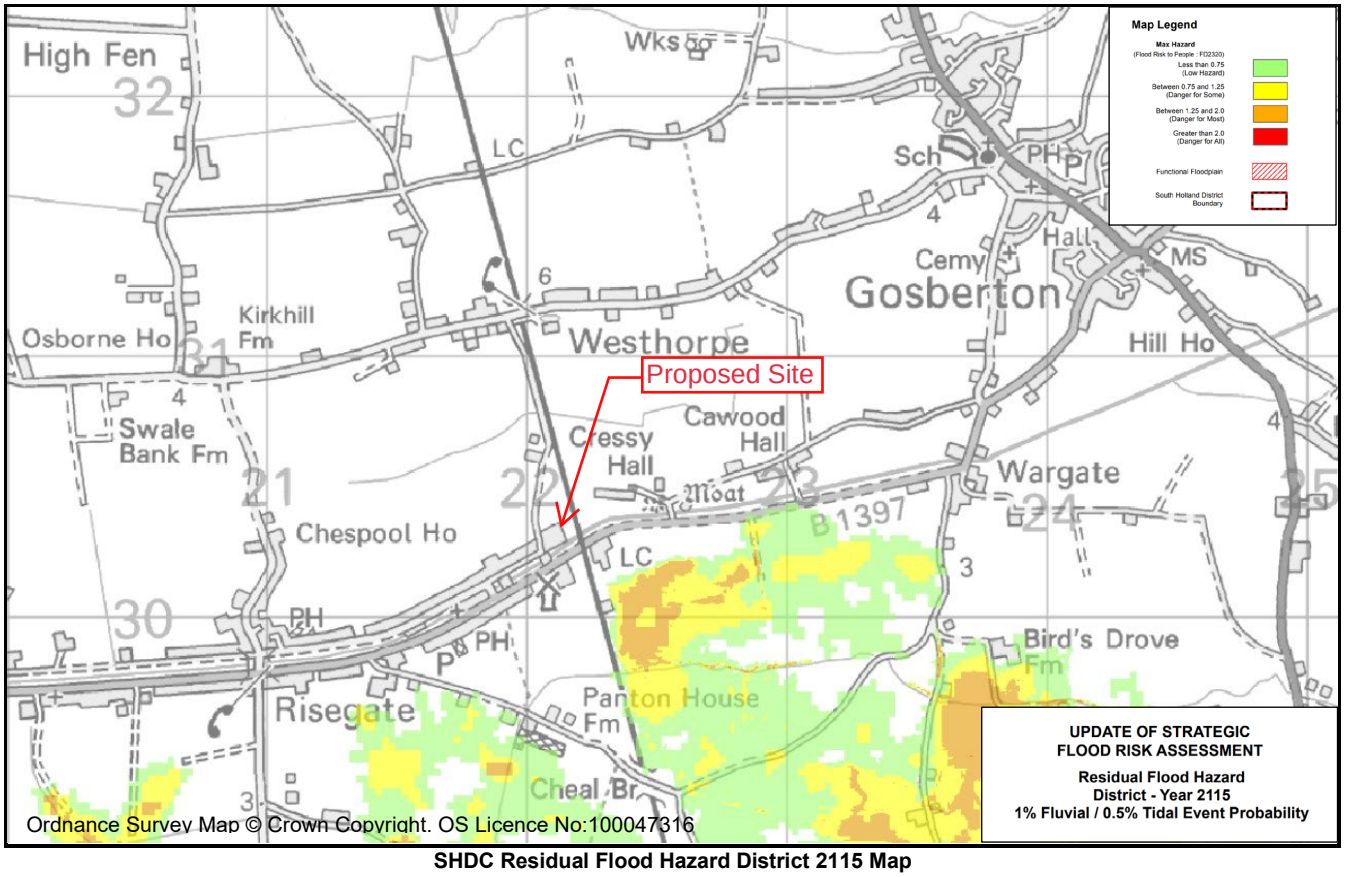
Where V = Flood flow velocity (m/sec) D = Flood depth (m)

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

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.

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

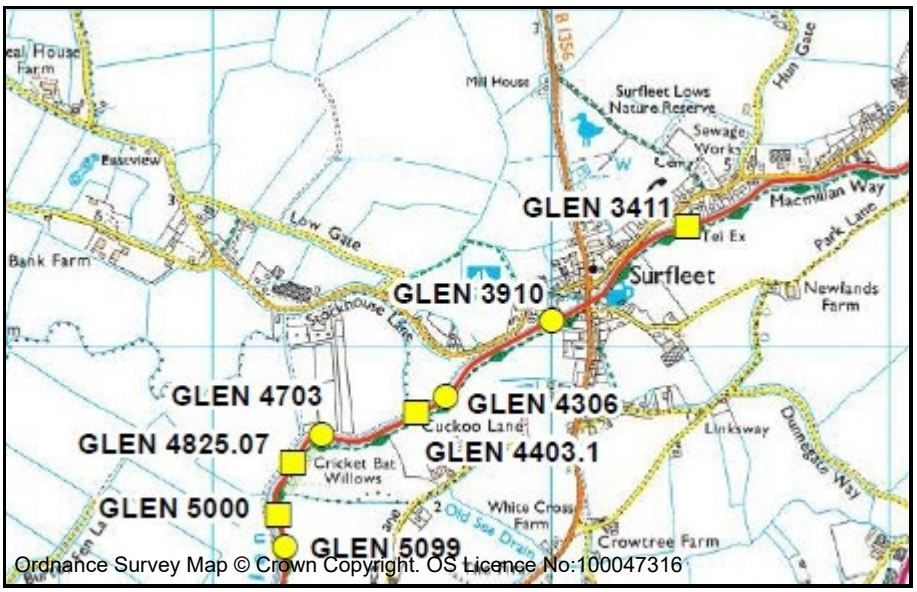


SHDC Residual Flood Hazard District 2115 Map

The Environment Agency has confirmed that their modelled flood extents, which take into account flood defences, do not impact this site.

The following flood levels have been taken from data for node points on the River Glen, shown on the Node Map,

supplied by the Environment Agency from the Welland Catchment Strategic 2016 model.



Node Map

Fluvial Flood Levels (mODN)

The fluvial flood levels for the model nodes shown on the attached map are set out in the table below. They are measured in metres above Ordnance Datum Newlyn (mODN).

			Annual Exceedance Probability - Maximum Water Levels (mODN)											
Node Label	Easting	Northing	50% (1 in 2)	20% (1 in 5)	10% (1 in 10)	5% (1 in 20)	3.33% (1in 30)	2% (1 in 50)	1.33% (1 in 75)	1% (1 in 100)	0.5% (1 in 200)	0.1% (1 in 1000)	1% (1 in 100) inc 20% Climate Change	0.1% (1 in 1000) inc 20% Climate Change
GLEN 3910	524998	328075	3.96	4.11	4.18	4.23	4.21	4.24	4.25	4.26	4.31	4.39	4.78	4.81
GLEN 4306	524683	327849	3.97	4.12	4.20	4.25	4.23	4.25	4.26	4.27	4.33	4.41	4.78	4.81
GLEN 4703	524318	327739	3.97	4.12	4.20	4.27	4.24	4.27	4.28	4.28	4.33	4.41	4.78	4.81
GLEN 5099	524209	327404	3.97	4.12	4.21	4.28	4.25	4.28	4.30	4.30	4.34	4.43	4.79	4.83

Fluvial Flood Flows (m³/s)

The fluvial flood flows for the model nodes shown on the attached map are set out in the table below. They are measured in metres cubed per second (m³/s).

			Annual Exceedance Probability - Maximum Flows (m³/s)											
Node Label	Easting	Northing	50% (1 in 2)	20% (1 in 5)	10% (1 in 10)	5% (1 in 20)	3.33% (1in 30)	2% (1 in 50)	1.33% (1 in 75)	1% (1 in 100)	0.5% (1 in 200)	0.1% (1 in 1000)	1% (1 in 100) inc 20% Climate Change	0.1% (1 in 1000) inc 20% Climate Change
GLEN 3411	525397	328355	35.66	38.51	40.74	42.95	43.11	44.85	44.86	45.93	48.32	56.83	55.20	64.07
GLEN 4403.1	524597	327804	31.32	34.08	35.50	37.63	38.57	39.38	40.25	40.71	43.78	52.53	49.93	59.59
GLEN 4825.07	524234	327657	29.64	32.51	34.17	36.26	37.11	37.93	38.54	39.24	42.35	51.09	47.82	58.10
GLEN 5000	524188	327501	29.07	32.05	33.73	35.87	36.63	37.45	38.08	38.76	41.88	50.68	47.24	57.68

With the site being some 3.3Km north of the river the site would not be affected by a breach to the river flood defences . This is confirmed by the climate change maps for the Residual Flood Hazard, Depth and Velocity District –1% fluvial and 0.5% Tidal Event Probability (SHDC SFRA update) which shows that the site, where the proposed development is to be located, is within an area of no hazard.

Finished Floor Levels

The proposed development is classified as “More Vulnerable” residential development and therefore it can be

considered in accordance with details contained in the Standard Advice Matrix in the South East Lincolnshire local plan. With the site being within Flood Zone 3 with no defences but within a no hazard zone following a breach to the defences, the site can be considered to be in cell G8.

It is proposed that the minimum ground floor level for the proposed dwellings be raised 300mm above the surrounding ground level.

South Holland District Council

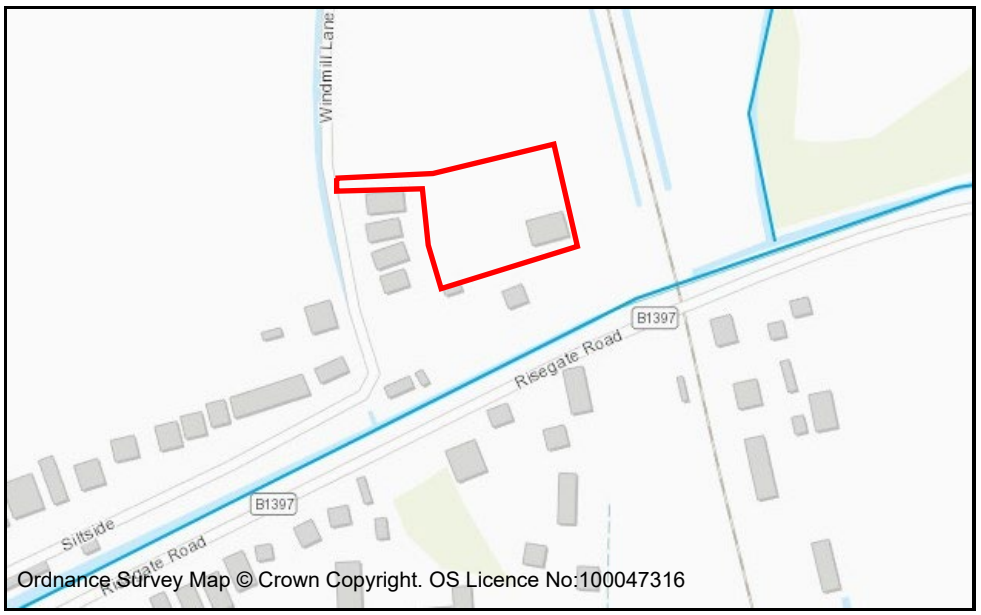
In order to inform the process of risk assessment and site selection the District Council commissioned Haskoning UK Ltd Consultants to prepare a Strategic Flood Risk Assessment in December 2002.They have carried out an update of this report and this report was published in January 2010 and this was further updated in February 2017.

This Flood Risk Assessment has taken the results of the (2017) updated South Holland Strategic Flood Risk Assessment (SHSFRA) into account in its findings.

The whole of the tidal flooding information has been replaced by the mapping from the latest Environment Agency Tidal Hazard mapping. Where the mapping for an area contains both fluvial and tidal components, the more severe of the two has been presented.

Welland & Deepings Internal Drainage Board

The proposed development site is located within the catchment area of Welland & Deepings Internal Drainage Board. The Board is responsible to operate and maintain the arterial fluvial system.



Welland & Deepings IDB Drainage Map

The site is within Board's catchment Risegate Eau and the nearest watercourse to the site is Drain No 63 located to the south of the site alongside the B1397.

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.

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 this will not cause any rapid inundation of the site and is likely only lead to local ponding of shallow depth and low velocity. The ground floor level for the development is to be raised 300mm above the existing ground level. 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 in the vicinity of the site.

- 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.

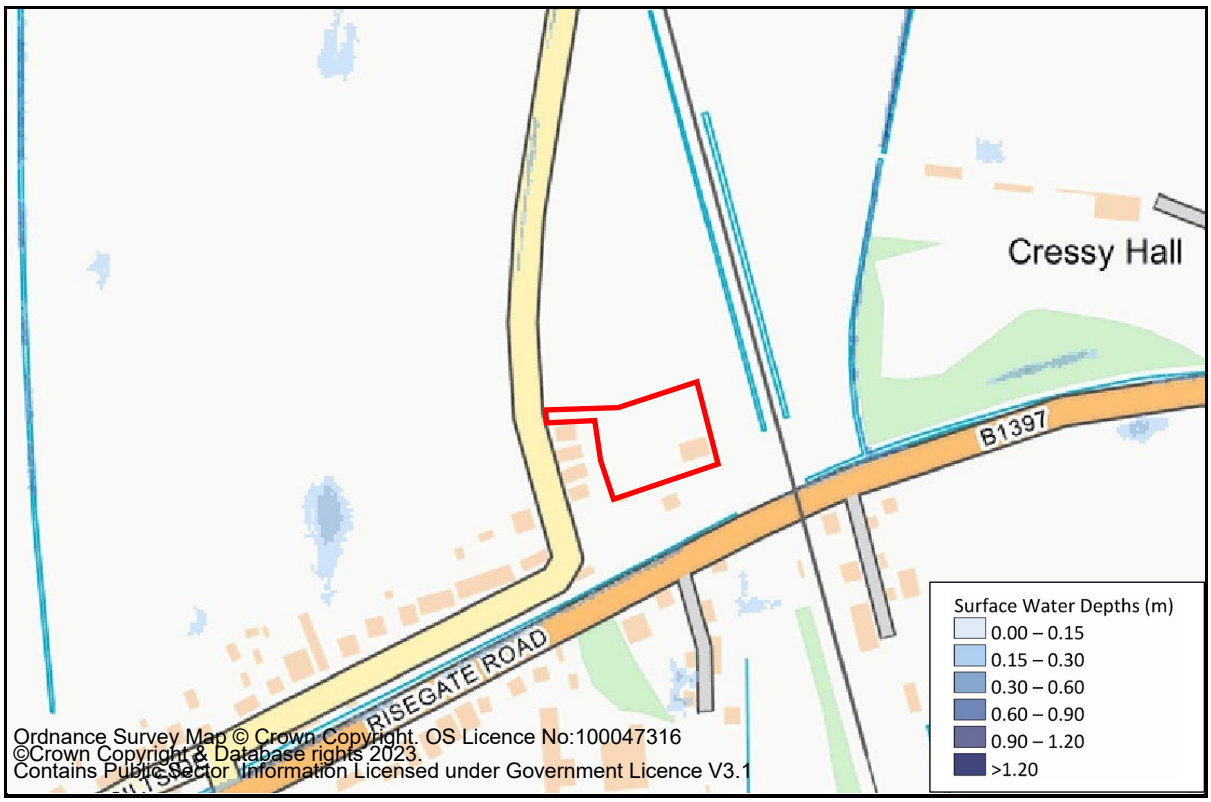
RESIDUAL RISKS

There is always a possibility of a flood more than that allowed for which might conceivably cause some flooding to the properties. However, such an event would have a very low probability and the risk of flooding to the property

would be extremely small. It is therefore considered that the residual risks associated with flooding are not significant.

SURFACE WATER FLOODING

The majority of proposed development site 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.



Risk of Flooding from Surface Water Map (Source EA)

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 with low depressions shown to be affected.

There is a caveat contained in the Environment Agency "What is the Risk of Flooding from Surface Water Map Report version 2.0, April 2019, as to the use of these maps, which states that:- "*the map does not contain sufficient information for it to be used to determine flood risk to individual properties, but it does give you an*

indication of whether your area may be affected by surface water flooding and to what extent."

SEQUENTIAL APPROACH

When applying the sequential approach for flood risk in accordance NPPF the site of the development would fall into Flood Zone 3 (High Probability) as the site is shown to be within the flood plain 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 outside the 0.1% floodplain (with a chance of flooding of less than 0.1% chance in any given year)
- Flood Zone 2 is land that falls between the 1 in 100-year extent and the 1 in 1000-year extent (a chance of flooding between 1% and 0.1% in any given year)
- Flood Zone 3a is land which falls within the 1 in 100-year flood extent (has a 1% chance of a flood occurring in any given year).

Applying the Flood Risk Vulnerability Classification in Table 2 of NPPG, the proposed development for industrial use is classified as, "Less Vulnerable" with Table 1 of NPPG stating that such uses are appropriate in this zone (as summarised in Table 3 NPPG).

Table 3: Flood Risk Vulnerability and Flood Zone '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 Test and Exceptions Test

NPPF Guidance Paragraphs 164 - 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 proposal should be viewed in the light of an established fallback position under Planning Ref. H08-0965-22 granted 14th February 2023 for 4 dwellings and also the site is within the defined settlement boundary of Gosberton Risegate & Clough which is designated as an 'Other Service Centre'. The site is therefore not in the countryside.

The relevance of and weight to be attached to a fall-back position within the planning balance has been examined by the courts and there is a range of resulting case law that has arisen on this matter. The Court of Appeal decision Mansell v Tonbridge and Malling Borough Council, issued on the 8th September 2017.is very appropriate. At paragraph 27 (3) of this judgement, the judge identifies the following principle when assessing the weight to be applied to a fall-back position:

'Therefore, when the court is considering whether a decision-maker has properly identified a "real prospect" of a fall-back development being carried out should planning permission for the proposed development be refused, there is no rule of law that, in every case, the "real prospect" will depend, for example, on the site having been allocated for the alternative development in the development plan or planning permission having been granted for that development, or on there being a firm design for the alternative scheme, or on the landowner or developer having said precisely how he would make use of any permitted development rights available to him under the GPDO. In some cases that degree of clarity and commitment may be necessary; in others, not. This will always be a matter for the decision-maker's planning judgment in the particular circumstances of the case in hand.

The South East Lincolnshire Strategic Flood Risk Assessment (March 2017) (SFRA) is the basis for applying the Sequential Test. This concludes that the vast majority of South Holland District is in Flood Zones 2 and 3.

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.

Using this methodology, it is possible to use the information to steer development towards the areas of lower flood risks as advised within Section 14 of the NPPF. In terms of flood risk, the application site is situated in Environment Agency Flood Zone 3 and 2. Therefore, the proposed dwellings would appear to be situated in a high flood risk area. However, the South East Lincolnshire Strategic Flood Risk Assessment (March 2017) shows that the site falls within a "No Hazard" hazard zone for year 2115 and at no risk from flooding.

With the development being constructed within the area shown on the Environment Agency Flood Map (without defences) to be in Flood Zone 3, the site is, however, protected by flood defences maintained by the Environment Agency. It is shown on the SHDC Residual Flood Hazard, Depth and Velocity District –1% fluvial and 0.5% Tidal Event Probability 2115 not to be within a hazard area following a breach to the defences.

As the sequential test has been satisfied, the Exceptions Test is required to be passed. It must be demonstrated that the proposed development will provide wider sustainability benefits to the community that outweigh flood risk,

and that it will be safe for its lifetime, without increasing flood risk elsewhere and where possible reduce flood risk overall.

With regard to providing the wider sustainability benefits the development would provide these with a contribution towards the housing supply, and other benefits including generating employment during the construction period and its proximity to a range of services and facilities in surrounding villages, therefore satisfies the first part of the test.

This 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 principle of residential development at this site has been established by the granting of planning permission for development under planning reference H08-0965-22 granted 14th February 2023 for 4 dwellings The sequential and exception tests have been satisfied.

CLIMATE CHANGE

Global warming is now recognised that it is likely to affect the frequency and severity of extreme events as 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 within the Welland 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.

The results have a climate change increase of 20% added to the peak river flows whereas the updated guidance (20 July 2021) the Central allowance (17%) should be used for “More Vulnerable” uses in flood zone 3a should be added for developments in Anglian RBD/ Welland management catchment. The 1% increase difference will have little effect on the flood level at the site.

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%	57%
	Higher Central	10%	10%	28%
	Central	5%	10%	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

DRAINAGE STATEMENT

Surface Water Drainage

This drainage statement, for the site, proposes to utilise infiltration techniques to reduce the storm water discharge from the proposed development and to minimise the impact of the development on the surrounding area and to comply with guidelines, which require at least one workable solution for managing surface water.

In accordance with recognised guidance, National Planning Policy Framework 2012, 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

A surface water drainage scheme has been prepared by Shields Wilson Consultant Engineers. This report reveals that the surface water will be discharged to a watercourse using attenuation methods. These consist of underground storage crates, to limit the outflow to greenfield rate of run-off, prior to being discharged in underground pipes to the IDB maintained watercourse alongside the B 1397.

Foul Water Drainage

There are no public foul sewers close to the development site (as confirmed by Anglian water records) therefore

foul drainage from the dwellings will be collected in underground pipes and to discharge to a package treatment unit, which will discharge into the IDB maintained watercourse alongside the B1397. **Map 1**

The maintenance of the foul & surface water drainage systems will be undertaken by a Management company consisting of the 6 property owners.

Following the granting of planning permission an application will be made to the Wellings & Deepings IDB for consent to discharge the foul and surface water systems to the watercourse.

FLOOD RESILIENCE CONSTRUCTION

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 development will have the following resilient measures incorporated in the construction in accordance with “Improving the flood performance of new buildings” CLG (2007).

- The ground floor for the proposed dwellings are to be set 300mm above the existing ground level.
- Water, electricity, and gas meters: should be located above the predicted flood level. 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 Electric ring mains should be installed at high level with drops to ground floor sockets and switches.
- The ground floor to be constructed with a solid concrete floor with no voids beneath and no low-level wall vents.
- Avoid the use of mineral fibre insulation to the ground floor level (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 an area that is capable of receiving flood warnings from the Environment Agency Floodline Warning Direct system. It is recommended that the property owners 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 tidal flood defences which are well maintained by the Environment Agency.

- The Flood Risk Vulnerability Classification in Table 2 of NPPG the proposed residential development is classified as More Vulnerable", with Table 1 of NPPG stating that such uses are appropriate in this zone.

- The proposed site for the dwellings are shown to be within Flood Zone 3 'High Probability' and Flood Zone 2 " Medium probability" as detailed on the Environment Agency's Flood Zone Maps without defences. However, the site is protected by adequate flood defences which are maintained by the Environment Agency and the site is shown on the SHDC Residual Flood Hazard, Depth and Velocity District –1% fluvial and 0.5% Tidal Event Probability 2115 not to be within a hazard area following a breach to the defences.

- The ground floor for the dwellings is to be raised 300mm above the existing ground level.

- 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. Following the guidelines contained within the NPPF, the proposed development is considered to be suitable, assuming appropriate mitigation is maintained for the lifetime of the development.

- It is therefore concluded that the proposed development can be constructed, safely and sustainably, to meet the requirements of the South Holland District Council Development Plan Policies, and the National Planning Policy Framework.

Map 1



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Date: 01/11/23 | Scale: 1:1250 | Map Centre: 522071,330331 | Data updated: 30/09/23 | Our Ref: 1310852 - 1 | Wastewater Plan A4

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

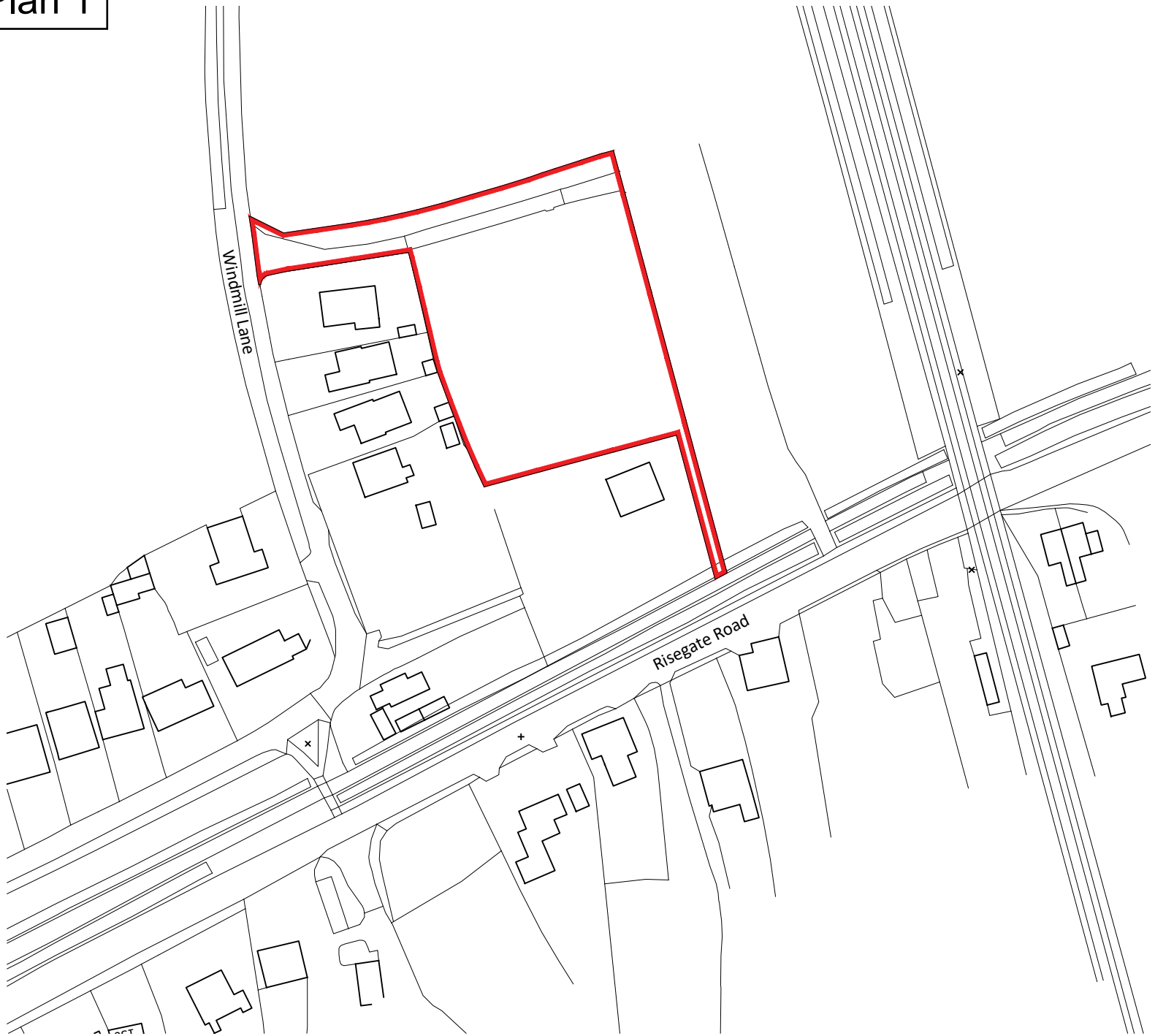
*(Colour denotes effluent type)

ray.rmassociates@gmail.com

Gosberton Risegate

love every drop anglianwater

Plan 1



Notes

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N

0 10 20 30 40 50m

Rev	Description	Date

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Client
R K Wilson Builders Ltd

Project
Land off Windmill Lane
Gosberton Risegate

Drawing
Location Plan

Scale @ A4	Date
1: 1250	01/02/23

Drawn By	Checked By
WW	-

Job Number	Status	Purpose of Issue
1443-4	PL	Planning

Drawing No.	Rev
1443-4_PL_LP01	-

Plan 2



Boundary treatments

Brick wall with timber fence (overall height 1.8m)

1.8m high close boarded fence

1.2m high post & rail fence

Notes

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Dimensions
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CDM 2015
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N

0 5 10 15 20 25m

Rev	Description	Date
-	-	-

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Client
R K Wilson Builders Ltd

Project
Land off Windmill Lane
Gosberton Risegate

Drawing
Proposed Site Plan

Scale @ A3	Date
1: 500	19/03/24

Drawn By	Checked By
WW	LMS

Job Number	Status	Purpose of Issue
1443-4	PL	Planning

Drawing No.	Rev
1443-4_PL_SP102	-

Plan 3



NOTES

ABBREVIATIONS & SYMBOLS

AV	AIR VALVE	OHC	OVERHEAD CABLE
BH	BORE HOLE	PB	POST BOX
BOL	BOLLARD	PINV	PIPE INVERT LEVEL
CATV	CABLE TV MH	PM	PARKING METER
CCTV	SECURITY CAM	PO	POST
CL	COVER LEVEL	PT	PIPE TOP LEVEL
CH	CHANNEL	P/R	POST & RAIL FENCE
COL	COLUMN	P/W	POST & WIRE FENCE
DC	CABLE TV LID	RD	EDGE OF ROAD/NO KERB
DP	DOWN PIPE	RE	RODDING EYE/POINT
DR	DRAIN	RL	RIDGE LEVEL
EL	EAVES LEVEL	RP	REFLECTIVE POST
EP	ELECTRIC POLE	RS	ROAD SIGN
ER	EARTH ROD	SLVL	STONE LEVEL
FB	FLOWER BED	SOFF	SOFFIT LEVEL
FH	FIRE HYDRANT	SV	VALVE
FFL	FINISHED FLOOR LEVEL	SW	SURFACE WATER
FP	FLAG POLE	Tac	TACTILE PAVING
FW	FOUL WATER	TH	TRIAL HOLE
GV	GAS VALVE	TL	TRAFFIC LIGHTS
HW	HEADWALL	TLVL	TARMAC LEVEL
IC	INSPECTION COVER	TOW	TOP OF WALL LEVEL
IL	I NVERT LEVEL	TP	TELEGRAPH POLE
KB	KERB BOTTOM	TRK	TRACK
KO	KERB OFFLET	UTL	UNABLE TO LIFT
KT	KERB TOP	VP	VENT PIPE
LP	LAMP POST	WL	WATER LEVEL
LC	LIGHT COLUMN	WLVL	WATER LEVEL
MH	MANHOLE	WM	WATER METER
MP	MARKER POST	WO	WASH OUT POINT

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 GENERALAVERAGE 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
J1	522083.544	330355.836	3.407
J2	522099.647	330360.478	3.417
J3	522116.237	330365.398	3.393

SURVEY DATE: 31-08-2023 INITIALS: JT

REV	AMENDMENTS	DRN	DATE

Client:
ROBERT DOUGHTY CONSULTANCY

Project Title:
RISEHOLME FARM
WINDMILL LANE
GOSBERTON

Drawing Title:
TOPOGRAPHICAL SURVEY

Scale @ A1: 1:200	Date: 31 / 08 / 2023
Drawing No: CHS23-162-01	Rev:
C.A.D.Title: rdc, riseholme farm, windmill lane, gosberton\ topo (chs 23-162-01).mjo	
Drawn By: JT	Checked By: CT

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