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FLOOD RISK ASSESSMENT

PROPOSED A.D. PROCESS UPGRADES,
DECOY FARM AD PLANT,
SPALDING ROAD,
CROWLAND,
LINCOLNSHIRE

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RMA

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FLOOD RISK ASSESSMENT FOR PROPOSED AD PROCESS UPGRADES, DECOY FARM AD PLANT, SPALDING ROAD, CROWLAND, LINCOLNSHIRE

EXECUTIVE SUMMARY

Summary of Possible Sources of Flooding		
Source	Significant	Comment
Fluvial (Main River)	Low Medium	The site may be at risk from the fluvial River Welland the form of residual risk due to the failure of flood management infrastructure such as a breach of a raised flood defence. scenario, today or with an allowance for climate change
Tidal	No	Not at Risk
Pluvial	No	Not shown on Flooding from Surface Water to be affected for the 0.1% event
Ground Water	No	Unlikely due to ground conditions
Overland flow	No	No high ground surrounding the site
Blockage	Low	watercourses close to the site
Infrastructure	No	No public sewers in the vicinity of the site
Reservoirs	No	Site at no risk in the Dry or Wet Day scenario .
Lakes & Canals	No	No lakes or canals close to the site

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 2024, (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 proposed site is located at Decoy Farm, Spalding Road, Crowland, within the administrative area of South Holland District Council. The National Grid Reference at the centre of the site is TF25966 12848. **Plan 1**

This flood risk assessment has been prepared for a planning application, for the following upgrades to the existing AD Plant, **Plans 2, 3, 4 & 5.**

- Heat Extractor
- Skid
- Ammonium Sulphate Storage Tank (50m³)
- Sulphuric Acid Storage Tank (20m³)
- Buffer Tank
- Proposed Separator Liquid Storage Tank
- Proposed Digestate Decanter

Most of the proposed development site is shown to be within an area of Flood Zone 3 "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 Annexe 3 NPPF, proposed industrial use is classified as "Less Vulnerable," Table 1 of NPPG states that such use is permitted in this zone.

Annexe 3 NPPF: 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 1m DTM Data, to OS datum, reveals that the site is reasonably level site, the average ground level for the site of the new equipment is 1.50mODN.

DRAINAGE AUTHORITIES

Environment Agency

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

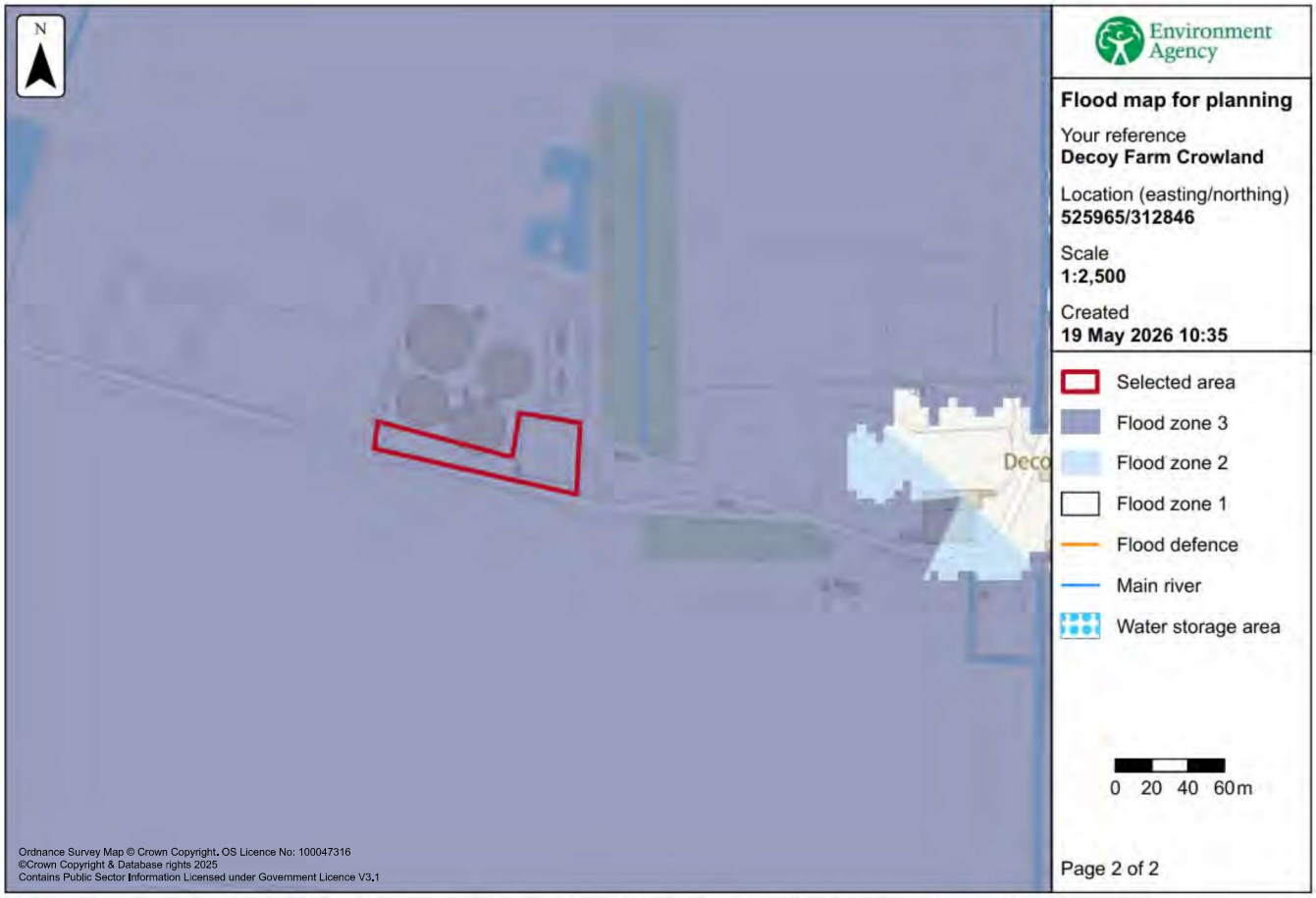
The following potential sources of flooding affecting the development site are.

- From the River Welland
- North Level Internal Drainage Board Drains

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. 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.

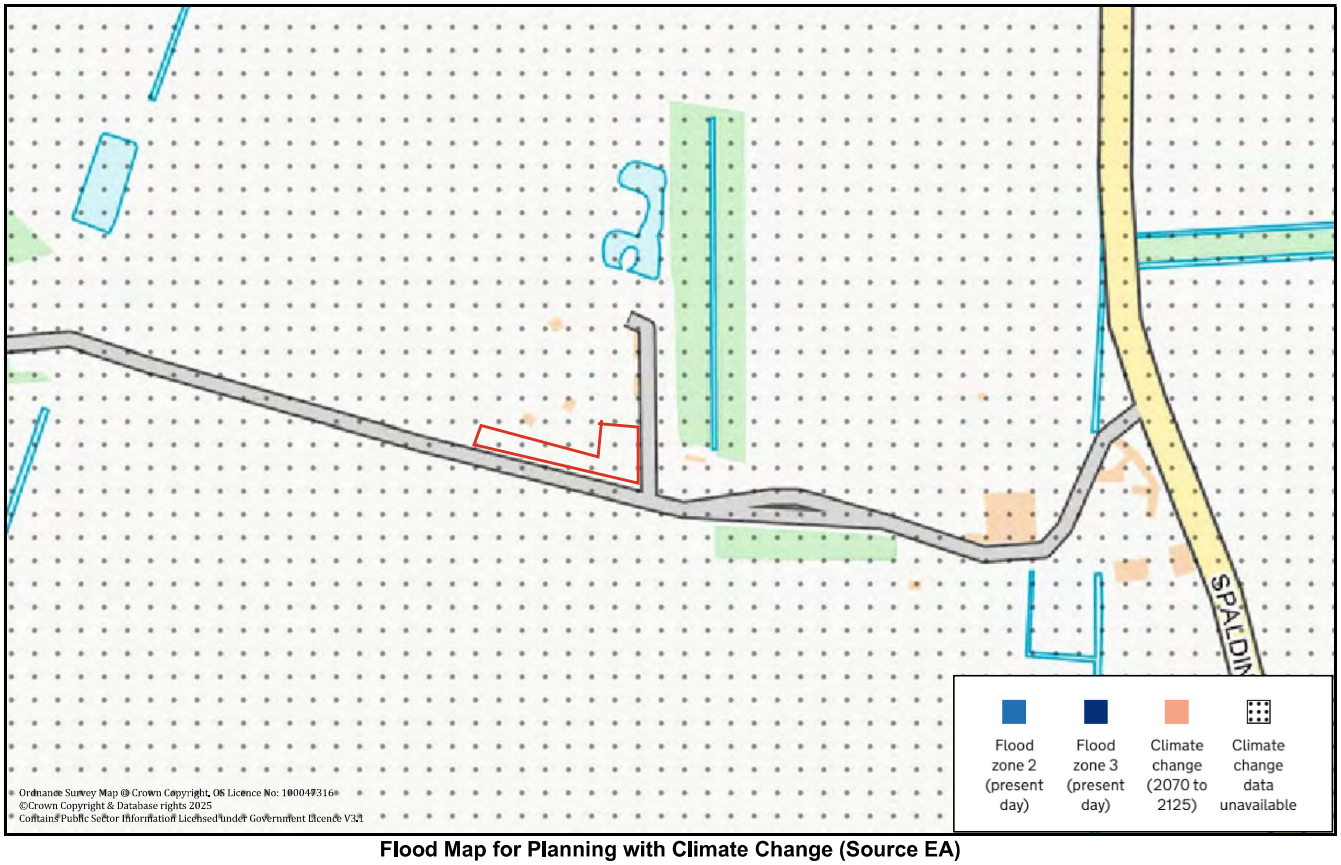
Flood Zones

These maps were updated on the 25th March 2025 and show that site is considered to be at risk from tidal/fluvial flooding as it is all located within an area zoned as Flood Zone 1 and 2.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 year.



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Flood Map for Planning Present Day (Source EA)

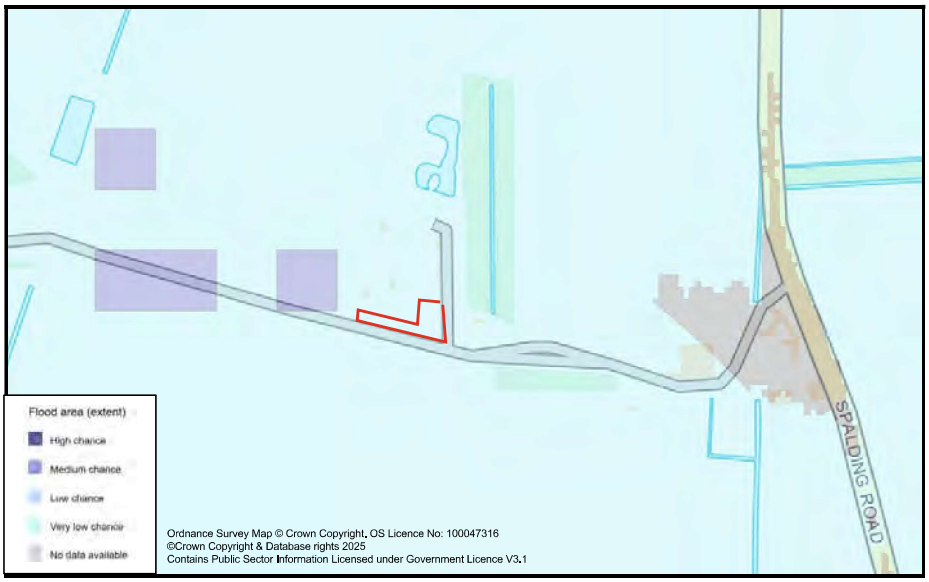


Flood Map for Planning with Climate Change (Source EA)

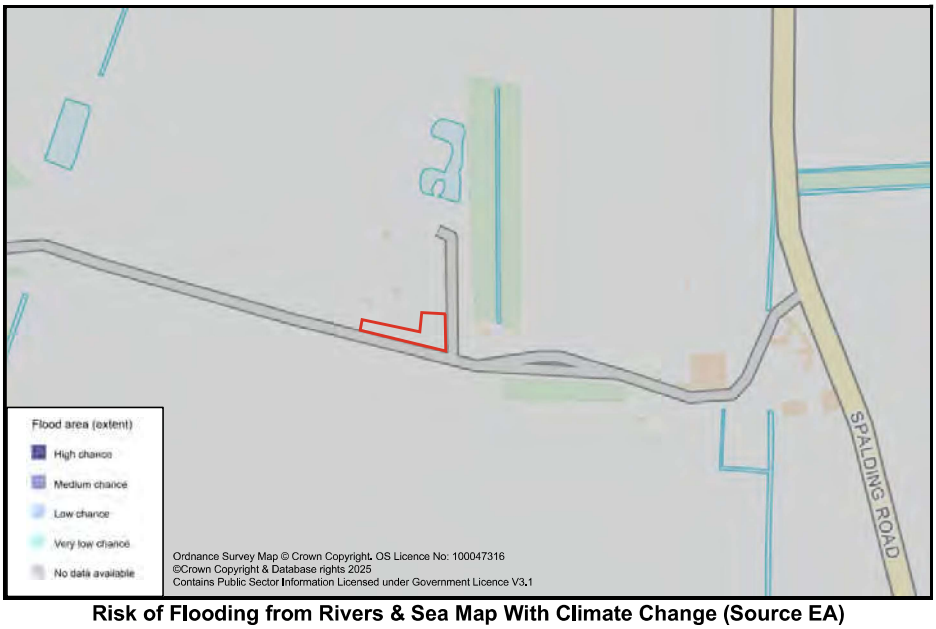
On the 27 August 2025 the Environment Agency added a new layer on “Flood Map for Planning Flood Zones plus Climate Change”, which shows how the combined extent of Flood Zones 2 and 3 could increase with climate change over the next century. Flood Zone 1 sites that are within the ‘flood zones plus climate change extent should be treated as if they were in Flood Zone 2. The Environment Agency does not have at present any published data for climate change for this area.

Risk of Flooding from Rivers & Sea

The Risk of flooding from Rivers and Sea map was updated in January 2025 and for the present day shows that the site for the development, to be at a medium chance of flooding. 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.



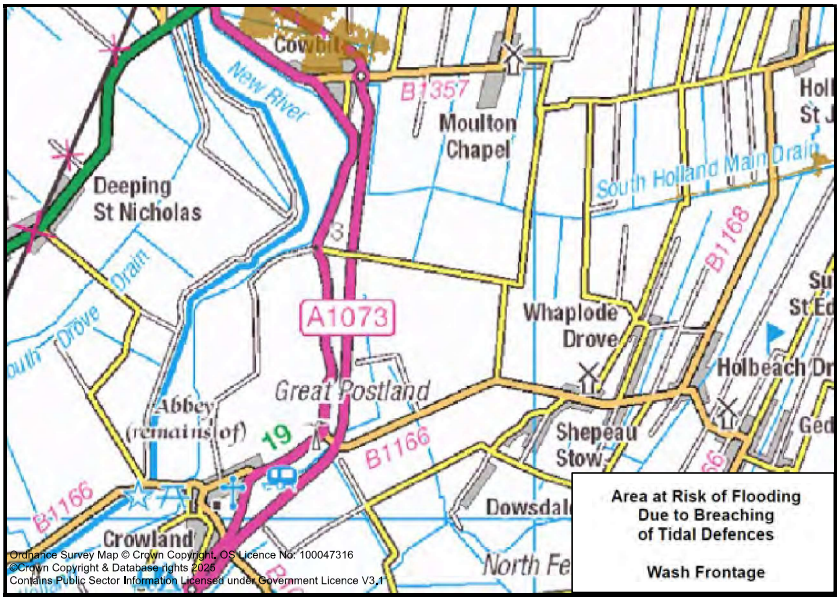
Risk of Flooding from Rivers & Sea Map Present Day (Source EA)



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

Tidal Flooding

The site is not shown to be affected by tidal flooding on the map below from a breach to the tidal defences.



Fluvial Flood Risk

The main risk of flooding is therefore from flooding from Main River.

Fluvial Defences

In this particular area, the main risk of flooding is from a breach to the Crowland washlands embankment which lies some 1700m west of the site with the River Welland lies some 575m further to the west.

The fluvial defences protecting the site consist of Crowland-Cowbit Washes and embankment. They are in fair condition and reduce the risk of flooding 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.

River Welland.

The site is located approximately 1700m from the River Welland Crowland Washes, a controlled flood storage area on the River Welland. Flood levels in the Washes are governed by the level in the River Welland and the structures which control flow of water between them. The Wash lands are located to the east of the River Welland, and the right bank is lower than the left bank any over topping on this stretch of river will therefore be into the Washlands.

Breach Analysis to Welland Washes Defences

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 - 2.00 and extreme >2.0 based upon an empirical measure of velocity and depth.

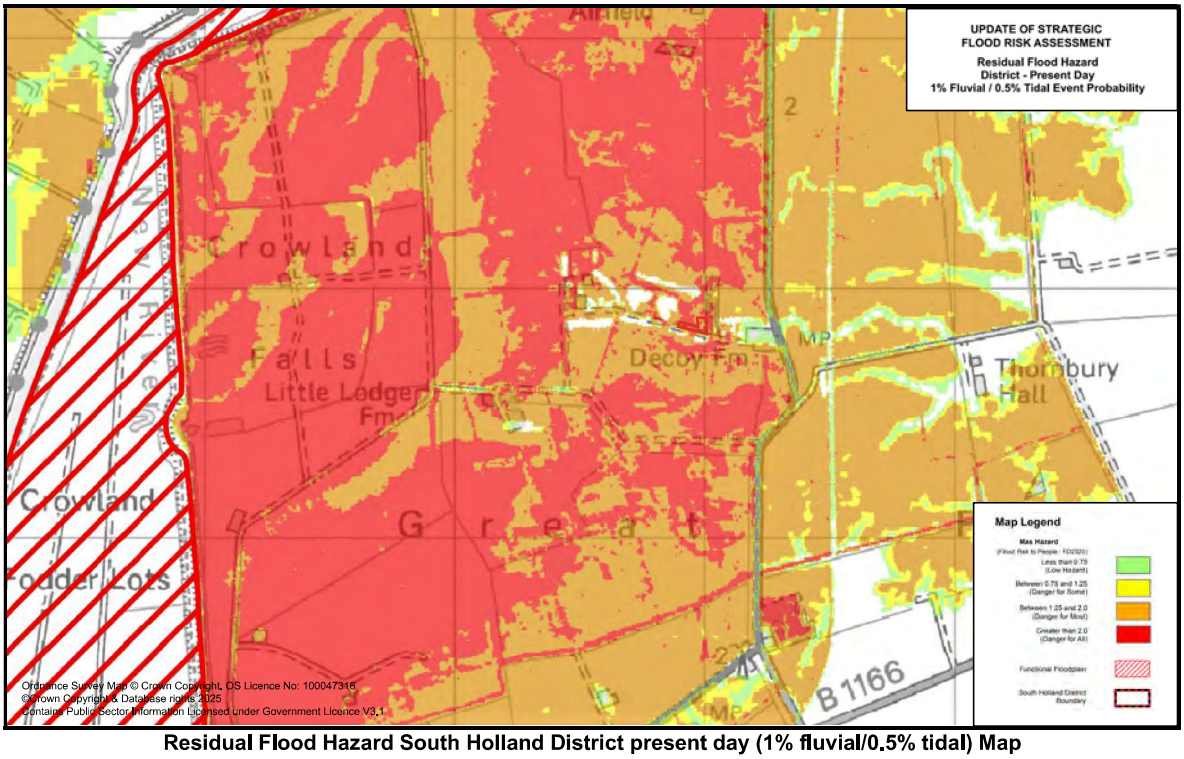
HR = d x (v + 0.5) +DF

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

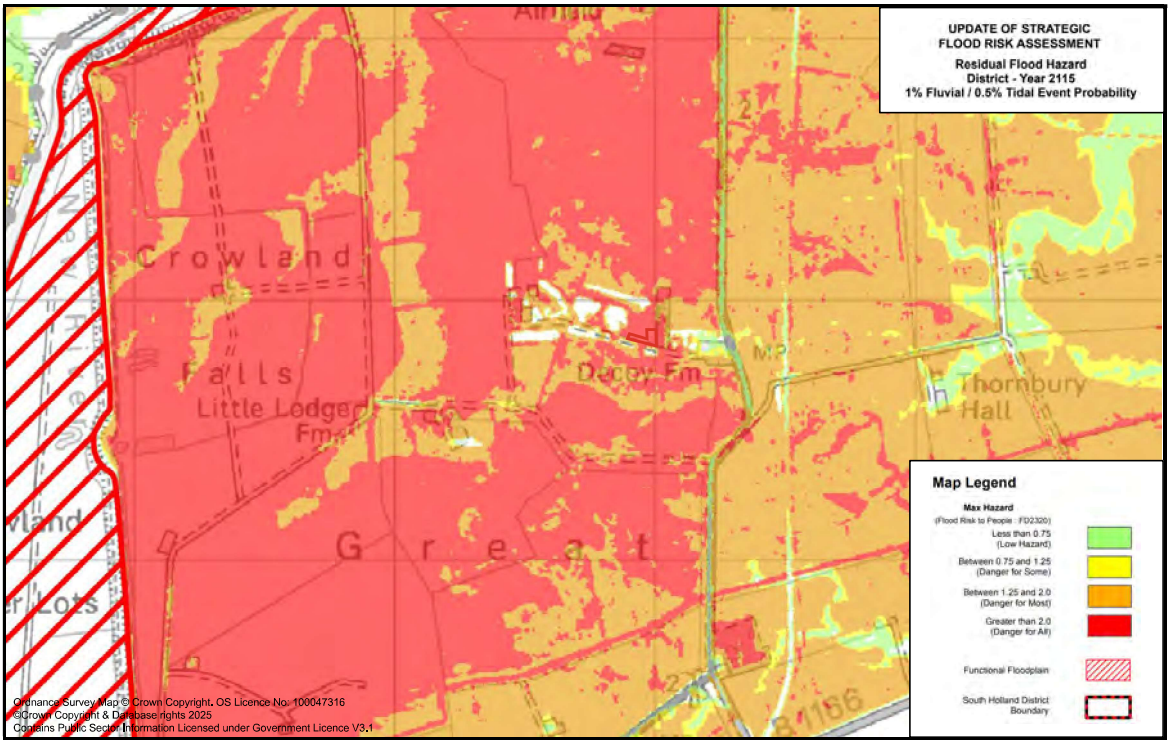
Flood Hazard			Description
	<0.75	Low	**Caution –** Flood Zone with shallow flowing water or deep standing water.
	0.75 – 1.25	Moderate	**Danger for Some -** (i.e. children) Danger Flood Zone with deep or fast flowing water.
	1.25 – 2.0	Significant	**Danger for Most –** Danger Flood Zone with deep fast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



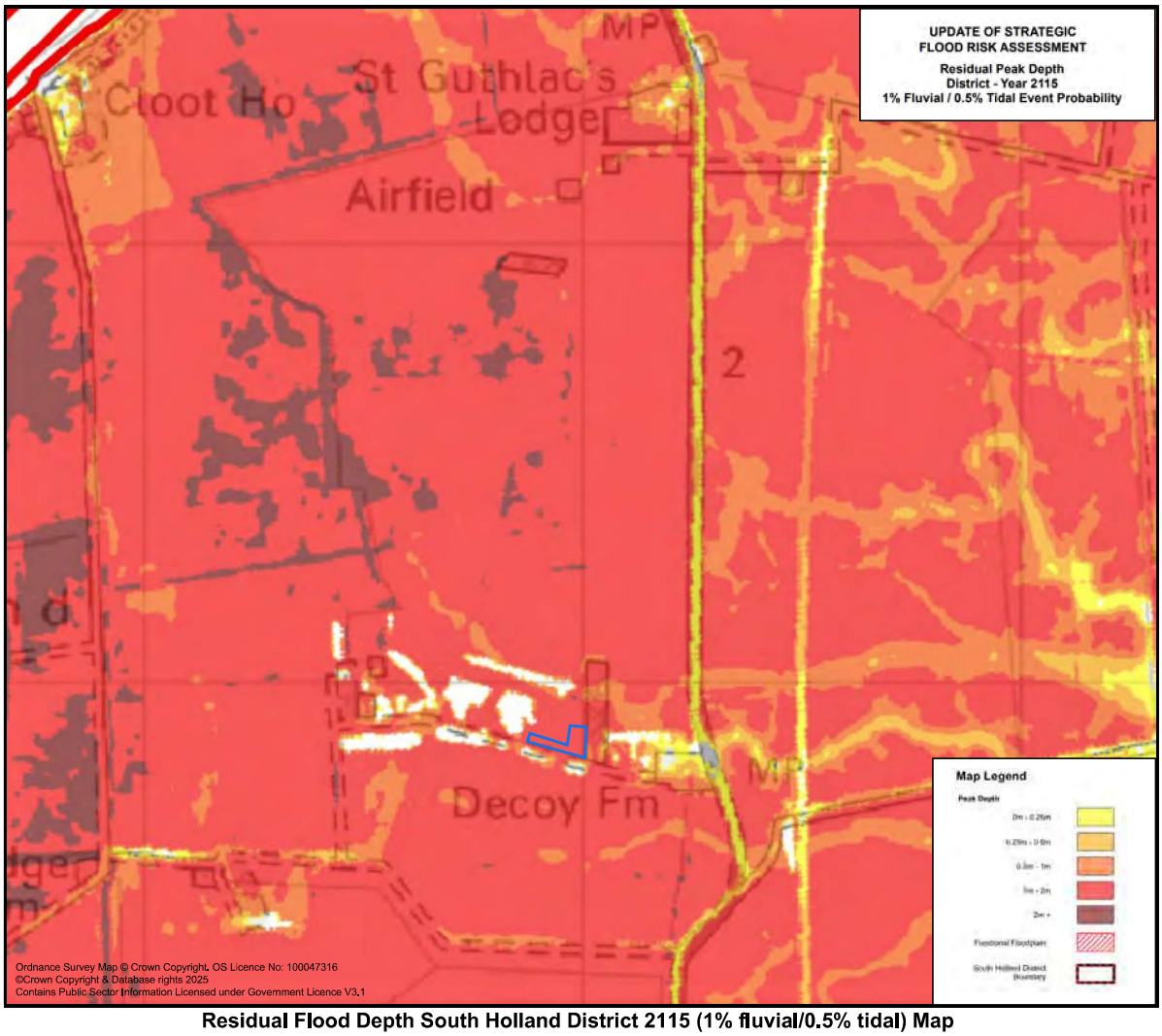
Residual Flood Hazard South Holland District present day (1% fluvial/0.5% tidal) Map

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 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 hazard area of between 1.25 – 2.0 (Danger for Most), Depth of flooding 1.0 – 1.6m, velocity 0 - 0.3m/sec.

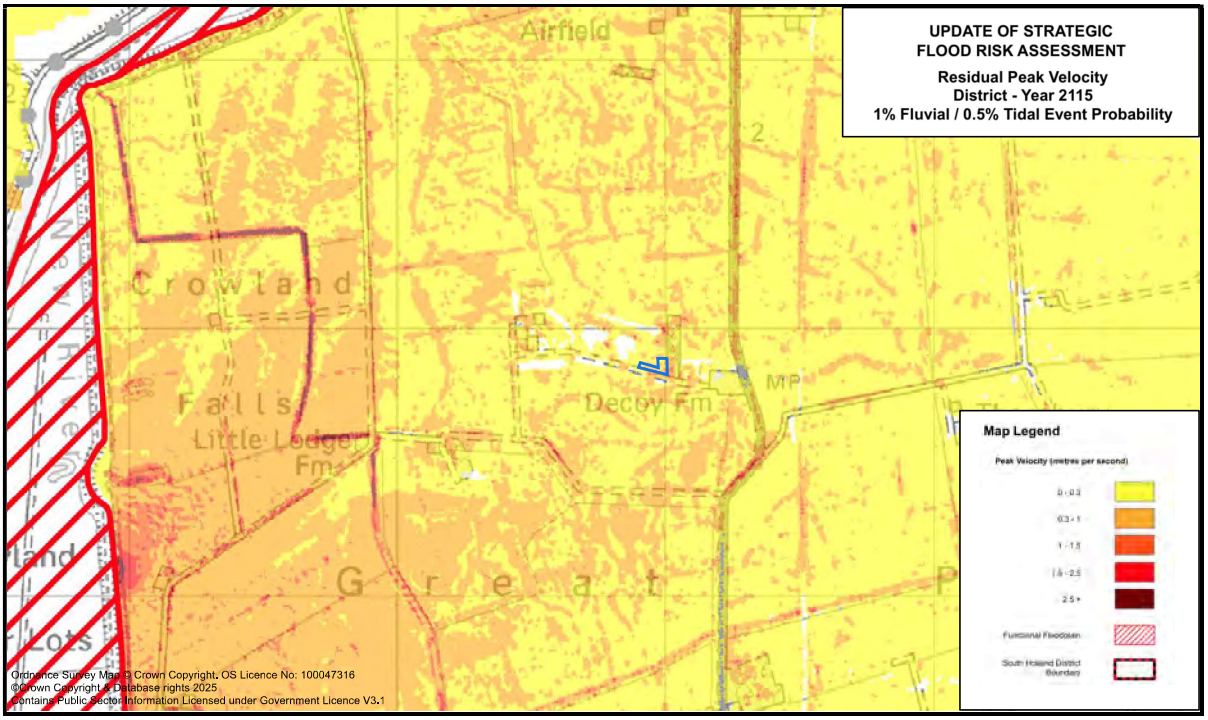
With climate change (2115) the Residual Flood Hazard, Depth and Velocity District –1% fluvial and 0.5% Tidal Event Probability show that the site where the proposed development is to be located is within hazard area of between 1.25 – 2.0 (Danger for Most) Depth of flooding1.0 – 1.6 m, velocity 0 - 0.3m/sec



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



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



Residual Flood Velocity 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.

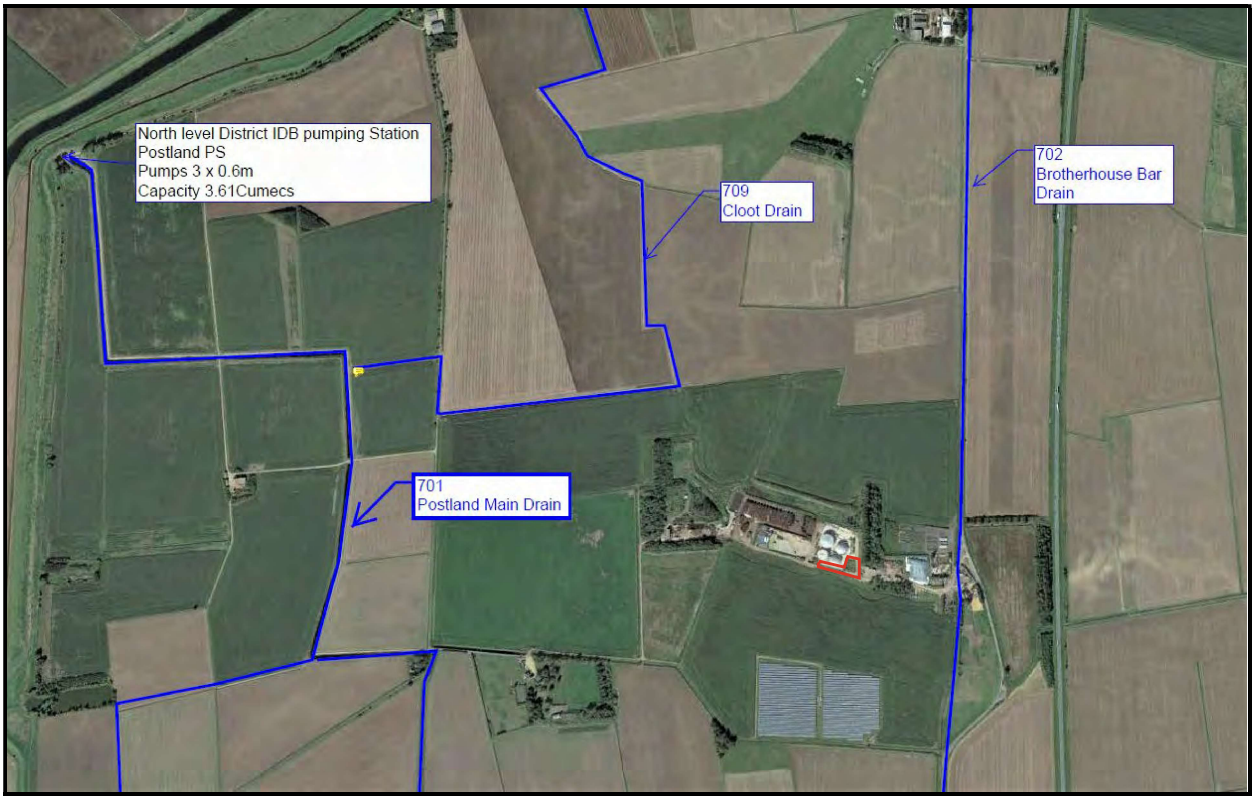
The whole of the tidal flooding information has been replaced by the mapping from the latest Environment Agency Tidal Hazard mapping. Where the mapping for an area contains both fluvial and tidal components, the more severe of the two has been presented.

North level Internal Drainage Board

The site lies within the administrative area of the North Level Internal Drainage Board who has powers under the Land Drainage Act to carry out measures to alleviate flooding in Districts with special drainage needs other than Main River.

The site is within the Postland drainage area which drains to Postland Pumping Station constructed in 1973 as part of the North Level Major Improvement Scheme, originally designed to evacuate surplus water from an agricultural area of 2567 hectare. In more recent years with the residential expansion of Crowland, 6.5 hectares of urban run-off now discharges directly into the drainage system. To accommodate this extra flow, the drainage

channel has been increased in size to store surplus water without increasing pump capacity, this work being funded by the developers.



Extract from North Level IDB 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, discharge of any surface water or treated effluent 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

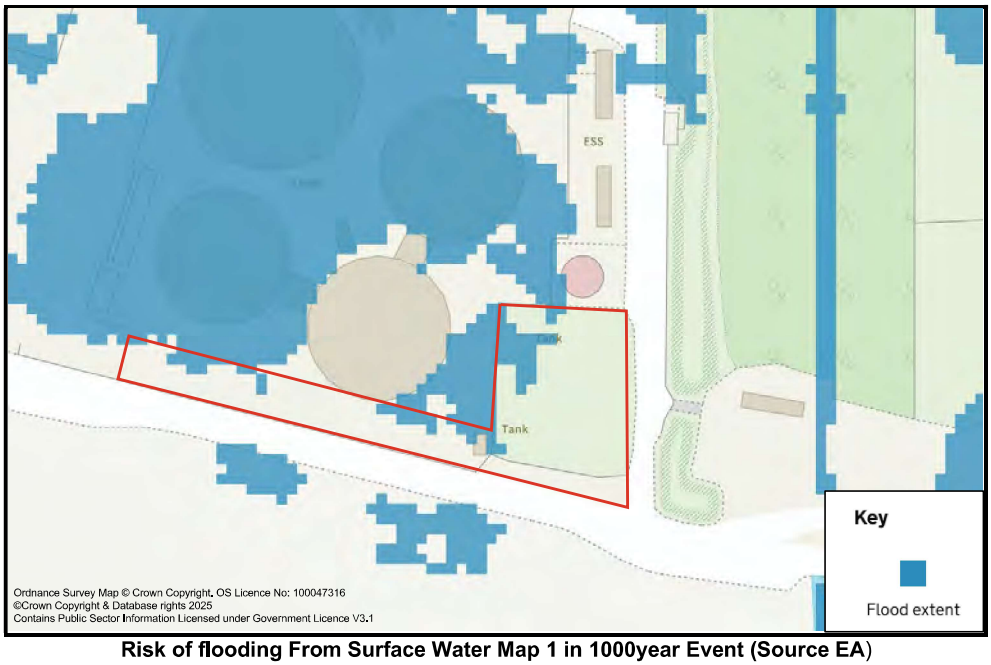
Most of the proposed development site is shown on the Surface Water flood maps, for the 1 in 1000-year event,

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 with low depressions shown to be affected.



Risk of flooding From Surface Water Map 1 in 1000year Event (Source EA)

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.

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. 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 tabe 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. Groundwater flooding can be disregarded as a significant flood risk in this area as it lies outside a ground water flood alert area.

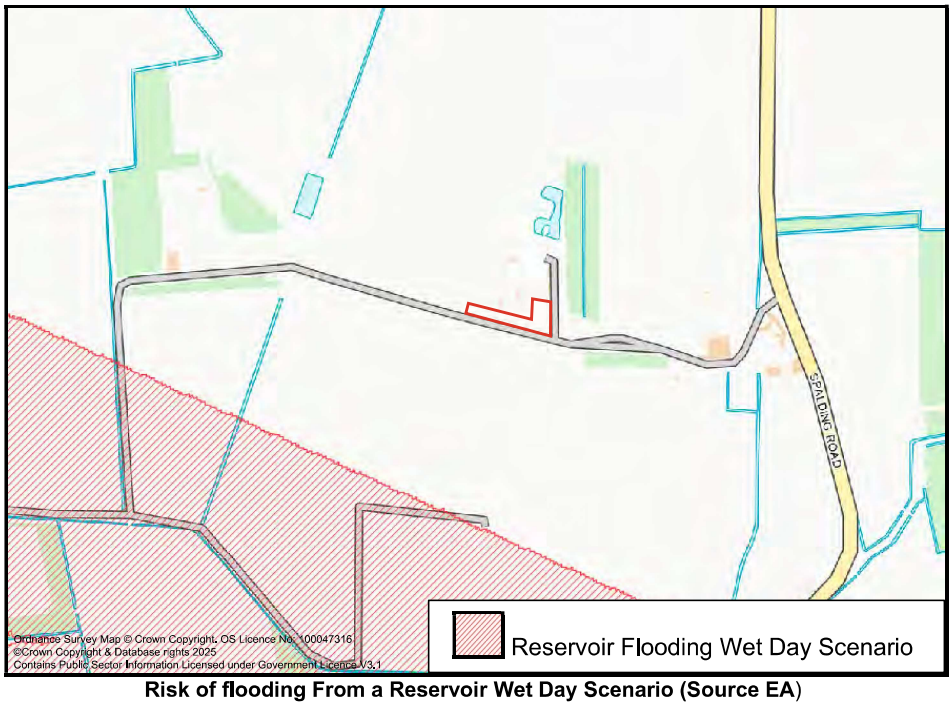
- Flooding from sewers can occur from overloading from heavy rainfall caused by blockages or having inadequate capacity. There are no public sewers close to the site

- 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.

Reservoirs

The EA has prepared reservoir failure flood risk mapping to show the largest area that might be flooded if a reservoir were to fail and release the water it holds. The mapping displays two scenarios as follows:

- Dry this is the extent when the river levels are normal,
- Wet this is the extent when there is also flooding from rivers.



Risk of flooding From a Reservoir Wet Day Scenario (Source EA)

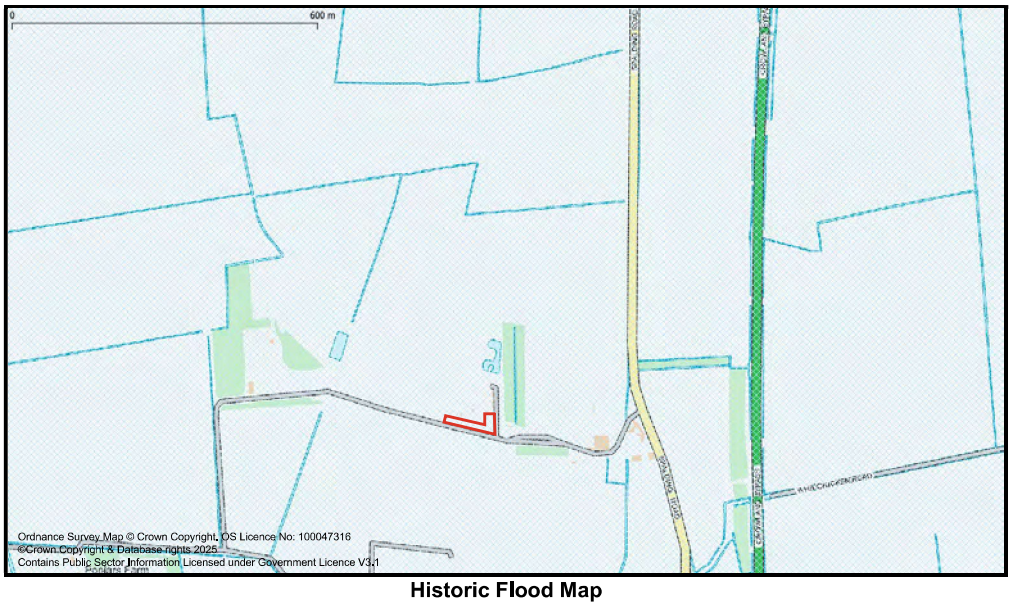
The mapping displays a worst-case scenario and is only intended as a guide. The site is shown to be at no risk of flooding due to the failure of a large, raised reservoir in the wet day scenario. All large reservoirs must be inspected and supervised by reservoir panel engineers as detailed by the enforcement authority for the Reservoirs Act 1975 in England. The EA are responsible to ensure that reservoirs are inspected regularly, and essential safety work is carried out. As such, the risk of flooding from this source is relatively low.

Canals and or Artificial Water Bodies.

The site is not at risk of flooding from canals and or Artificial Water Bodies.

HISTORIC FLOODING

The site is shown on the historic flood map as being affected by flooding from the March 1947 flood on the River Welland.



Historic Flood Map

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

The additional plant is designed to be operated in all weathers, and the rainwater from these will fall to the ground where it will infiltrate away, thus mimicking the existing situation.

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 fluvial 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 Annexe 3 NPPF, the proposed development for commercial use is classified as, “Less Vulnerable” with Table 1 of NPPG stating that such uses are appropriate in this zone (as summarised in Table 2 NPPG).

Table 2: 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 Paragraphs 161 - 186 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.

As this application is for addition upgrades to an existing anaerobic digestion plan, they cannot be located elsewhere, therefore the Sequential Test has been met.

This Flood Risk Assessment in terms of making the development safe, would be sufficient to mitigate against flood risk and demonstrates that the development will be safe for its lifetime, and it will not increase flood risk elsewhere.

Given the above, it is concluded that the Sequential Test is satisfied.

With the development being for Less Vulnerable uses the Exception Test is not required.

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 floor level for the plant is to be raised 300mm above the existing ground level and is designed to be operated in all weathers. All electrical equipment for the plant is to be housed in waterproof cabinets and raised 1.0m above the ground 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 0845 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 site for the proposed development is shown to be within Flood Zone 3 'High Probability' as detailed on the Environment Agency's Flood Zone Maps without defences.

- The Flood Risk Vulnerability Classification in Table 2 of NPPG the proposed commercial development is classified as "Less Vulnerable", with Table 1 of NPPG stating that such uses are appropriate in this zone. As this application is for addition upgrades to an existing anaerobic digestion plan, they cannot be located elsewhere, therefore the Sequential test has been met. For Less Vulnerable uses the Exception Test is not required.

- 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 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 hazard area of between 1.25 – 2.0 (Danger for Most), Depth of flooding 1.0 – 1.6m, velocity 0 - 0.3m/sec. With climate change (2115) 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 hazard area of between 1.25 – 2.0 (Danger for Most) Depth of flooding 1.0 – 1.6 m, velocity 0 - 0.3m/sec

- 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.

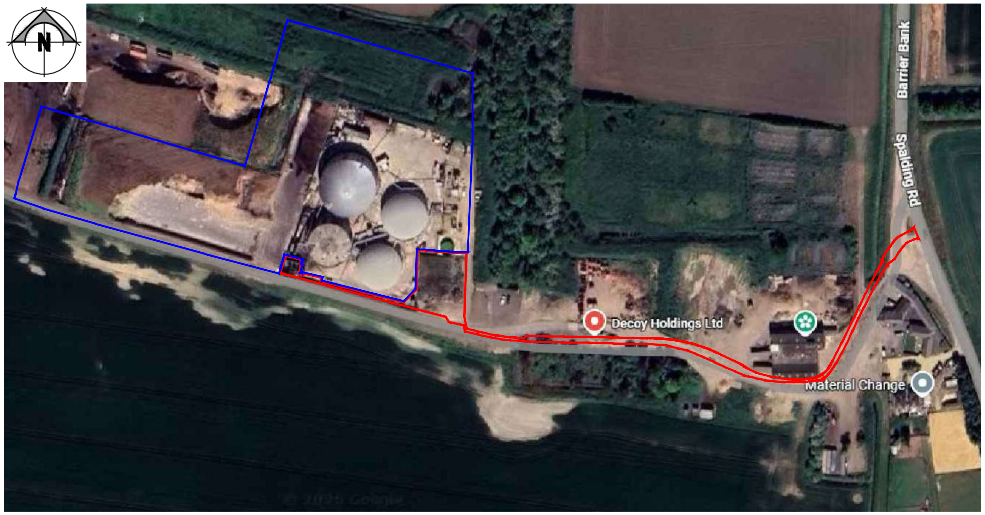
- No obvious constraints have been identified that may impact the proposed development and the type of mitigation measures that can be used to reduce the flood risk, there is no increase in the flood risk to others. Following the guidelines contained within the NPPF, the proposed development is suitable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

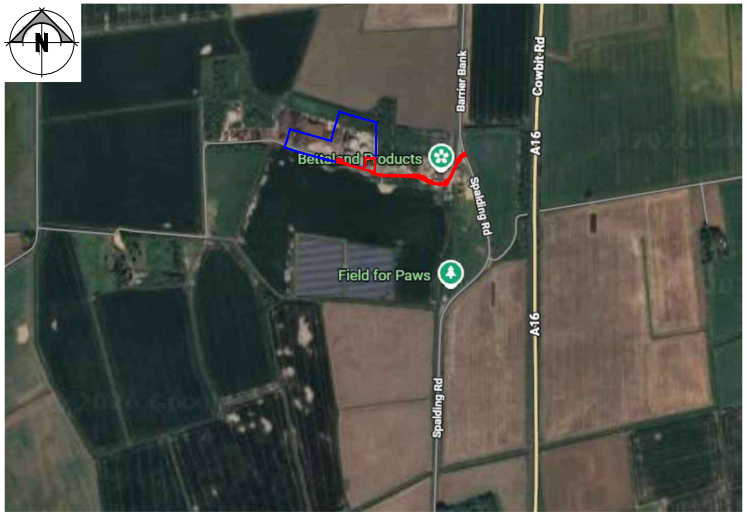
Plan 1



Topographical Survey Site Location Plan
Scale 1:1000



Site Location Plan 1
Not to scale



Site Location Plan 2
Not to scale

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   - 28028/900 - Existing Site Layout
   - 28028/910 - Proposed Site Layout
   - 18561/SK300 - Rev F - Basic Layout Plan
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   - GEA Westfalia Separator Group GmbH technical document 'GEA manure Decanter pro 6000 Technical Data'
   - Chem Resist technical document 'B. 50m3 Ammonium Sulphate Storage Tank & Bund Specification'
   - Chem Resist technical document 'A. 20m3 96% Sulphuric Acid Storage Tank c/w Integral Bund Specification'
   - Byosis drawing 'P2022-01 0.005 - Skid + Byoflex 5 Revision 1.0'

Google Maps

Aerial imagery taken from Google Maps
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GENERAL LEGEND:

- Red Line Boundary (Area 2,767m²/0.28ha)
- Ownership Boundary

FOR PLANNING

Rev	Date	Rev By	Chkd	Description
E	17-03-26	OS	JA	Ownership boundary amended
D	26-02-26	OS	JA	Copyright information added and ownership boundary amended
C	02-02-26	OS	AF	Issued for planning
B	30-01-26	OS	AF	Ownership boundary amended
A	26-01-26	OS	JA	Updated to suit client comments
0	23-01-26	-	JA	First Issue

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civil • structural • environmental • surveying

Client
Material Change Ltd.

Project
Proposed AD Process Upgrades, Decoy Farm AD Plant, Crowland, Lincolnshire

Drawing Title
Site Location Plan

1:1000 - DRAWING SCALE REFERENCE (m)

40 20 10 0 20 40 60 80 100

Scale U.N.O.	Date	Drawn By
As Noted (A1)	January 2026	OS

Drawing No. 28028/990 Rev E

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Plan 2



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   - 28028/990 - Site Location Plan
   - 18561/SK300 - Rev F - Basic Layout Plan
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   - Chem Resist technical document 'B-.50m3 Ammonium Sulphate Storage Tank & Bund Specification'
   - Chem Resist technical document 'A-.20m3 96% Sulphuric Acid Storage Tank ow Integral Bund Specification'
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GENERAL LEGEND:

- Red Line Boundary (Area 2,767m²/0.28ha)
- Ownership Boundary
- Proposed Equipment Outline
- Proposed Equipment Foundation/Concrete Surfacing
- Proposed Above Ground Gravity Process Pipework
- Proposed Above Ground Pumped Process Pipework

PROPOSED PLANT LEGEND:

1. Heat Extractor
2. Skid
3. Ammonium Sulphate Storage Tank (50m³)
4. Sulphuric Acid Storage Tank (20m³)
5. Buffer Tank
6. Proposed Separator Liquid Storage Tank
7. Proposed Digestate Decanter

FOR PLANNING

Rev	Date	Rev By	Chkd	Description
E	17-03-26	OS	JA	Ownership boundary amended
D	26-02-26	OS	JA	Copyright information added and ownership boundary amended
C	02-02-26	OS	AF	Issued for planning
B	30-01-26	OS	AF	Ownership boundary amended
A	26-01-26	OS	JA	Updated to suit client comments
0	23-01-26	-	TOH	First Issue

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Client
Material Change Ltd.

Project
Proposed AD Process Upgrades, Decoy Farm AD Plant, Crowland, Lincolnshire

Drawing Title
Proposed Site Layout

1:1000 - DRAWING SCALE REFERENCE (m)
40 20 10 0 20 40 60 80 100

Scale	U.N.O.	Date	Drawn By
1:1000 (A0)		January 2026	OS

Drawing No. 28028/910 Rev E

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Plan 3



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   - 28028/910 - Processed Site Layout
   - 28028/900 - Site Location Plan
   - 18951/SK300 - Rev F - Basic Layout Plan
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   - GEA Westfalia Separator Group GmbH technical document 'GEA manure Decanter pro 6000 Technical Data'
   - Chem Resist technical document 'N, 50m3 Ammonium Sulphate Storage Tank & Bund Specification'
   - Chem Resist technical document 'A, 20m3 96% Sulphuric Acid Storage Tank c/w Integral Bund Specification'
   - Bypsis drawing P2022-01 0.005 - Skid + Byoflex 5 Revision 1.0'

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GENERAL LEGEND:

- Red Line Boundary (Area 2,767m²/0.28ha)
- Ownership Boundary

FOR PLANNING

Rev	Date	Rev By	Chkd	Description
E	11-03-26	OS	JA	Ownership boundary amended
D	26-02-26	OS	JA	Copyright information added and ownership boundary amended
C	05-02-26	OS	AF	Issued for planning
B	30-01-26	OS	AF	Ownership boundary amended
A	28-01-26	OS	JA	Updates to suit client comments
0	23-01-26	-	TOH	First Issue

1:1000 - DRAWING SCALE REFERENCE (m)

40 20 10 0 20 40 60 80 100

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Client
Material Change Ltd.

Project
Proposed AD Process Upgrades,
Decoy Farm AD Plant
Crowland, Lincolnshire

Drawing Title
Existing Site Layout

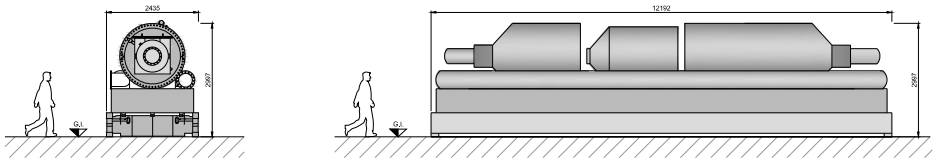
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Drawing No. 28028/900 Rev E

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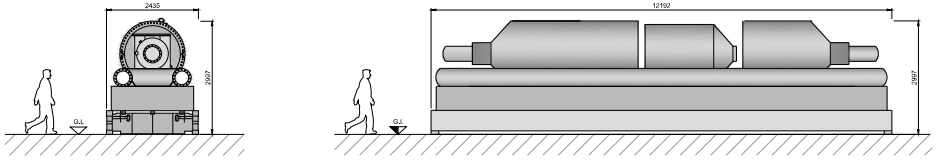
Plan 4

1. Heat Extractor



Front Elevation
Scale 1:50

Side Elevation
Scale 1:50

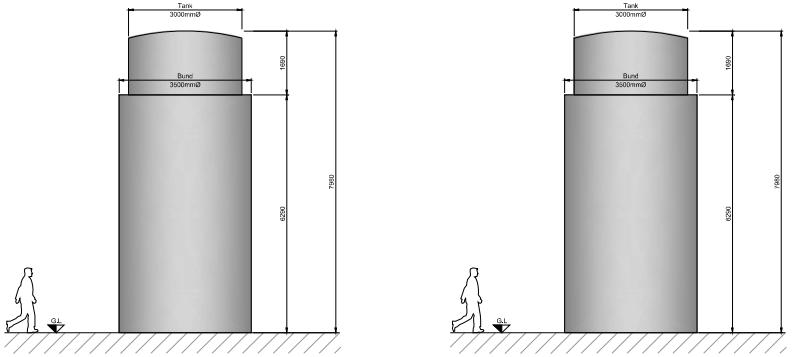


Rear Elevation
Scale 1:50

Side Elevation
Scale 1:50

3. Ammonium Sulphate Storage Tank

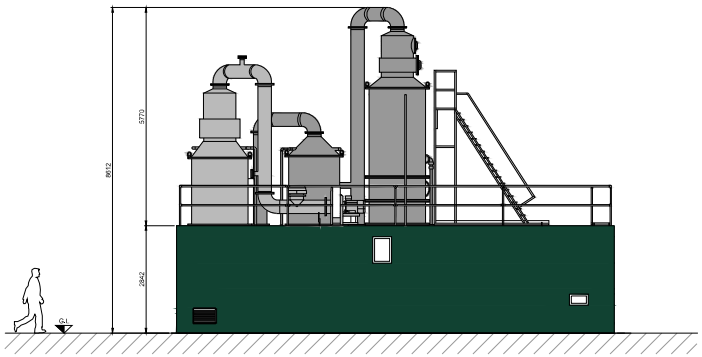
Note: Ammonium Sulphate Storage Tank is cylindrical.



Front Elevation
Scale 1:50

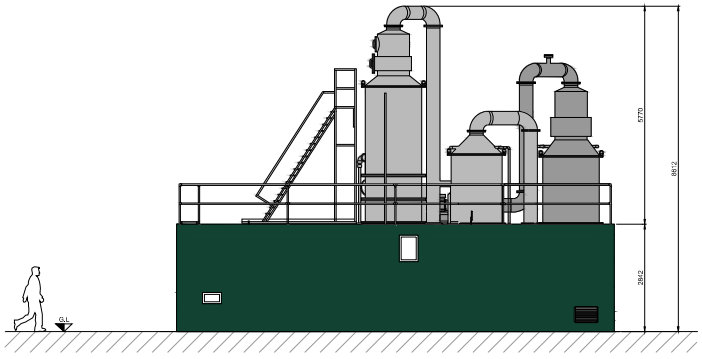
Rear Elevation
Scale 1:50

2. Skid



Front Elevation
Scale 1:50

Side Elevation
Scale 1:50

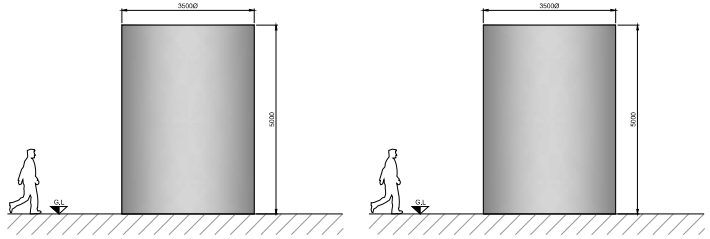


Rear Elevation
Scale 1:50

Side Elevation
Scale 1:50

5. Buffer Tank

Note: Buffer Tank is cylindrical.

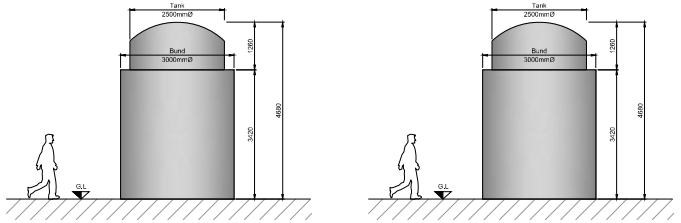


Front Elevation
Scale 1:50

Rear Elevation
Scale 1:50

4. Sulphuric Acid Storage Tank

Note: Sulphuric Acid Storage Tank is cylindrical.



Front Elevation
Scale 1:50

Rear Elevation
Scale 1:50

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   - 28028/9101 - Proposed Equipment Elevations (Sheet 2 of 2)
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   - Chem Reset technical document 'A. 20m3 98% Sulphuric Acid Storage Tank c/w Integral Bund Specification'
   - Byosis drawing 'Y2022-01 0.005 - Skid + Byoflex 5 Revision 1.0'

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FOR PLANNING

Rev	Date	Rev By	Chkd	Description
B	26-02-26	TPM	TOH	Additional Elevations Indosed
A	02-02-26	OS	AF	Issued for planning
0	28-01-26	-	TOH	First Issue

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Client
Material Change Ltd.

Project
Proposed AD Process Upgrades,
Decoy Farm AD Plant,
Crowland, Lincolnshire

Drawing Title
Proposed Equipment Elevations (Sheet 1 of 2)

Scale	U.N.O.	Date	Drawn By
1:50 (A0)		January 2026	OS

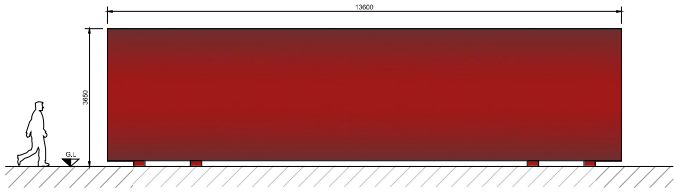
Drawing No. 28028/930 Rev. B

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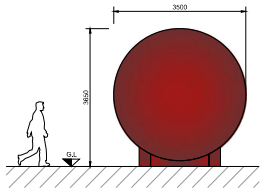
1 0 1 2 3 4 5

Plan 5

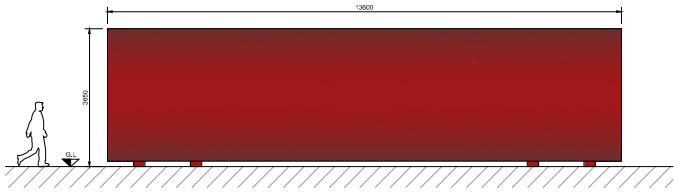
6. Separator Liquid Storage Tank



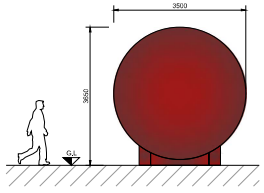
Front Elevation
Scale 1:50



Side Elevation
Scale 1:50

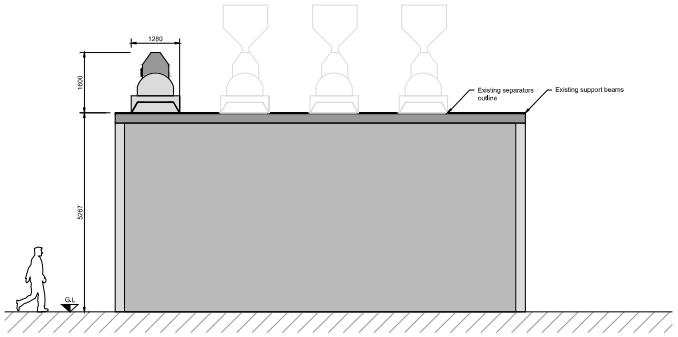


Rear Elevation
Scale 1:50

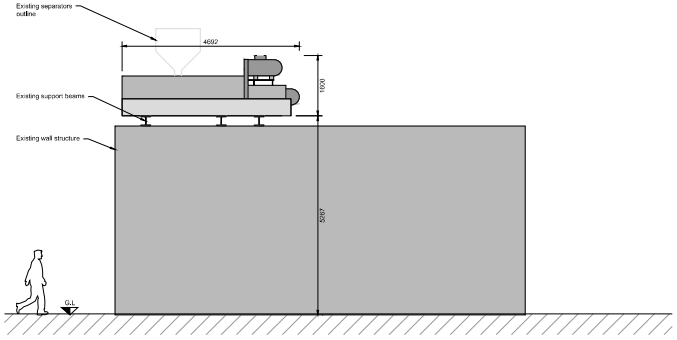


Side Elevation
Scale 1:50

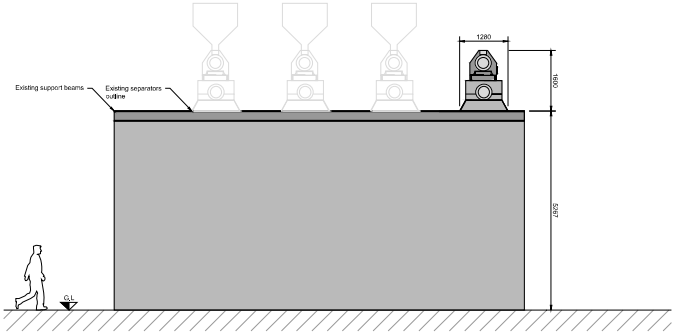
7. Digestate Decanter



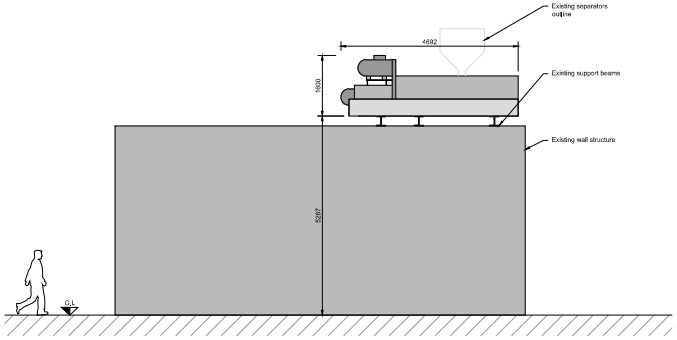
Front Elevation
Scale 1:50



Side Elevation
Scale 1:50



Rear Elevation
Scale 1:50



Side Elevation
Scale 1:50

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1:50 - DRAWING SCALE REFERENCE (m)
1 0 1 2 3 4 5

FOR PLANNING

Rev	Date	Rev By	Chkd	Description
0	26-02-26	-	TOH	First Issue

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Client
Material Change Ltd.

Project
Proposed AD Process Upgrades, Decoy Farm AD Plant, Crowland, Lincolnshire

Drawing Title
Proposed Equipment Elevations (Sheet 2 of 2)

Scale	U.N.O.	Date	Drawn By
1:50 (A0)		February 2026	TPM

Drawing No.	Rev.
28028/931	0