FLOOD RISK ASSESSMENT

Proposed Industrial Development
Hockley Hole lane
Whaplode
Spalding,
PE12 6TH

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RMA

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FLOOD RISK ASSESSMENT FOR PROPOSED INDUSTRIAL DEVELOPMENT HOCKLEY HOLE LANE, WHAPLODE, SPALDING, PE12 6TH.

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 July 2021, (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 at Hockley Hole Lane, Whaplode, Spalding. PE12 6TH within the administrative area of South Holland District Council. The National Grid Reference is TF 31878 24507. **Plan 1**

This flood risk assessment has been prepared for a full planning application for the erection of a new storage building (546m^2) following the demolition of the greenhouses (1266m^2), and the change of use and recladding of an existing greenhouse, for storage. **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 proposed development site is shown to be within 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.

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 industrial use for the site is classified as "Less Vulnerable," Table 1 of NPPG states that such uses are permitted in this zone.

Table 2: Flood Risk Vulnerability Classification

Less Vulnerable
• Police ambulance and fire stations that are not required to be operational during flooding • Buildings used for shops, financial, professional, and other services, restaurants and cafes, hot food takeaways, offices, general industry, storage and distribution, non- residential institutions not included in "more vulnerable" and assembly and leisure. • Land and buildings used for agricultural and forestry. • Waste treatment (except land fill and hazardous waste facilities). • Minerals working and processing (except for sand and gravel working). • Water treatment works that do not need to remain operational during times of flood. • Sewage treatment works (if adequate measures to control pollution and manage sewage during flood events are in place).

Site Levels

The Lidar 2m DTM data shows that the site for the new storage building is generally a flat rectangular plot, with an average site level of 3.20mODN. Hockley Hole Lane is slightly higher at circa 3.30mODN. **Plan 2**

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:

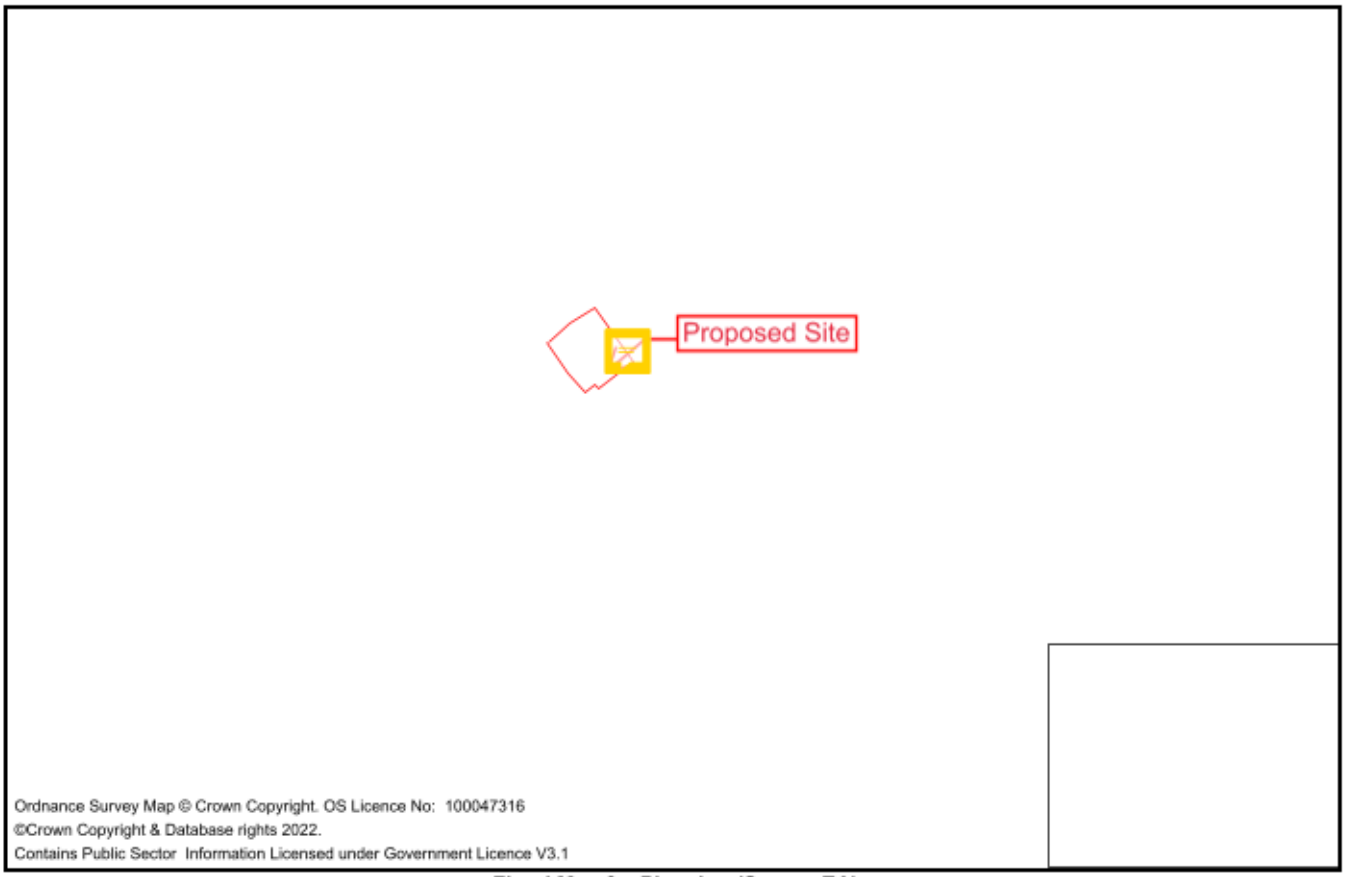
The following potential sources of flooding affecting the development site have been identified as:

- The River Welland/Wash (Tidal)
- South Holland IDB Drains (Fluvial)

The flood zone maps indicate that the area would be flooded without flood defences.). The Flood 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, such as around the fens and the large coastal floodplains 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.

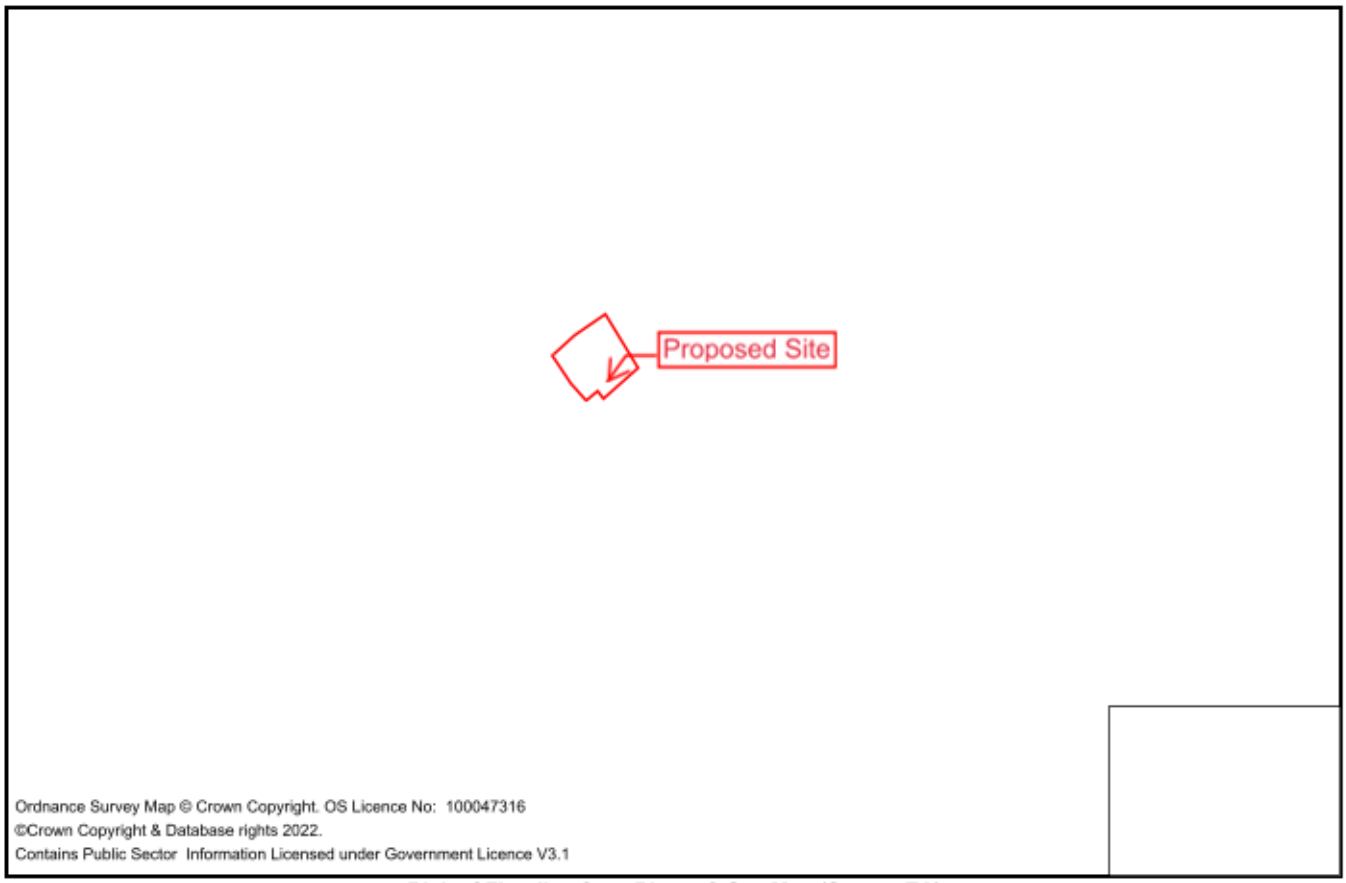
Flood Zones

These maps show that the site is considered at risk from tidal/fluvial flooding as it is all located within an area zoned as Flood Zone 3a.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 (Source EA)

Risk of Flooding from Rivers & Sea



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

The Risk of flooding from Rivers and Sea map shows the site to be at Medium Risk. Medium means that each year, this area has a chance of flooding between f between 1% and 3.3%.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.

Fluvial Flood Risk

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

Tidal Flood Risk

The main risk of flooding at the site is therefore from a breach to the tidal defences.

River Nene, The Wash & River Welland.

With the River Nene lying some 16.2Km to the south-east of the site, the Wash being some 13.1Km to the north-east and the River Welland some 5.3Km to the north-west, these flooding sources have been discounted as they are too distant to affect the site.

In locations such as this, within 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. However, the site is protected by defences to the three major sources of flooding and the site would only be affected by these defences failing.

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)

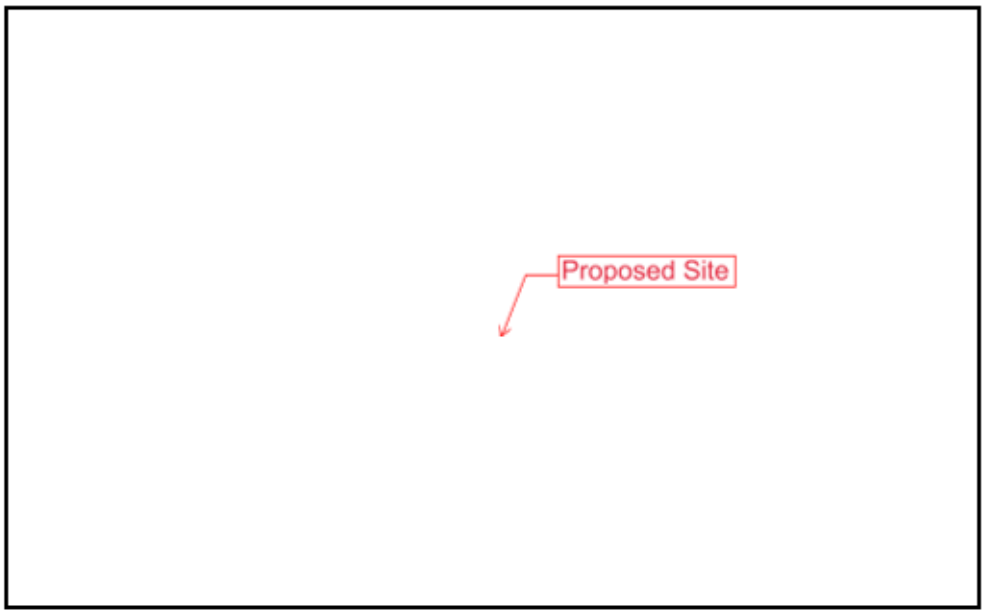
DF = A debris factor included to represent the greater damage, or risk of injury to people, that can occur if debris is swept along with the water. = 0.5 for depths <0.25 or 1.0 for depths.

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

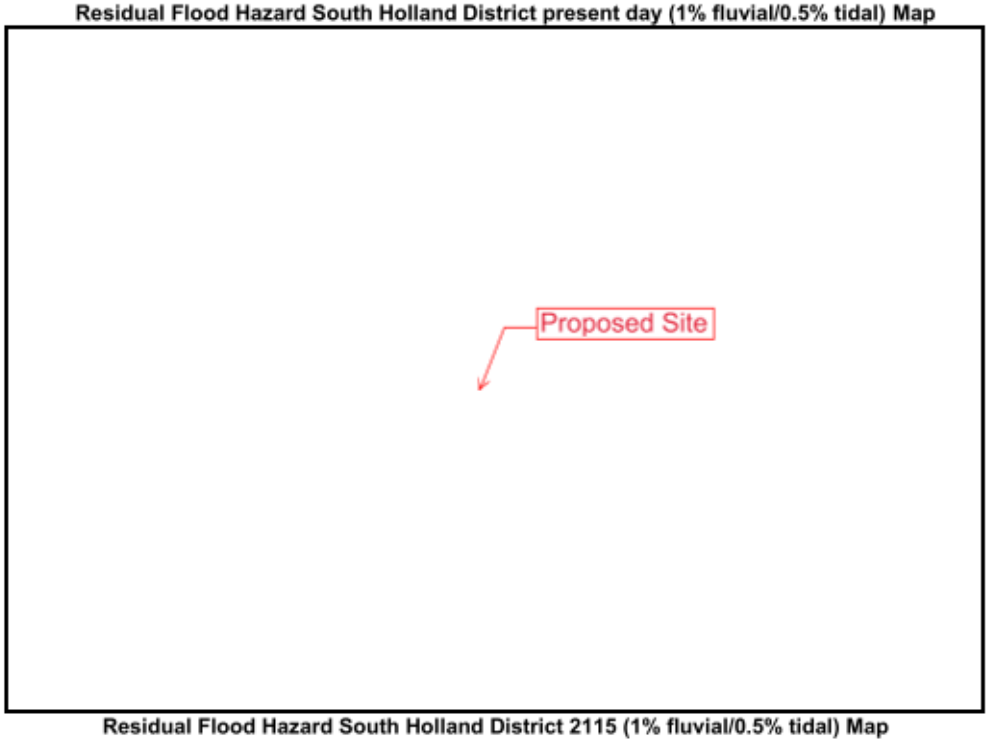
Flood Hazard			Description
	<0.75	Low	**Caution –** Flood Zone with shallow flowing water or deep standing water.
	0.75 – 1.25	Moderate	**Danger for Some -** (i.e. children) Danger Flood Zone with deep or fast flowing water.
	1.25 – 2.0	Significant	**Danger for Most –** Danger Flood Zone with deep fast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

The 2017 Update to SHDC, SFRA has carried out a Tidal & Fluvial Hazard Mapping, for the District, following a

breach to the defences. The present-day and with 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.



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

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.

Finished Floor Levels

The proposed development is classified as “Less Vulnerable” industrial development and therefore it can be considered in accordance with details contained in the Standard Advice Matrix in the South East Lincolnshire local plan.

The site is shown on the Residual Flood Hazard South Holland District 2115 (1% fluvial/0.5% tidal) Map not to be within a Hazard Rating area.

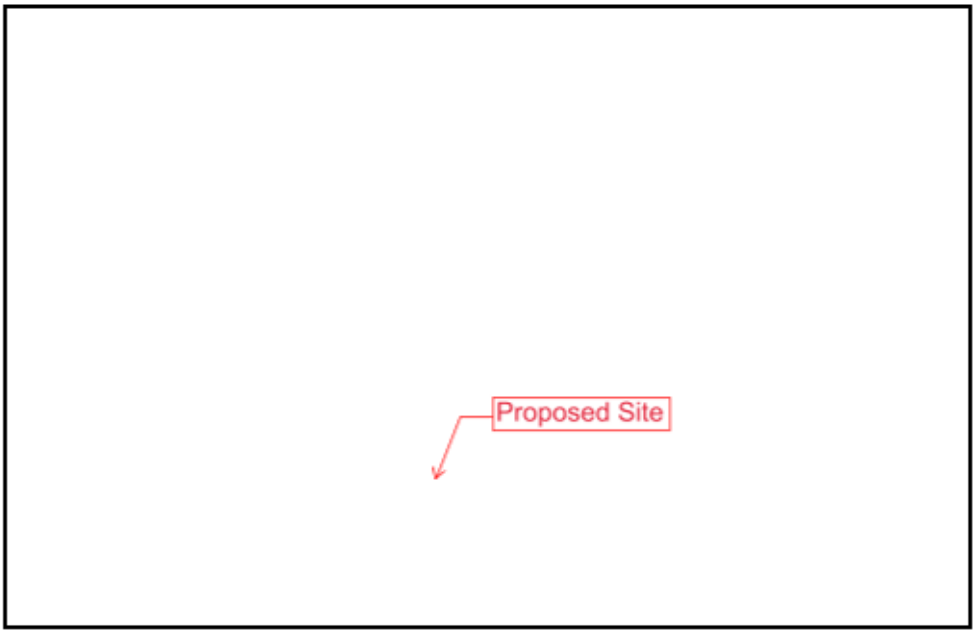
Therefore, it is proposed that the minimum ground floor level for the proposed storage building be raised 150mm above the surrounding ground level (3.20mODN) set at a level of 3.35mODN.

South Holland Internal Drainage Board

The proposed development site is located within the Holbeach River (S) catchment of the South Holland Internal Drainage Board.

The Board provide a standard of drainage for a 1 in 50-year event and normally a freeboard of 900mm to the lowest land level is provided,

The Board are therefore responsible to operate and maintain the arterial fluvial system. The Board’s nearest maintained drain close to the site is Drain DRN206G0701 (P07 Crowns Branch) to the north-east of the site and Drain No DRN206G0702 (P07 Crowns Branch) to the north-west.



Extract from South Holland IDB Drainage Map

With the finished floor levels of the proposed storage building being raised 150mm above the existing ground level to mitigate the flood risk for the site, this will provide adequate mitigation against flooding from IDB systems.

Consent will be required from the Board to undertake works such as:

- Works in, over, under or within 9 metres of a Board maintained watercourse.
- Installation of a culvert, weir or other like obstruction within any watercourse.
- Any works that increase the flow of surface water or treated foul effluent to any watercourse within the Board's District.

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 units are to be raised 150mm 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.

- 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 available within 30m 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

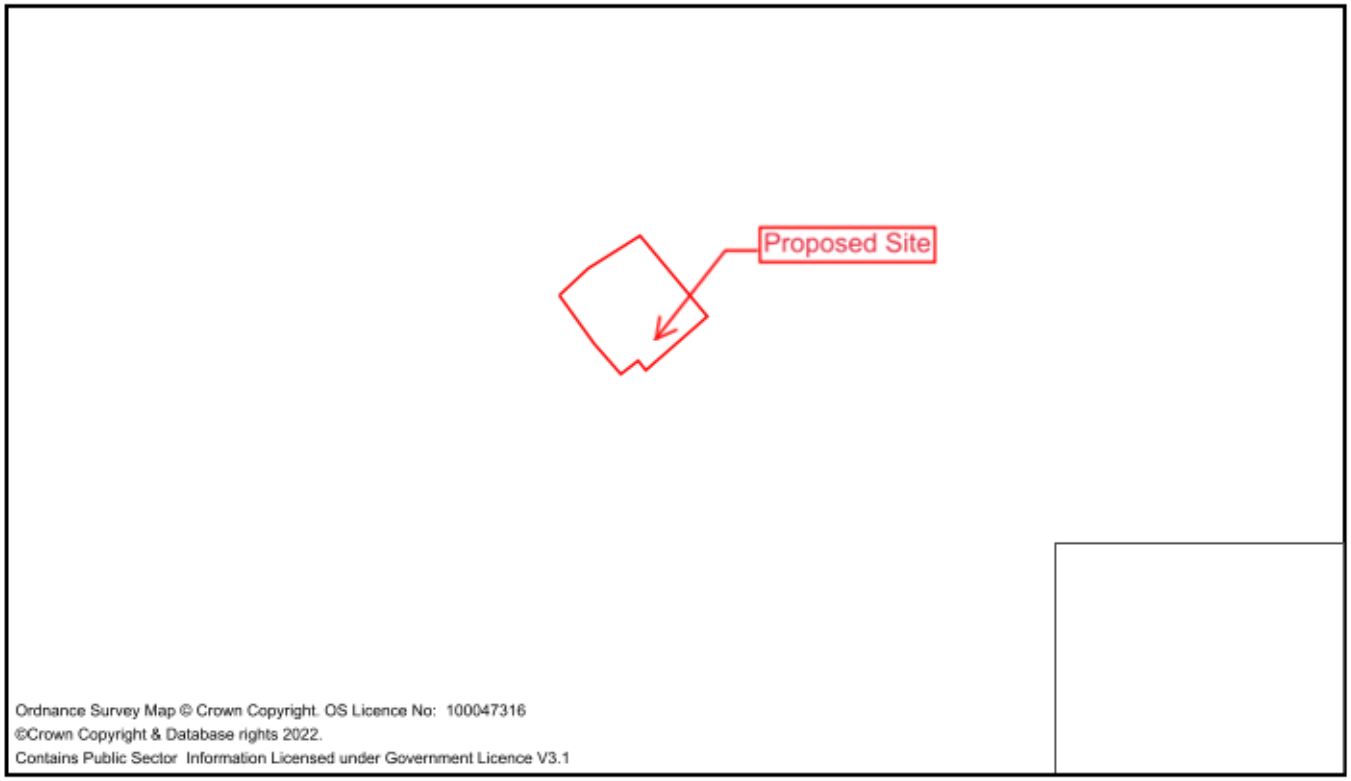
The site is shown on the Low-Risk scenario Surface Water flood maps, for the 1 in 1000-year event, not to be affected from surface water flooding.

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.

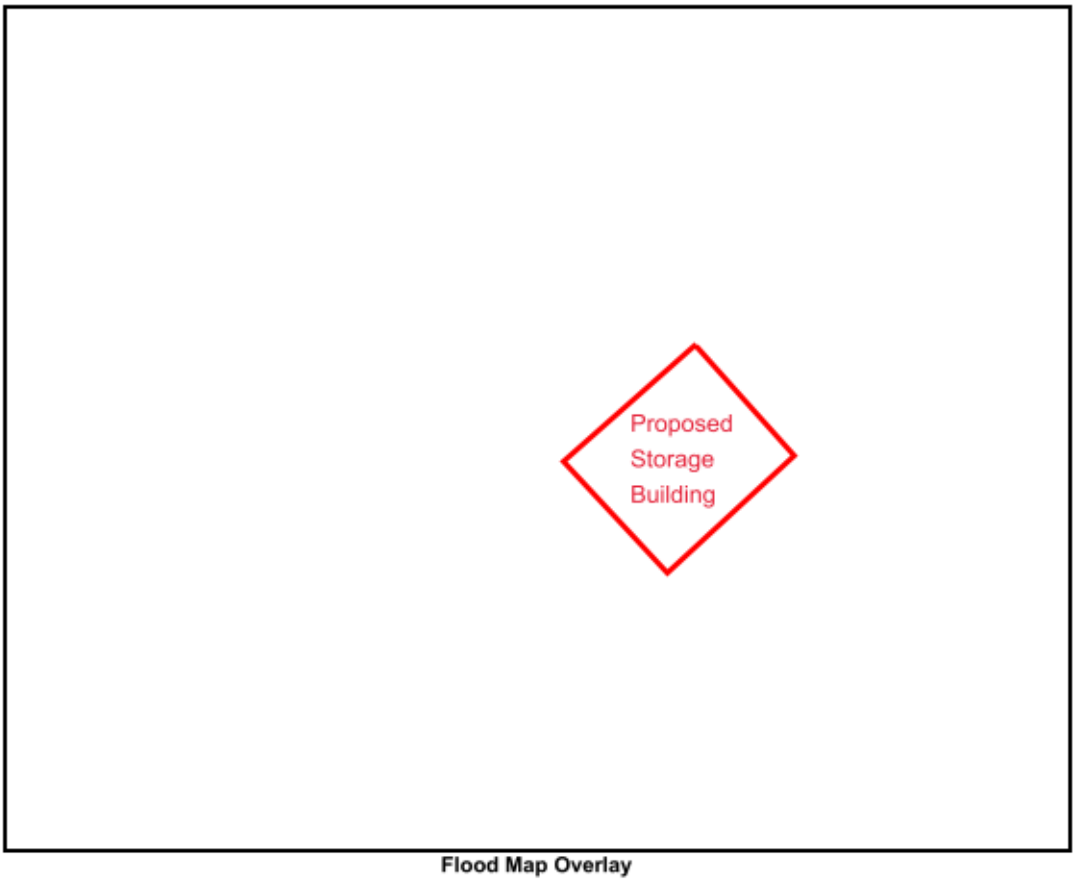
There is a caveat on the Defra Data website, as to the use of these maps and that they are not to be used to identify that an individual property will flood. Because of the way they have been produced and the fact that they are indicative, these maps are not appropriate to act as the sole evidence for 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)

The Environment Agency and the Lead Local Flood Authority (custodians of the surface water flood risk dataset) have subsequently confirmed that the published high-level data should not be used on a site-specific basis and that mapping is only suitable for National to County Scale use.

SEQUENTIAL APPROACH



Flood Map Overlay

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) (Shown as 'clear' on the Flood Map – all land outside Zones 2 and 3).

- 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). (Land shown in light blue on the Flood Map).

- 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). (Land shown in dark blue on the Flood Map).

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). Therefore, there is no change in the vulnerability of the site

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

NPPF Guidance Paragraphs 159 - 169 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 risk of flooding at the site is very low and it is only the risk of a tidal breach during the 0.5% annual probability (1 in 200 chance each year) event with climate change that could lead to flooding.

Accordingly, Policy 7 of the adopted SE Lincolnshire Local Plan confirms that new employment development /businesses or the extension of an existing business outside the allocated employment sites will be supported provided that the proposal involves the re-use of previously developed land or the conversion/re-use of redundant buildings.

On that basis, it is considered that development would be important to the economic or social needs of the community and therefore, the Sequential test has been satisfied. With the application being for Less Vulnerable uses the Exceptions Test is not required.

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 "Less Vulnerable" land uses, the Central allowances figures, in the Table below, should be used.

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%	53%
	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

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.

With the development proposal being for the demolition of greenhouses (1266m^2) and the erection of a storage building (546m^2) there will be a net reduction of 720m^2 in surface water run-off. The surface water from the new storagebuilding will continue to be discharged via the existing system serving the demolished greenhouses The other existing greenhouses that are to be reclad and used only for storage will utilise the existing surface drainage system. The existing concrete yard and circulation area already exists and surface water drainage provided.

Foul Water Drainage

There are no proposals for any facilities which require discharge to a foul water drainage system.

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 storage building is to be set 150mm above the existing ground level, set at a minimum of 3.35mODN.

- 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 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 tidal flood defences which are well maintained by the Environment Agency also the site is not shown on the hazard maps to be affected from a breach to the flood defences for year 2115.

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

- The proposed site for the proposed storage building is shown to be within Flood Zone 2 'Medium Probability' as detailed on the Environment Agency's Flood Zone Maps without defences.

- The ground floor for the storage building is to be raised 150mm above the existing ground level set at a minimum of 3.35mODN.

- 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.

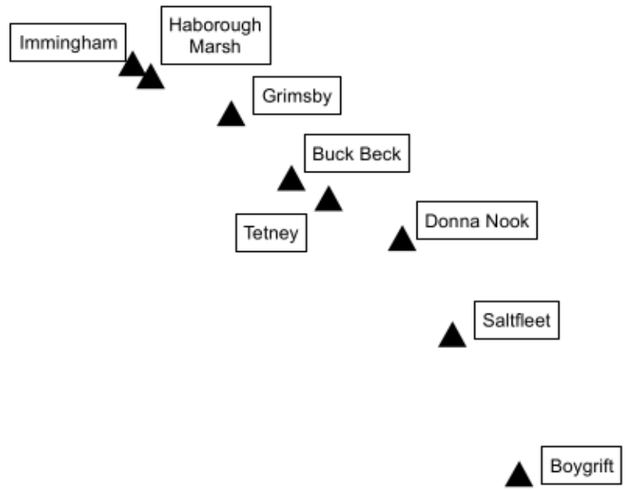
- Flooding from other sources is unlikely to affect the site.

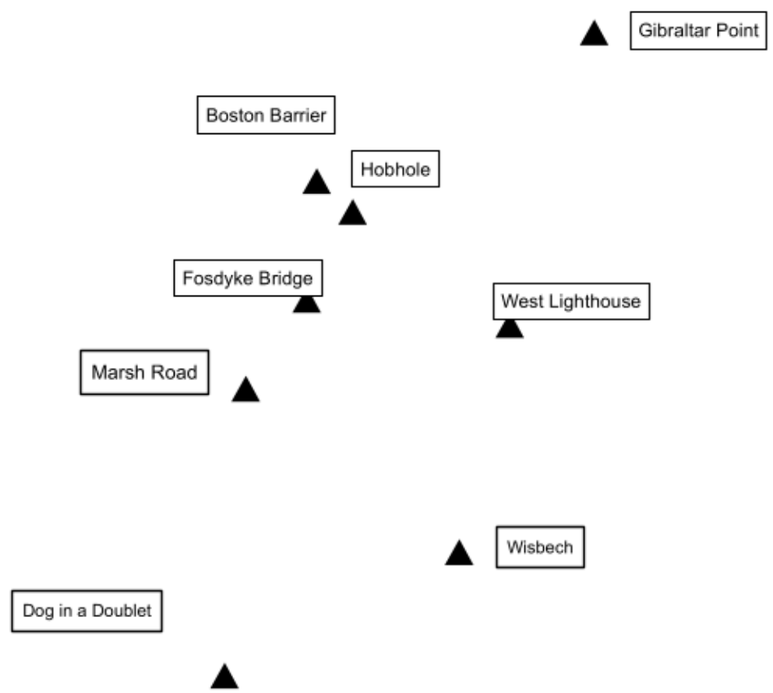
- No obvious constraints have been identified that may impact the proposed development and the type of mitigation measures that can be used to reduce the flood risk, there is no increase in the flood risk to others.

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

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

Map 1





Scale 1:550,000

N
W E
S

▲ East Coast and Wash

See seperate 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

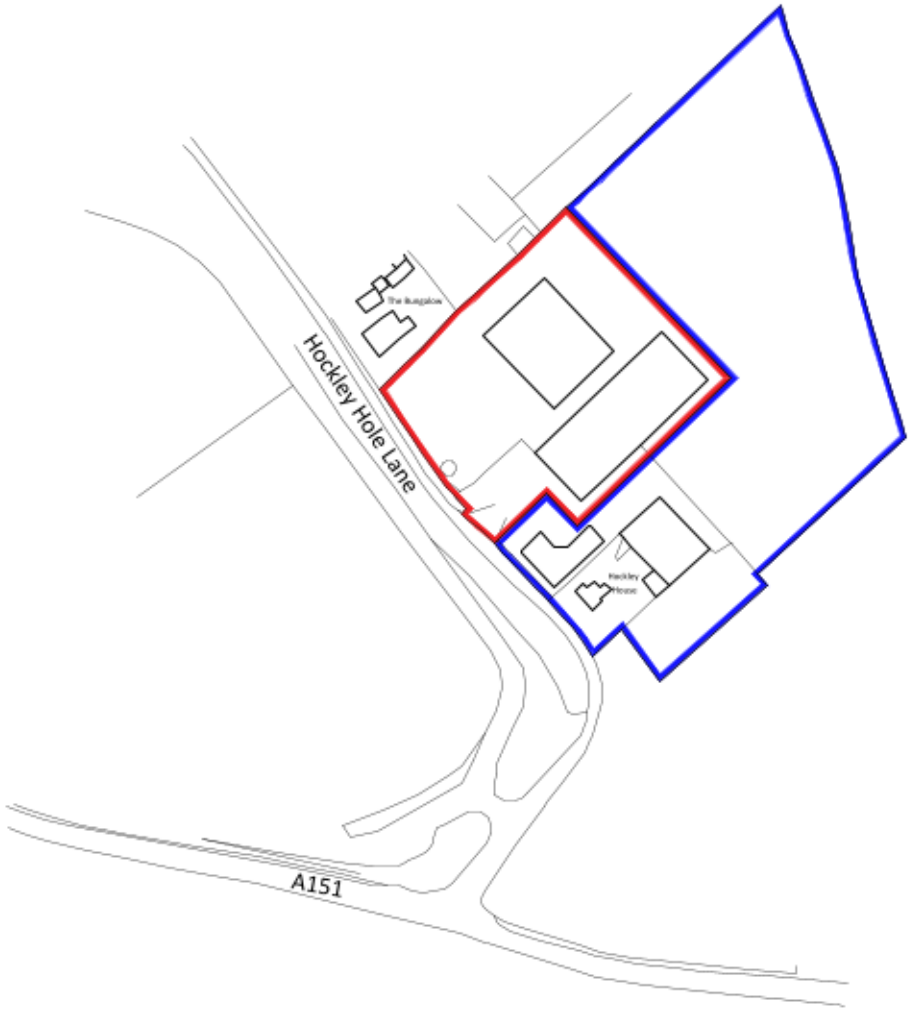
The following notes apply to all Marsh Road, Wisbech, Dog-in-a-Doublet

- 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

- The data is based on CFB 2018 data for Boston Barrier site, capped at 5.3mAOD to reflect use of the barrier.
- 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

Plan 1



N

0 20 40 60 80 100m

Notes

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Rev	Description	Date
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Sleaford, Lincolnshire, NG34 0RA

Tel: 01529 421646
Email: admin@rdc-landplan.co.uk
Web: www.rdc-landplan.co.uk

Client
J & N Properties

Project
Proposed Store
Hockley Hole Lane, Whaplode

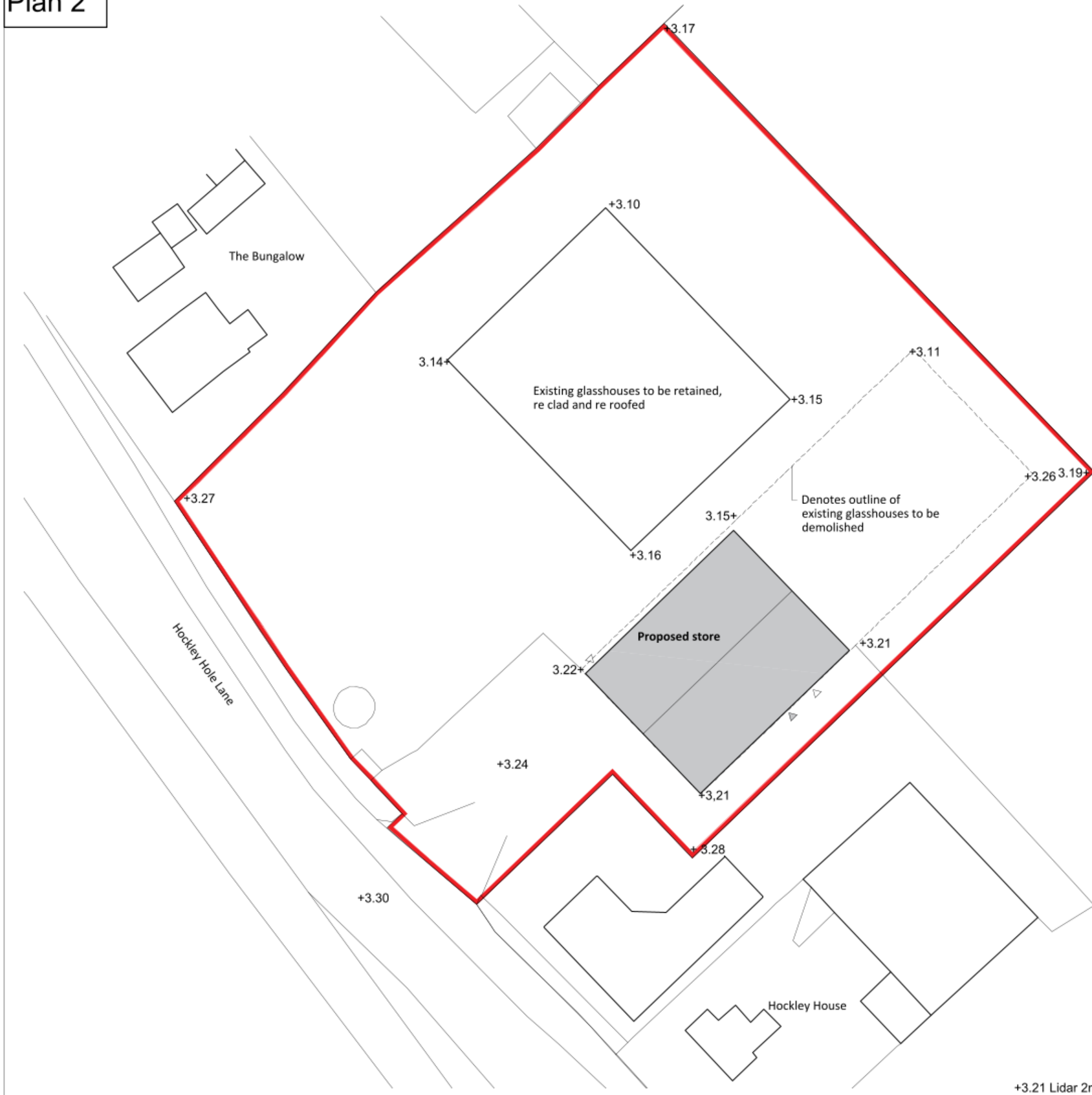
Drawing
Location Plan

Scale @ A4	Date
1: 2500	21/06/22
Drawn By	**Checked By**
WW	-

Job Number	Status	Purpose of Issue
1521-2	SK	Discussion

Drawing No.	Rev
1521-2_SK_LP01	-

Plan 2



Notes

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N

0 5 10 15 20 25m

Rev	Description	Date
-	-	-

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Drawing
Proposed site plan

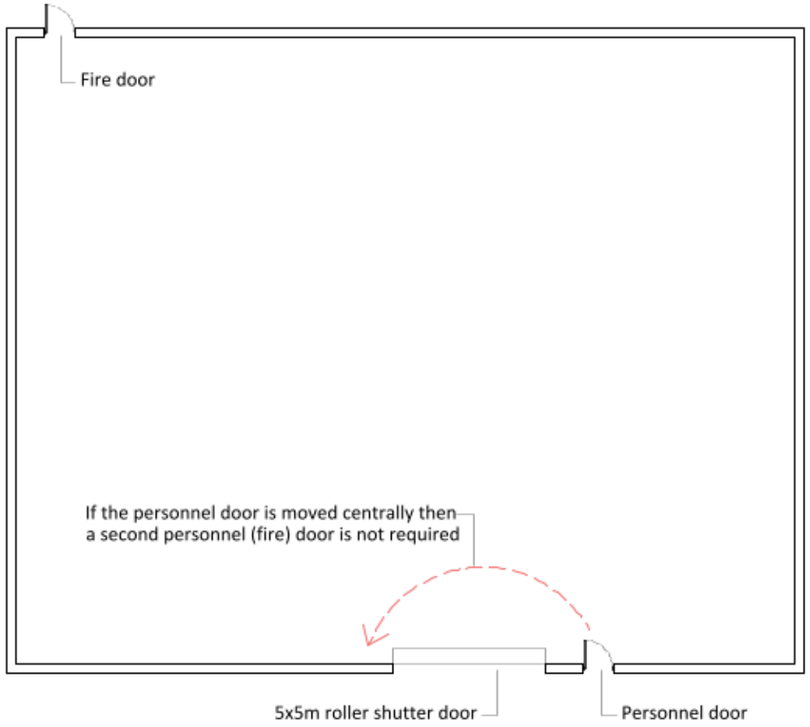
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1: 500	23/05/22

Drawn By	Checked By
WW	LMS

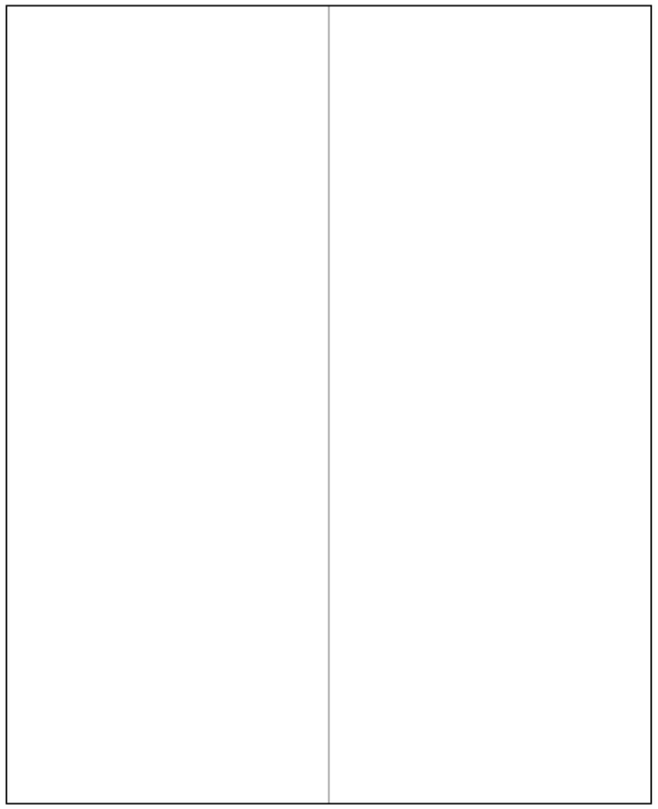
Job Number	Status	Purpose of Issue
1521-2	SK	Discussion

Drawing No.	Rev
1521-2_SK_SP01	-

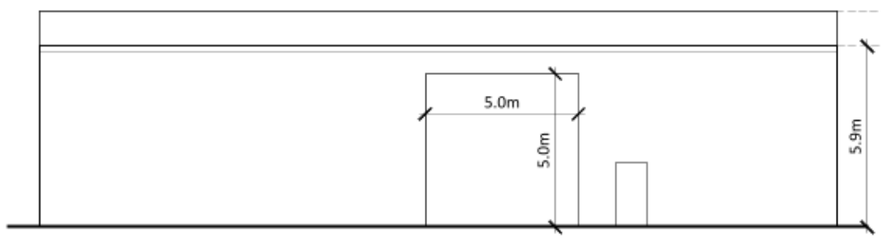
Plan 3



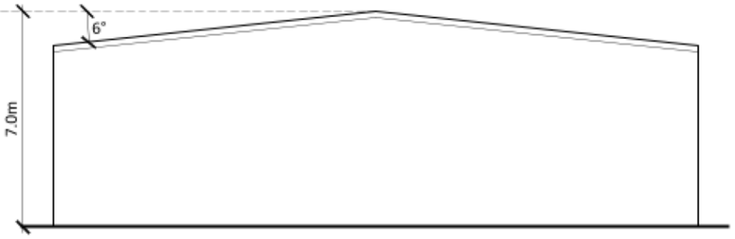
Floor Plan



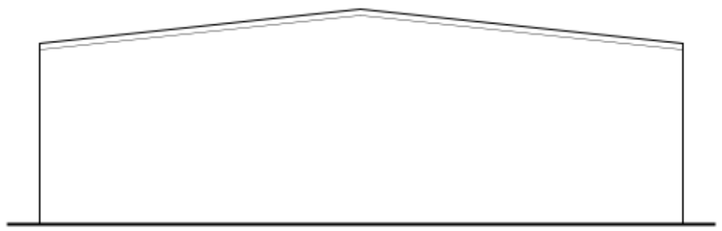
Roof Plan



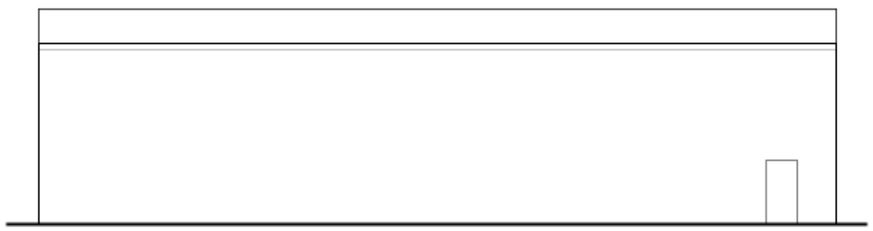
South east elevation



South west elevation



North east elevation



North west elevation

Notes

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Tel: 01529 421646
Email: admin@rdc-landplan.co.uk
Web: www.rdc-landplan.co.uk

Client
Acast Industrial Flooring Ltd

Project
Proposed Store, Hockley House
Hockley Hole Lane, Whaplode

Drawing
Proposed plans & elevations

Scale @ A3	Date
1: 100	23/05/22
Drawn By	**Checked By**
WW	LMS

Job Number	Status	Purpose of Issue
1521-2	SK	Discussion

Drawing No.	Rev
1521-2_SK_GA01	-