

FLOOD RISK ASSESSMENT

Proposed Residential Development

The Hollies,
Pilmore Lane,
Fulney,
Spalding.
PE12 6EG

RM ASSOCIATES

10 Main Street
Thorpe on the Hill
Lincoln
LN6 9BG
Mobile 07967 304737
Email : ray.rmassociates@gmail.com
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RMA

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FLOOD RISK ASSESSMENT FOR PROPOSED RESIDENTIAL DEVELOPMENT, THE HOLLIES, PILMORE LANE, FULNEY, SPALDING.

EXECUTIVE SUMMARY

Summary of Possible Sources of Flooding		
Source	Significant	Comment
Fluvial (Main River)	Medium/High	The site may be at risk from Fluvial sources in 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	Medium/High	The site may be at risk from Tidal sources in 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
Pluvial	Low	Not shown on Flooding from Surface Water Maps to be affected
Ground Water	No	Unlikely due to ground conditions
Overland flow	No	No high ground surrounding the site
Blockage	Low	Riparian watercourse nearby
Infrastructure	No	No Foul Drainage sewers close by
Reservoirs	No	Maps show the site is at no risk from flooding
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 The Hollies, Pilmore Lane, Fulney, Spalding, PE12 6EG within the administrative area of South Holland District Council. The National Grid Reference is TF26694 23292. **Plan 1**

This flood risk assessment has been prepared for a planning permission, for the demolition of two of the existing barns and for the erection of two pairs of semi-detached dwellings (four dwellings) in their place and the conversion of an existing barn to one dwelling; five dwellings in total. The application should be viewed in the light of an established fallback position under a previous approved application the approved change of use application allowed for the conversion of the existing barn buildings to form five no. dwellings, Planning Ref.H16-0836-24 dated 27th November 2024. This proposal for the demolition of two existing farm buildings and their replacement with sympathetically and carefully designed semi-detached dwellings and conversion of the remaining existing building offers a significant enhancement to the setting of the area. **Plans 2, 3, 4, 5 & 6.**

The ground floor living/sleeping accommodation for all the proposed dwellings is to be raised to a minimum of 4.09mODN as stated in Condition 3 of the extant planning permission.

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

Table 1: Flood Zones Definition

Flood Zone 3- High Probability
<p>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.</p> <p>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</p> <p>Flood Risk Assessments requirements. All proposals in this zone should be accompanied by a Flood Risk Assessment.</p> <p>Policy aims. Developers and local authorities should seek opportunities to:</p> <ul style="list-style-type: none">• reduce the overall level of flood risk in the area through the layout and form of the development and the appropriate application of sustainable drainage techniques.• relocate existing development to land with a lower probability of flooding.• create space for flooding to occur by allocating and safeguarding open space for flood storage.

Applying the Flood Risk Vulnerability Classification in Table 2 of NPPG, the proposed residential use for the site is classified as “More Vulnerable,” Table 1 of NPPG states that such uses are permitted in this zone, subject to the exceptions test.

Table 2: Flood Risk Vulnerability Classification

More Vulnerable
<ul style="list-style-type: none">• 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

From the topographical survey, the site levels vary from a low of 3.15mODN to a high of 3.80mODN, with Pilmore lane at the site entrance at 3.30mODN. the retained barn has a floor level of 3.48mODN. **Plan 6.**

DRAINAGE AUTHORITIES

Environment Agency

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

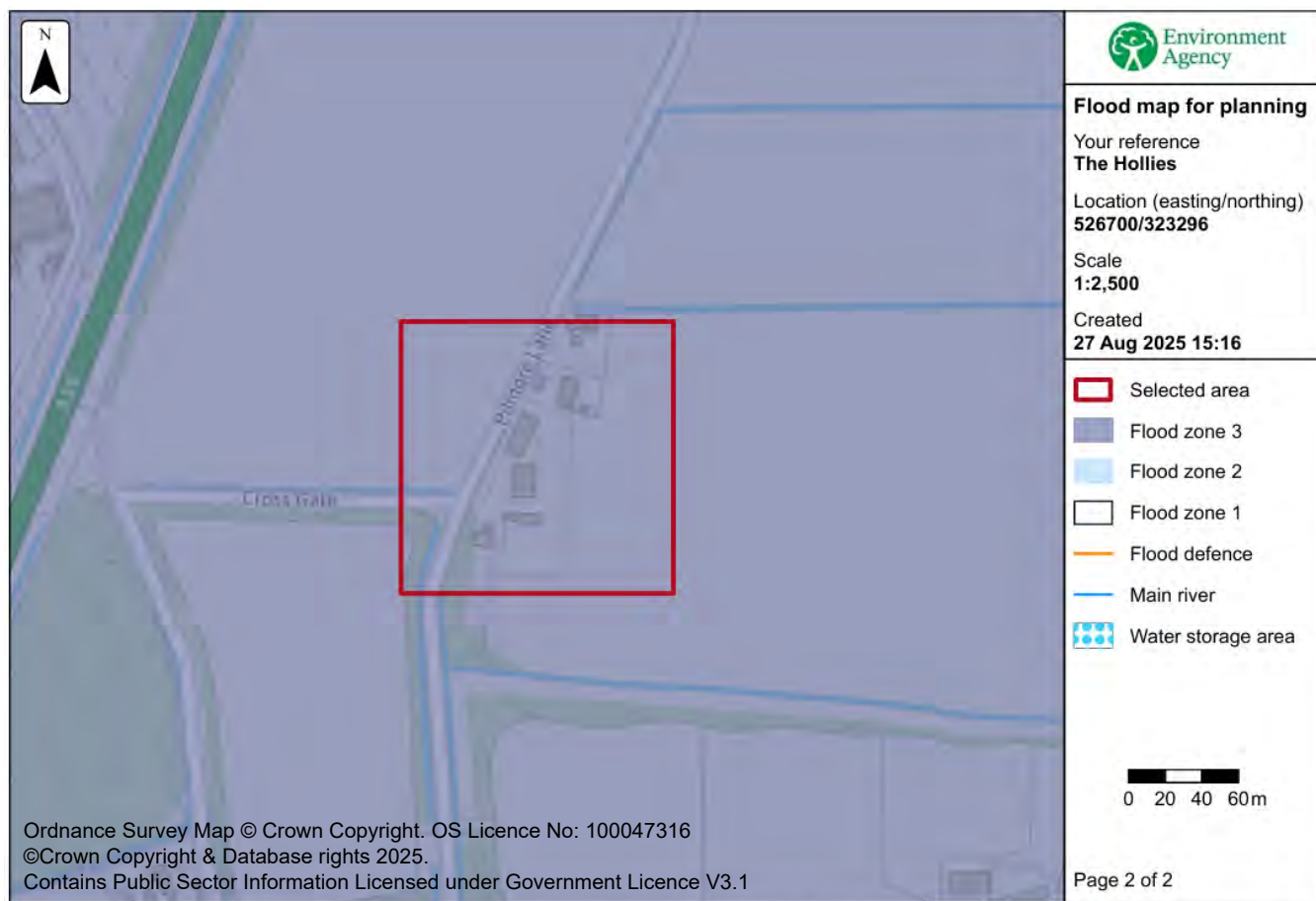
The following potential source of flooding affecting the development site has been identified as:

- River Welland/ The Wash (Tidal)

- River Welland (Coronation Channel) (Fluvial)

Flood Zones

These maps were updated on the 25th March 2025 and 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).



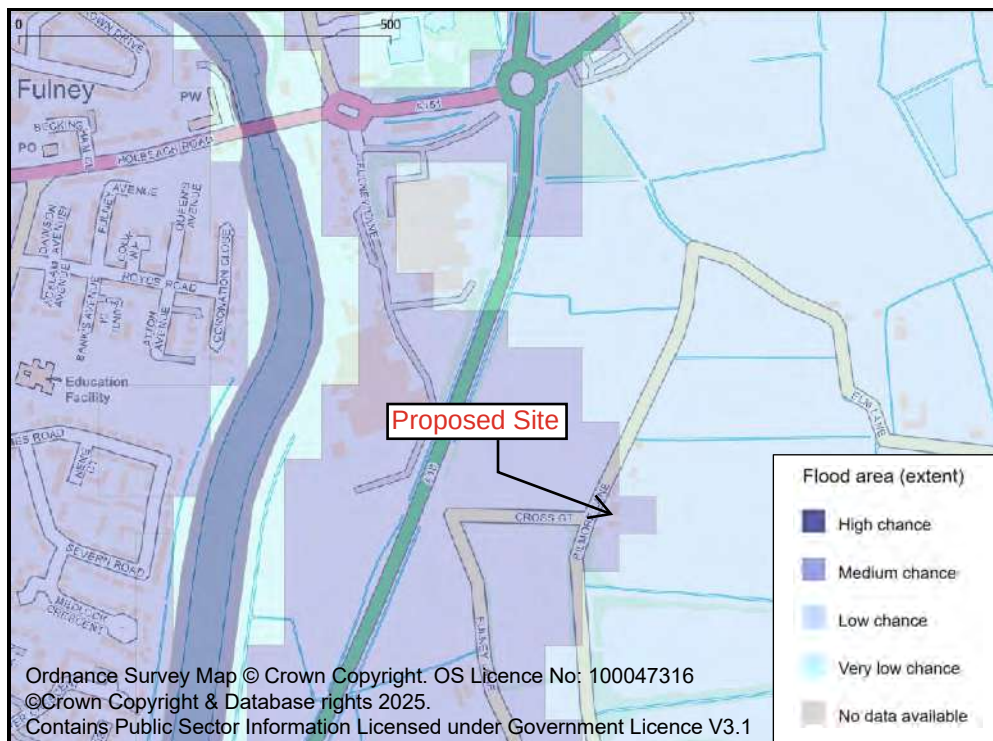
© Environment Agency copyright and/or database rights 2025. All rights reserved. © Crown copyright and database rights 2025 Ordnance Survey licence number AC0000807064.

Flood Map for Planning (Source EA)

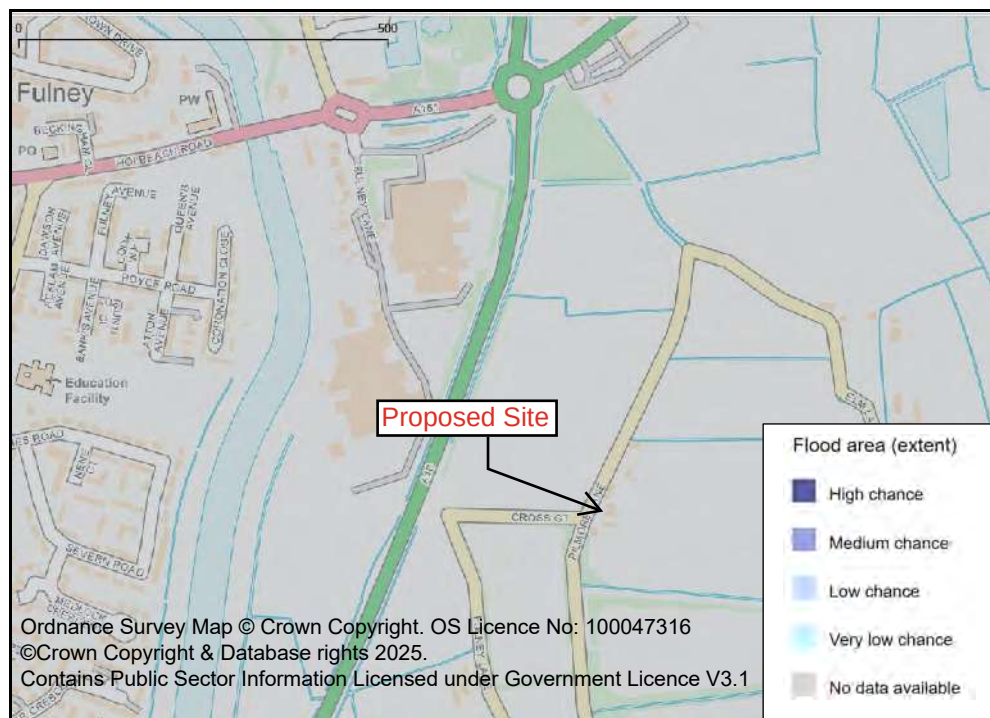
The site is included in an area where flood zones plus climate change data is not currently available.

Risk of Flooding from Rivers & Sea

The Risk of flooding from Rivers and Sea map was updated 24th January 2025 and for the present day shows the site for the development, to be at Medium Chance of flooding. Medium means that each year, this area has a chance of flooding between 1 in 100 (1%) and 1 in 30 (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.



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



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

The Environment Agency does not have at present, any date for climate change for this area.

The Tidal Defences

The existing tidal defences protecting this site consist of earth embankments. They are in fair condition and reduce the risk of flooding (at the defence) to a 1% (1 in 100) chance of occurring in any year. We inspect these defences routinely to ensure potential defects are identified. Regular inspection and maintenance is carried out

routinely by the Environment Agency to ensure potential defects are identified. The probability of major structural failure is very low, less than 0.5%.

Tidal Flooding.

From Lincolnshire & Northamptonshire Area Tidal Modal Analysis, levels for East Coast and Wash: Immingham to the West Lighthouse have an assessment date of 2017, which should be used in any consideration of future increases due to climate change. **Map 1**

Peak tide levels (2017) for the 1 in 200-year 50% confidence bound tide level is 5.98mODN at Marsh Lane, the table does not show the 1 in 1000-year levels. The 1 in 1000-year 50% confidence level at Fosdyke Bridge present day is 5.98mODN and this level is assumed to be the same at Marsh Lane.

The base date for the data is 2017 for the still water levels, the Peak tide levels Present Day (2017) at Marsh Lane for the 50% confidence bound 0.5% (1 in 1000year) is 5.98mODN.

Higher Central Peak tide levels (2124) for the 0.5% (1 in 1000) = 6.29mODN plus climate change from Table 3 (2017 – 2125) of 1090mm = 7.07mODN

Breach Analysis to the Tidal 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 1.25-2.50 and extreme >2.50 based upon an empirical measure of velocity and depth.

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

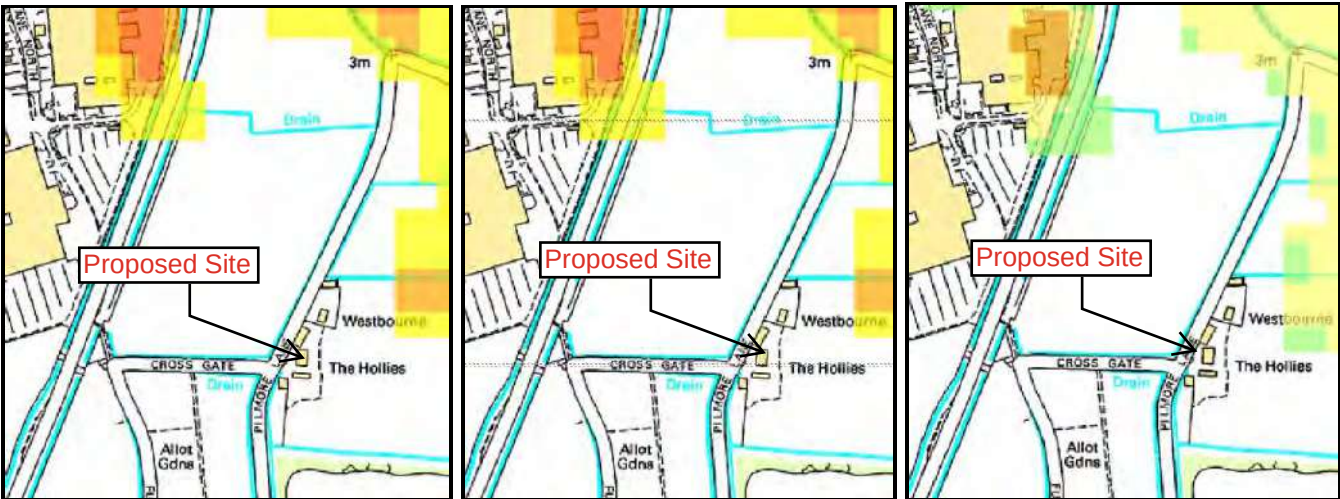
$$HR = d \times (v + 0.5) + DF$$

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

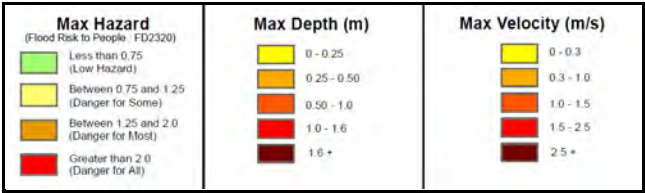
DF = A debris factor included to represent the greater damage, or risk of injury to people, that can occur if debris is swept along with the water. = 0.5 for depths <0.25 or 1.0 for depths

The Environment Agency has carried out a Tidal Hazard Mapping for the Wash following a breach to the defences.

Following a breach to the defences, the Lincolnshire & Northamptonshire Area Tidal Hazard Maps (2009), Scenario year 2006, for the 1 in 1000-year event. The maps show that the site is not within in a Hazard rating area. With climate change up to year 2115 the maps show that for Scenario annual chance 1 in 1000 year, the site is within in a Hazard rating Less than 0.75 (Low hazard) with a maximum predicated depth of flow 0 – 0.25m and velocity of flow 0 – 0.3m/sec.



Tidal Breach Maps for 1 in 1000year Event Present Day (Source EA)



Tidal Breach Maps for 1 in 1000year Event 2115 (Source EA)

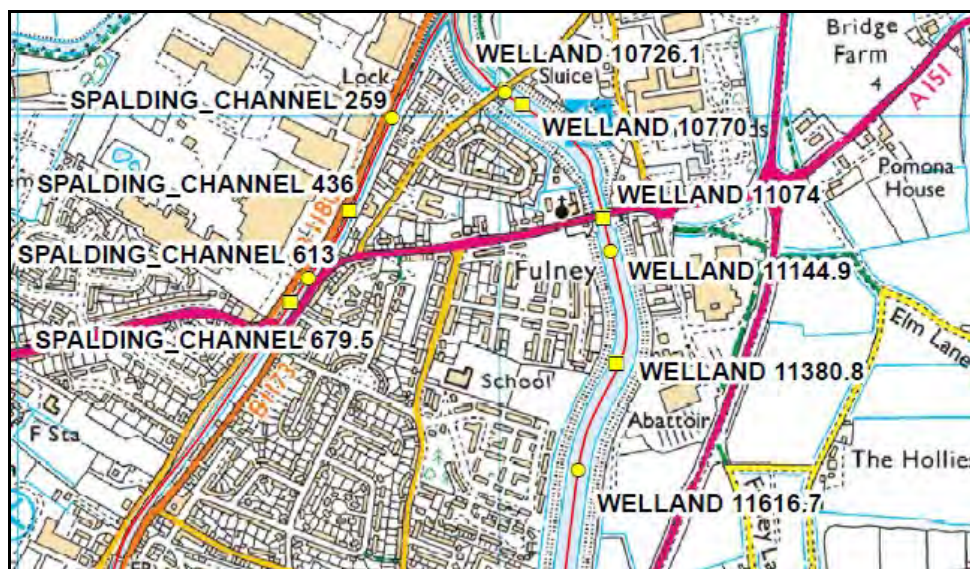
Fluvial Flooding

The site is however also subject to fluvial flooding following a breach to the Coronation Channel Flood defences, Coronation Channel is a bypass to the River Welland is located some 485m west of the site.

Fluvial Defences

The existing fluvial defences reducing the risk of flooding to this site consist of earth embankments. They are in fair condition and reduce the risk of flooding (at the defence) to a 2% (1 in 50) chance of occurring in any year. The Environment Agency inspect these defences routinely to ensure potential defects are identified.

The fluvial levels flow for these node points are taken from the Welland catchment Strategic Model 2016. and are the most up-to-date currently available. The Environment Agency aims to review their models on a regular basis.



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).

Node Label	Easting	Northing	Annual Exceedance Probability - Maximum Water Levels (mODN)											
			50% (1 in 2)	20% (1 in 5)	10% (1 in 10)	5% (1 in 20)	3.3% (1 in 30)	2% (1 in 50)	1.33% (1 in 75)	1% (1 in 100)	1% (1 in 100) inc 20% Climate Change	0.5% (1 in 200)	0.1% (1 in 1000)	0.1% (1 in 1000) inc 20% Climate Change
SPALDING_CHANNEL 259	525779	323995	3.70	4.00	4.17	4.45	4.50	4.51	4.52	4.52	4.68	4.53	4.56	4.68
SPALDING_CHANNEL 613	525605	323662	3.70	4.00	4.17	4.45	4.50	4.51	4.52	4.52	4.68	4.53	4.55	4.68
WELLAND 10726.1	526013	324049	4.33	4.33	4.40	4.42	4.46	4.47	4.45	4.44	5.49	4.43	4.43	5.50
WELLAND 11144.9	526232	323719	3.65	3.91	4.10	4.36	4.39	4.39	4.42	4.44	4.68	4.45	4.46	4.68
WELLAND 11616.7	526165	323266	3.66	3.92	4.11	4.36	4.40	4.41	4.42	4.45	4.68	4.46	4.47	4.68

Fluvial Flood Flows (m³/s)

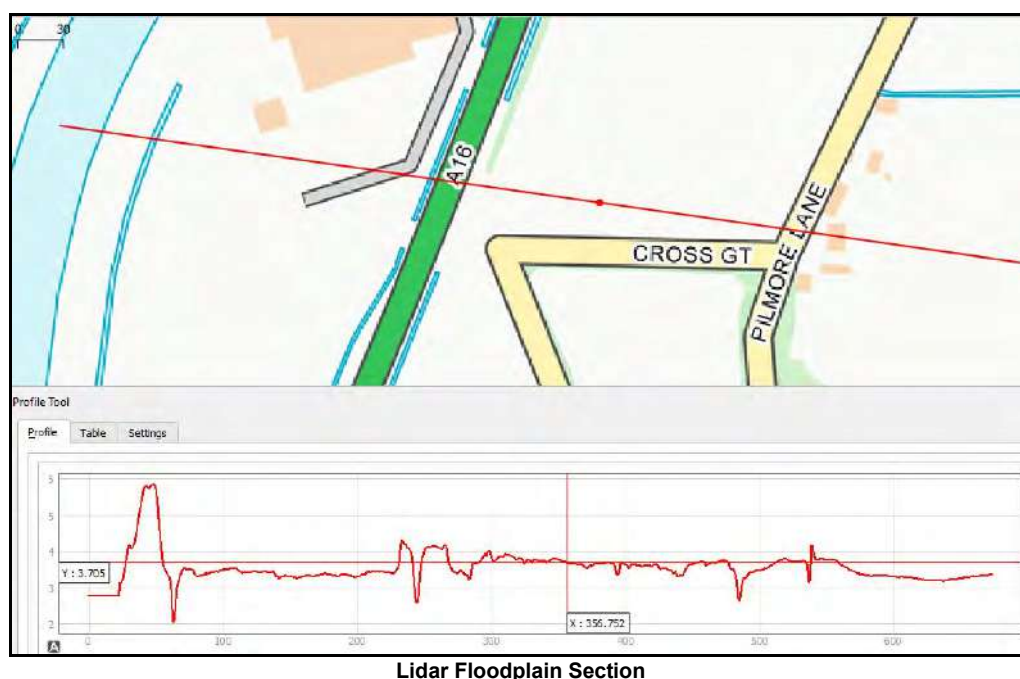
The fluvial flood flows for the model nodes shown on the attached map are set out in the table below. They are measured in metres cubed per second (m³/s).

Node Label	Easting	Northing	Annual Exceedance Probability - Maximum Flows (m³/s)											
			50% (1 in 2)	20% (1 in 5)	10% (1 in 10)	5% (1 in 20)	3.3% (1 in 30)	2% (1 in 50)	1.33% (1 in 75)	1% (1 in 100)	1% (1 in 100) inc 20% Climate Change	0.5% (1 in 200)	0.1% (1 in 1000)	0.1% (1 in 1000) inc 20% Climate Change
SPALDING_CHANNEL 436	525690	323802	0.71	1.06	0.91	1.06	1.02	1.03	1.15	1.17	1.65	1.10	1.07	1.93
SPALDING_CHANNEL 679.5	525567	323613	1.30	1.99	1.77	2.06	2.01	1.93	2.24	2.31	3.19	2.18	2.06	3.61
WELLAND 10770	526048	324023	74.58	91.64	102.46	116.08	120.26	121.43	121.70	123.79	124.12	122.86	123.37	236.17
WELLAND 11074	526216	323788	73.88	89.28	100.54	115.25	119.36	118.58	119.51	123.31	124.59	121.86	124.52	119.07
WELLAND 11380.8	526243	323488	73.26	88.29	99.60	113.62	116.57	117.69	118.52	120.34	123.53	119.44	119.22	118.30

The above 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. This 3% reduction in river levels has been discounted within this flood risk assessment.

Simple Breach Analysis.

Given the scale and nature of the proposed development it is considered that additional hydraulic modelling is not appropriate to determine the breach level at the site. Coronation Channel flood level with climate change for node Welland 11616.7 is 4.68mODN.



Lidar data reveals that the A16 Spalding Bypass is at a level of 4.17mODN and this road bisects the flood cell into two areas, the road will therefore act as a weir, this area would fill first up to the level of the road and then spill over into the remaining flood cell, giving a head of 0.51m, assuming the western cell fills to the river level. The general floodplain level between the A16 and the site is taken to be 3.70mODN.

Using the Simple Breach Tool, for the 1 in 1000-year event (Central)

Reference (number, site name etc.):	The Hollies, Fulney
Date:	21.08.2025
Model:	Coronation Chanel
In-channel node:	Welland11616.7
River Basin	Welland
Time Horizon	2080's
AEP Scenario	1000
Central Scenario Node 11616.7	4.68mODN
Ground Level / Floodplain information	
At breach	4.17mODN
Floodplain Type	Unconfined
General Floodplain Level	3.7mODN

Defence Type		Fluvial River - Earth Bank
Breach Width		40m
Distance to site from A16		260m
	Central	
Depth at site	0.09	metres
Velocity at site	0.50	m/s
Hazard value at Site	0.59	
Hazard rating at Site	Low	
Generalised FLOOD LEVEL	3.79	mODN
FLOOR LEVEL REQUIRED (inc. 0.3m freeboard)	4.09	mODN

Finished Floor Levels

The design of the buildings has taken the above flood predictions into account

The Environment Agency recommends that appropriate mitigation measures / flood resilience techniques are incorporated in the design of developments in flood risk areas. The minimum mitigation measures required for single storey developments or developments that do include ground floor sleeping shall be determined by the flood depths arising from the 2115 0.1% breach scenario. Any developments that do not include ground floor sleeping can be informed by the flood depths arising from the 1 in 100-year 1% breach scenario.

With the main risk of flooding being from a breach to the Coronation Chanel, it is proposed that the finished floor level for all the proposed dwellings be set at a minimum of 4.09mODN which is 300mm above the predicted breach flood level.

South Holland Internal Drainage Board

The site lies within the administrative area of the South Holland 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 Board does not have any maintained drains close to the site.



Extract from South Holland IDB Drainage Map

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 buildings is to be raised well above the surrounding 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.
- o Flooding from sewers can occur from overloading from heavy rainfall caused by blockages or having inadequate capacity. There are no public sewers within 150m of the site.
- o 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:

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

The mapping displays a worst-case scenario and is only intended as a guide. The site is not shown to be at risk of flooding due to the failure of a large, raised reservoir in both the dry and or 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.

SURFACE WATER FLOODING

The Risk of flooding from surface water maps were updated in January 2025 and for the 1 in 1000-year event both the present day and with the climate change scenario maps show the proposed location for the development is not at risk from surface water flooding for both the present day and with climate change.

The maps for surface water and the 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%)

The RoFSW products are an assessment of where surface water flooding may occur when rainwater does not drain away through the normal drainage systems or soak into the ground but lies on or flows over the ground instead. It includes information about flooding extents and depths.

There is a caveat contained in the Environment Agency's "Product description for the risk of flooding from surface water." RoFSW outputs are generally not suitable for property level assessment; instead, they estimate flood risk to an area of land. The method used does not provide information relating to when the floodwater may be deep enough to start causing damage or disruption to homes, roads or other infrastructure.



Risk of Flooding from Surface Water Map Present Day (Source EA)



Risk of Flooding from Surface Water Map with Climate Change (Source EA)

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

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

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/tidal 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 residential use is classified as, "More 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 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.

The application should be viewed in the light of an established fallback position under a previous approved application for the change of use of the existing barns into to provide 5 No dwellings. The approved application allowed for the conversion of the existing barns building to form five dwellings. Planning Ref. H16-0836-24 dated 27th November 2024.

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.

It is considered that the proposed development of the new-build dwellings passes the sequential test given there is a fallback position because of the extant approval which has previously been granted for the conversion of the existing agricultural buildings to five dwellings.

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.

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%	25%	40%

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

In accordance with recognised guidance, National Planning Policy Framework & Building Regulations, 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

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.

- a) The roof water from the new dwellings to be discharged to the existing drainage system serving the existing barns which will be cleaned out and repaired as necessary. Alternatively, it will be discharged via underground pipes, with silt traps incorporated, prior to connecting to cellular crate soakaways designed in accordance with BRE 365. A water butt of at least 220L internal capacity shall be installed to intercept rainwater draining from the roof of each dwelling, to reduce the risk of flooding and demand for water by recycling and to increase the level of sustainability of the development.

The access and parking areas will be constructed using permeable materials such as hardcore with gravel topping.

These arrangements are the same as those which have served the existing buildings for many years, without causing any problems.

Foul Water Drainage

Paragraph 20 of the planning practice guidance section on Water supply, wastewater sets out a hierarchy of drainage options that must be considered and discounted in the following order:

1. Connection to the public sewer
2. Package sewage treatment plant (adopted in due course by the sewerage company or owned and operated under a new appointment or variation)
3. Septic Tank

Research has revealed that there are no public maintained foul sewers within 150m of the site, therefore, the new dwelling will be connected into underground pipes discharging to a suitable sized package treatment unit.

The treatment plant and drainage network will be maintained by a management company consisting of the five property owners.

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

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 dwellings will have the following resilient materials that have low permeability to at least 600mm

above the estimated flood level incorporated in the construction in accordance with “Improving the flood performance of new buildings” CLG (2007).

- o The ground floor living accommodation for the proposed dwellings is to be raised to a minimum of 4.09mODN.
- o 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 habitable 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.
- o The ground floor to be constructed with a solid concrete floor with no voids beneath and no low-level wall vents. However, if a beam type floor is to be used, provision should be incorporated for draining the under-floor void. The wall vents are to be fitted with self-sealing air bricks manufactured by ‘Storm Meister’ or other approved, which allow air to free pass through as a usual, (complying with BS493:1995) but under flood conditions it shuts down when in contact with water. A removable mesh prevents the passage of debris which may otherwise impinge on the moving part.
- o Provide facilities for water to drain away after flooding such as installing a sump and a pump
- o 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.
- o 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.
- o 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

- o The site does have the protection of flood defences which are well maintained by the Environment Agency.
- o The site for the proposed dwellings is shown to be within Flood Zone 3 ‘High Probability’ as detailed on the Environment Agency's Flood Zone Maps without defences.
- o The main risk of flooding is from a breach to the Coronation Channel earth flood bank.

- o The ground floor living accommodation for the proposed dwellings is to be raised to a minimum of 4.09mODN.
- o 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 subject to the Exception Test.
- o The proposed development of the new-build dwellings passes the sequential test given there is a fallback position because of the extant approval which has previously been granted for the conversion of the existing agricultural buildings to five dwellings.
- o In the event of a flood incident, the safest option would be for residents to remain in the building and use the internal staircase to make their way to the first-floor area which would provide a safe haven. Residents should not attempt to leave the building and make their way through flood water, unless instructed to do so by the emergency services.
- o 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.
- o Flooding from other sources is unlikely to affect the site.
- o 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.
- o It is therefore concluded that the proposed development can be constructed, safely and sustainably, to meet the requirements of NPPF and the policies of South Holland District Council.

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

Key Node Points

Map 1



Scale 1:550,000



▲ East Coast and Wash

See separate data sheet for predicted flood levels

Created by the Partnerships and Strategic Overview Team, Lincoln

East Coast and Wash: Immingham to the West Lighthouse

2018 Coastal Flood Boundary Extreme Sea Levels

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

See next page for notes

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://deframetadadata.com/geonetwork/srv/eng/catalog.search#/metadata/84a5c7c0-d465-11e4-b0bd-f0def148f590>

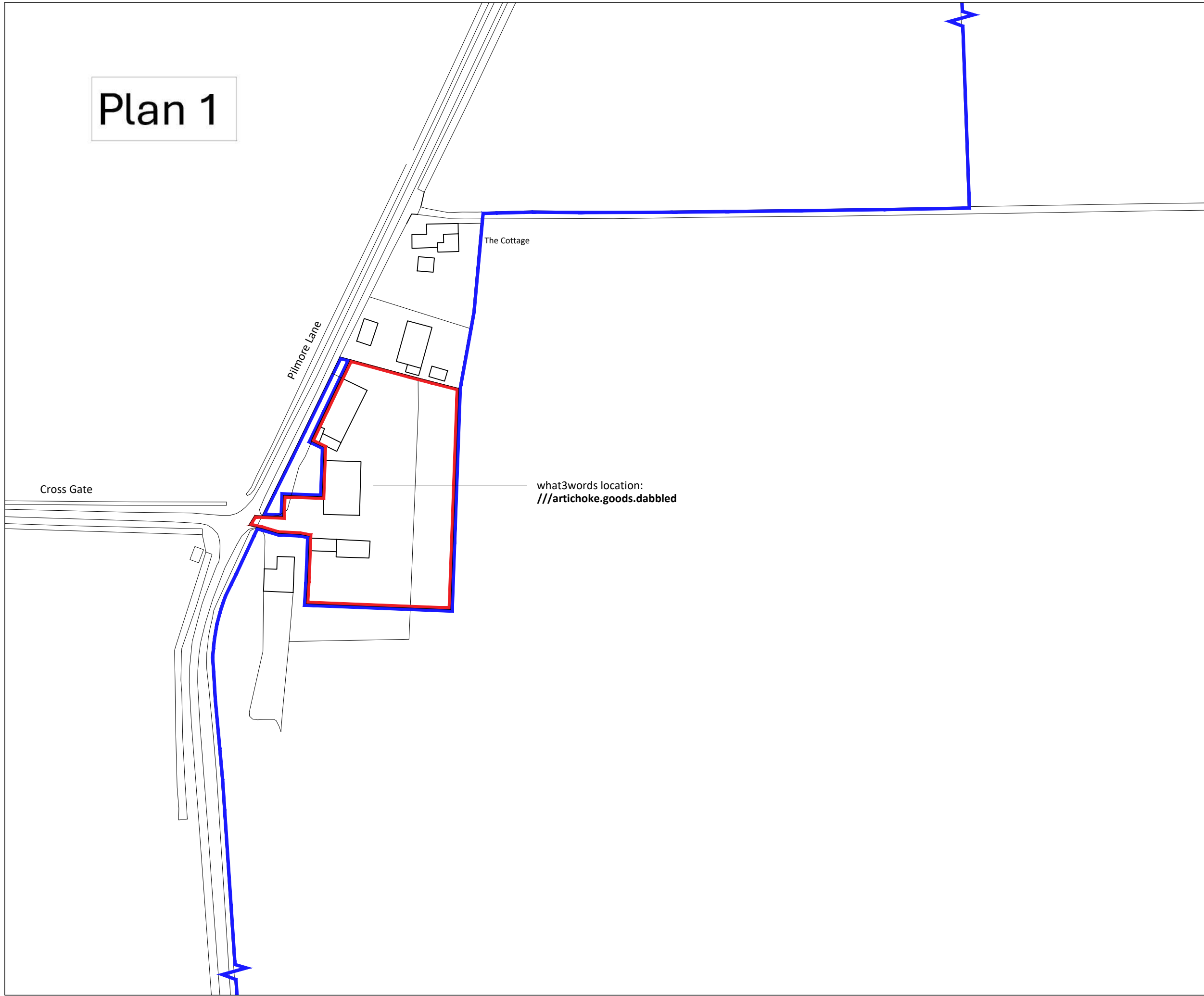
The following notes apply to all Marsh Road, Wisbech, Dog-in-a-Doublet

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

The following notes apply to Grand Sluice

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

Plan 1



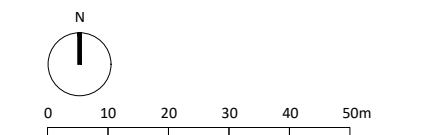
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rdc

Robert Doughty Consultancy

32 High Street, Helpringham

Sleaford, Lincolnshire, NG34 0RA

Tel: 01529 421646

Email: admin@rdc-landplan.co.uk

Web: www.rdc-landplan.co.uk

Client
Miss Veronica Frohock

Project
The Hollies Farmyard
Pilmore Lane, Fulney, Spalding, PE12 6EG

Drawing
Location Plan

Scale @ A3 1:1250	Date 13/07/26
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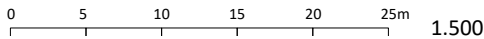
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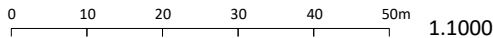
Plan 2



Proposed Site Plan



Post Development BNG plan



Post Development BNG areas

	Area (m2)	Area (ha)
Red line	3,969	0.3969
1 Developed land, sealed surface	595	0.0595
2 Developed land, sealed surface	328	0.0328
3 Artificial unvegetated unsealed surface	1,108	0.1108
4 Vegetated garden (50% of garden area)	766	0.0766
5 Unvegetated garden (50% of garden area)	766	0.0766
6 Modified grassland	406	0.0406
Total (to match red line area)	3,969	0.3969

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rdc
Robert Doughty
Consultancy

32 High Street, Helpringham
Sleaford, Lincolnshire, NG34 0RA

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

Client
Miss Veronica Frohock

Project
The Hollies Farmyard
Pilmore Lane, Fulney, Spalding, PE12 6EG

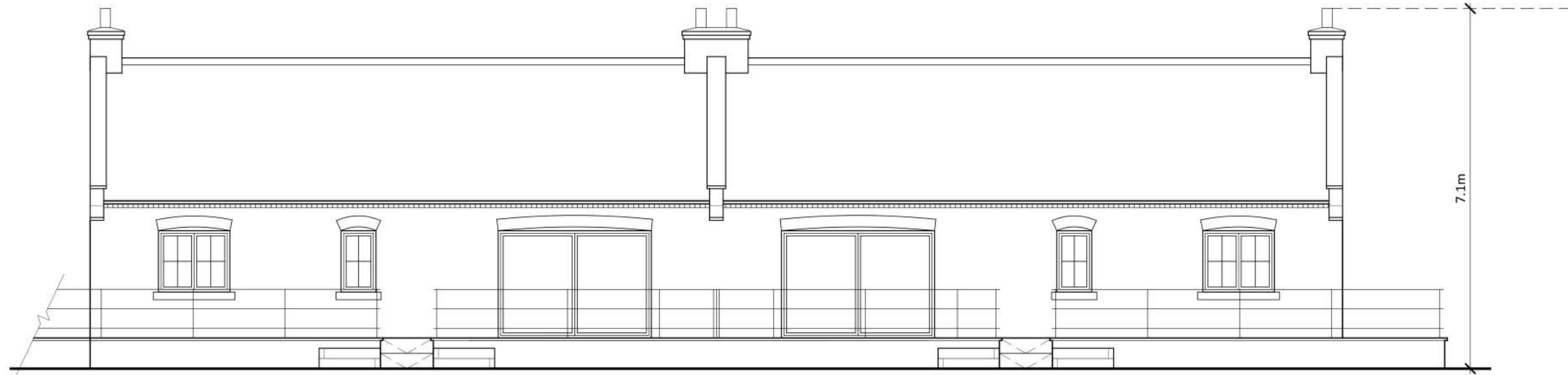
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Proposed Site Plan

Scale @ A3 As shown	Date 13/07/26
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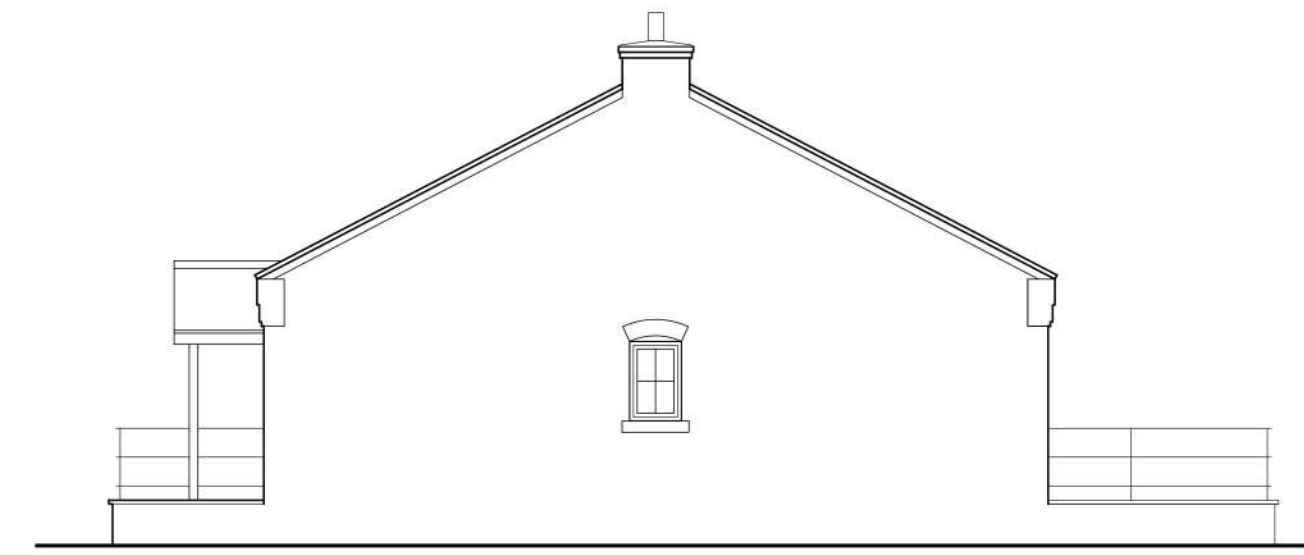
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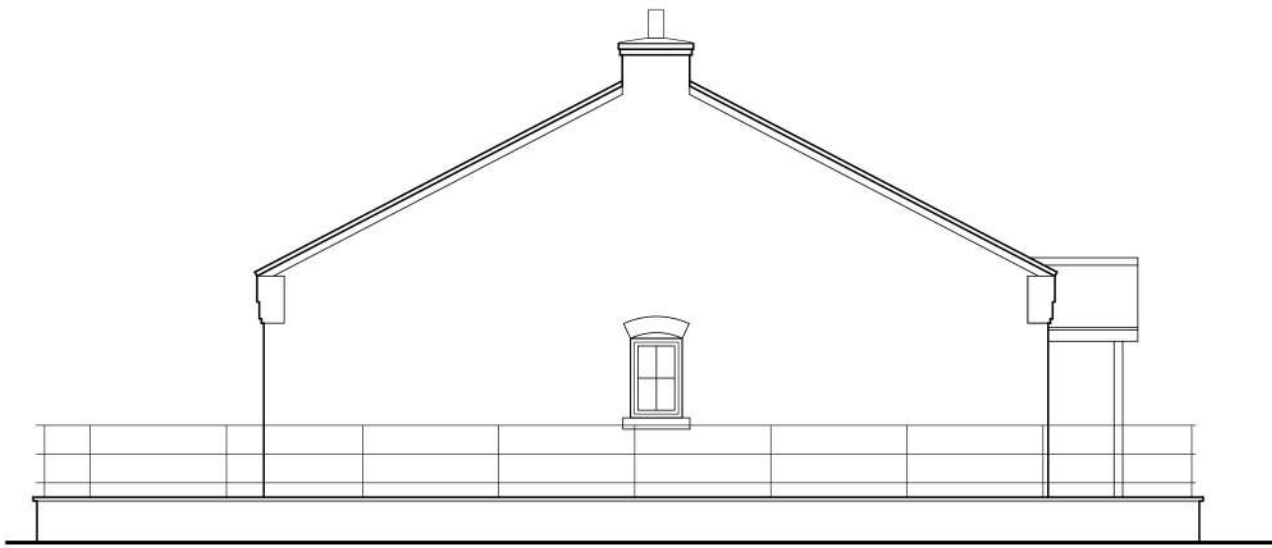
Rear (East) Elevation



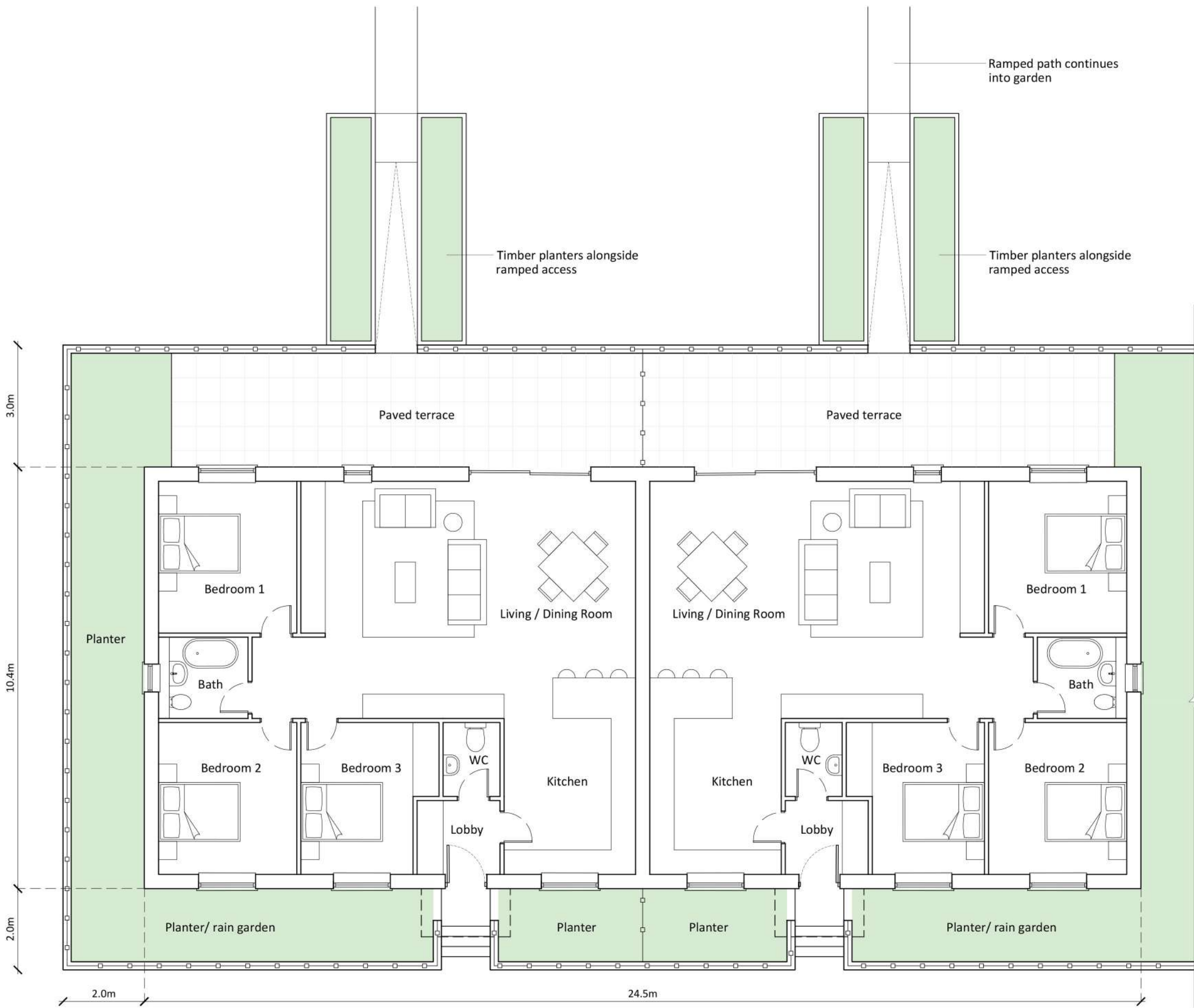
Side (South) Elevation



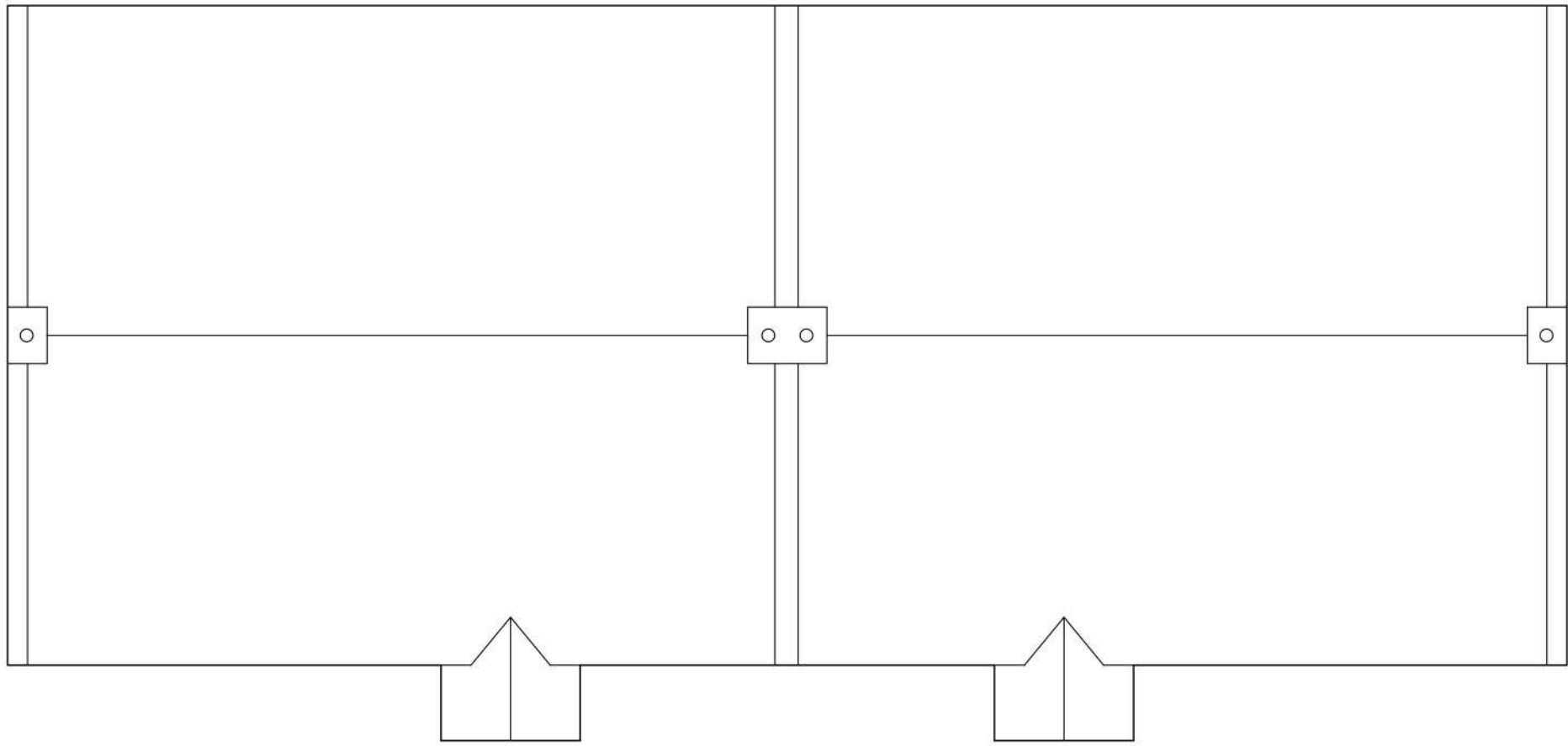
Front (West) Elevation



Side (North) Elevation



Floor Plan



Roof Plan

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Robert Doughty
Consultancy

32 High Street, Helpingsham
Sleaford, Lincolnshire, NG34 0RA

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

Client
Miss Veronica Frohock

Project
The Hollies Farmyard
Pilmore Lane, Fulney, Spalding, PE12 6EG

Drawing
Proposed Plans & Elevations - Plots 1 & 2

Scale @ A1 1: 100	Date 13/07/26
Drawn By WW/JG	Checked By -
Job Number 1623-3	Status FP
Purpose of Issue Planning	

Drawing No. 1623-3_FP_GA04	Rev -
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Plan 4



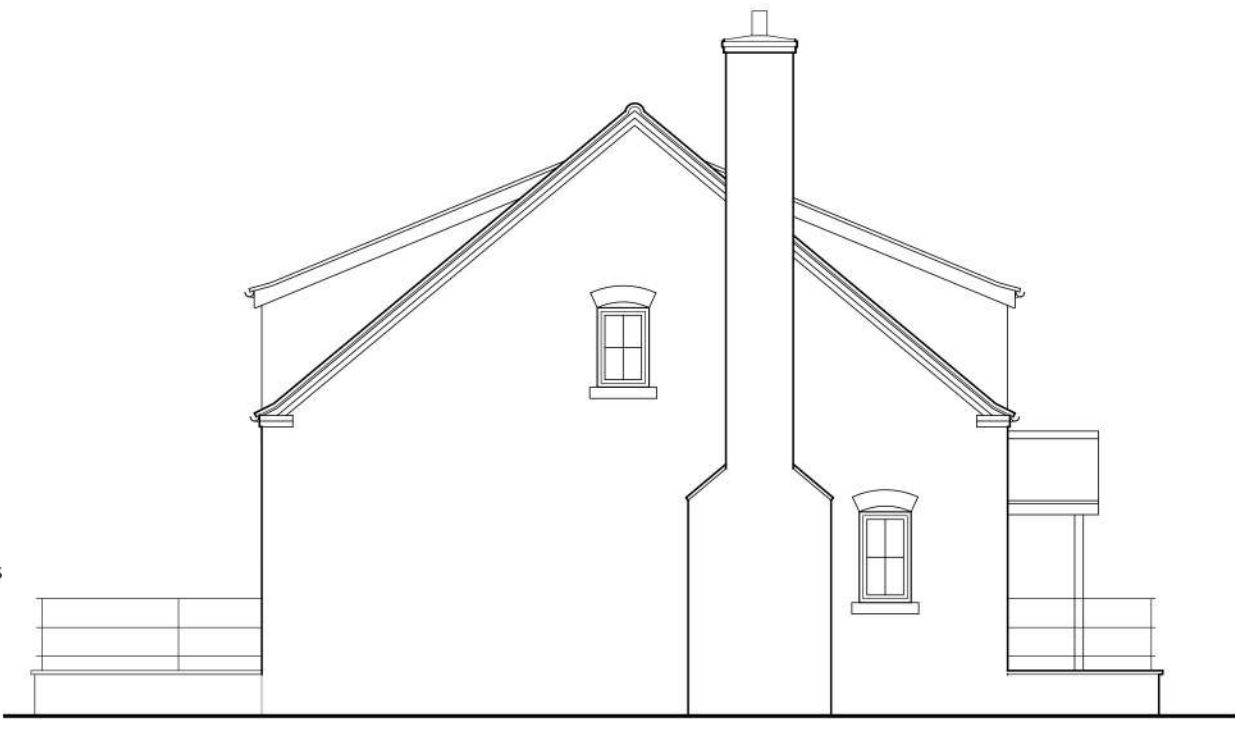
Rear (East) Elevation



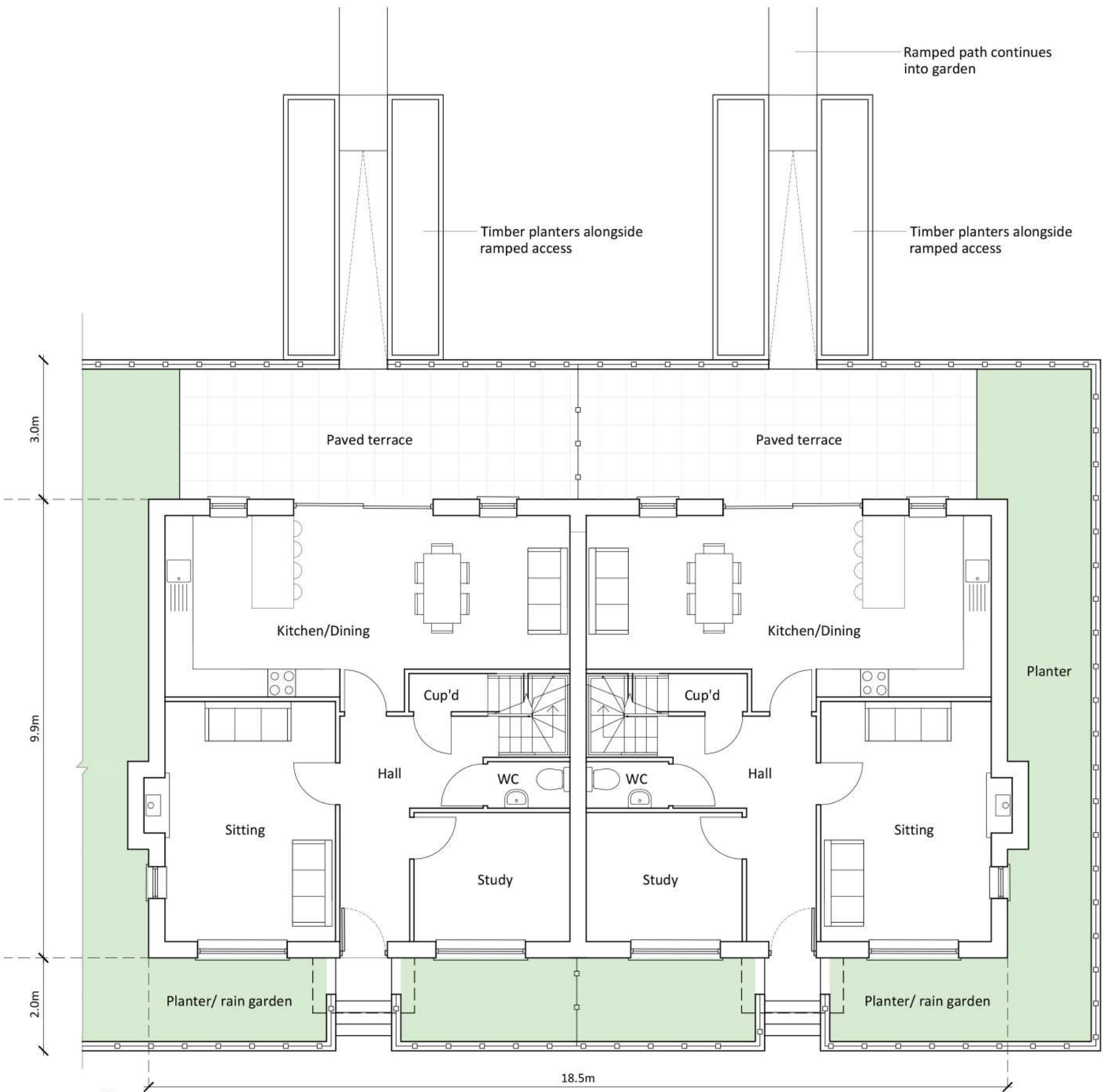
Side (South) Elevation



Front (West) Elevation



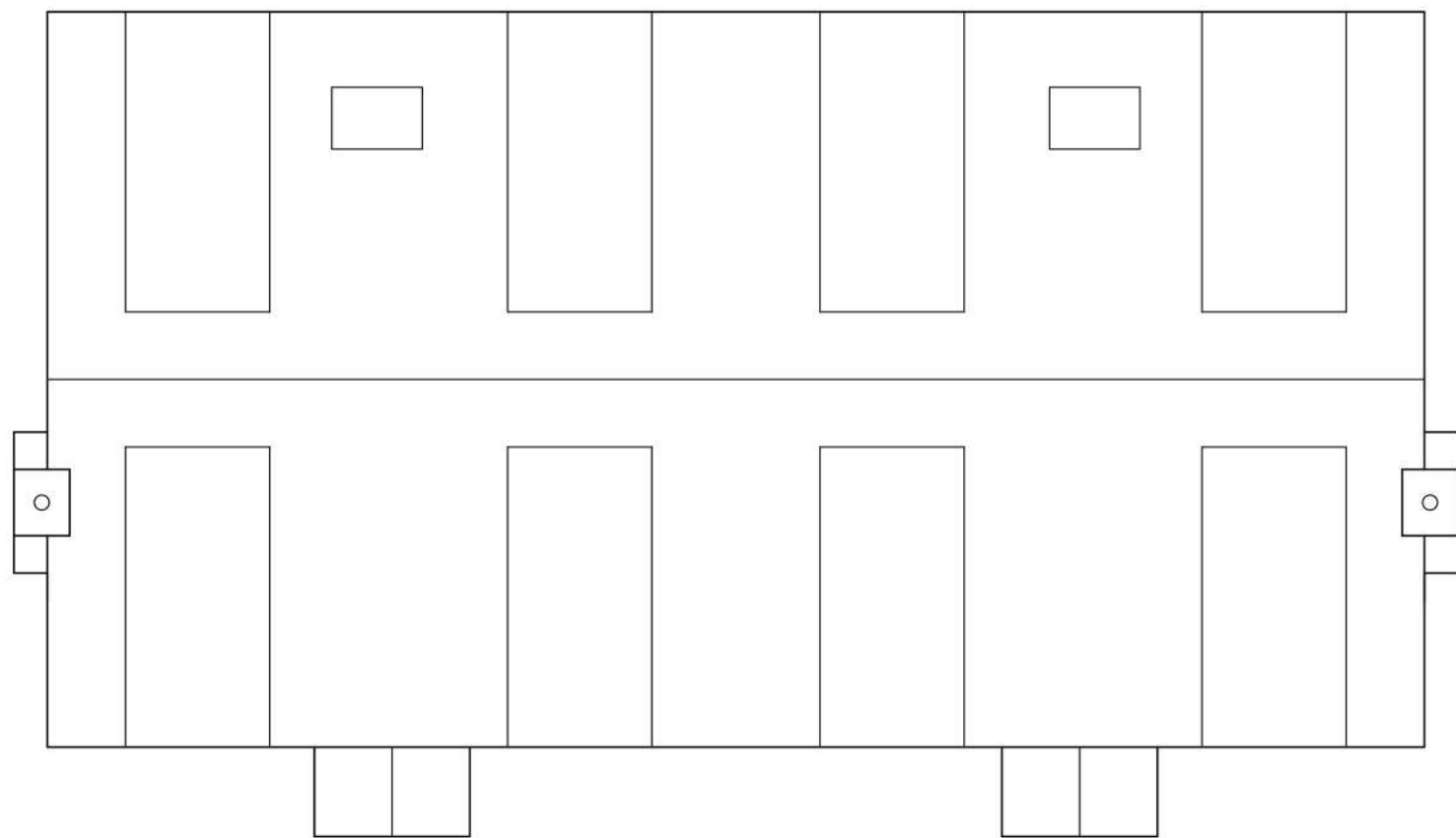
Side (North) Elevation



Ground Floor Plan



First Floor Plan



Roof Plan

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Robert Doughty
Consultancy
32 High Street, Helpingsham
Sleaford, Lincolnshire, NG34 0RA
Tel: 01529 421646
Email: admin@rdc-landplan.co.uk
Web: www.rdc-landplan.co.uk

Client
Miss Veronica Frohock

Project
The Hollies Farmyard
Pilmore Lane, Fulney, Spalding, PE12 6EG

Drawing
Proposed Plans & Elevations - Plots 3 & 4

Scale @ A1
1: 100

Date
13/07/26

Drawn By
WW/ JG

Checked By
-

Job Number
1623-3

Status
FP

Purpose of Issue
Planning

Drawing No.
1623-3_FP_GA05

Rev
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Plan 5



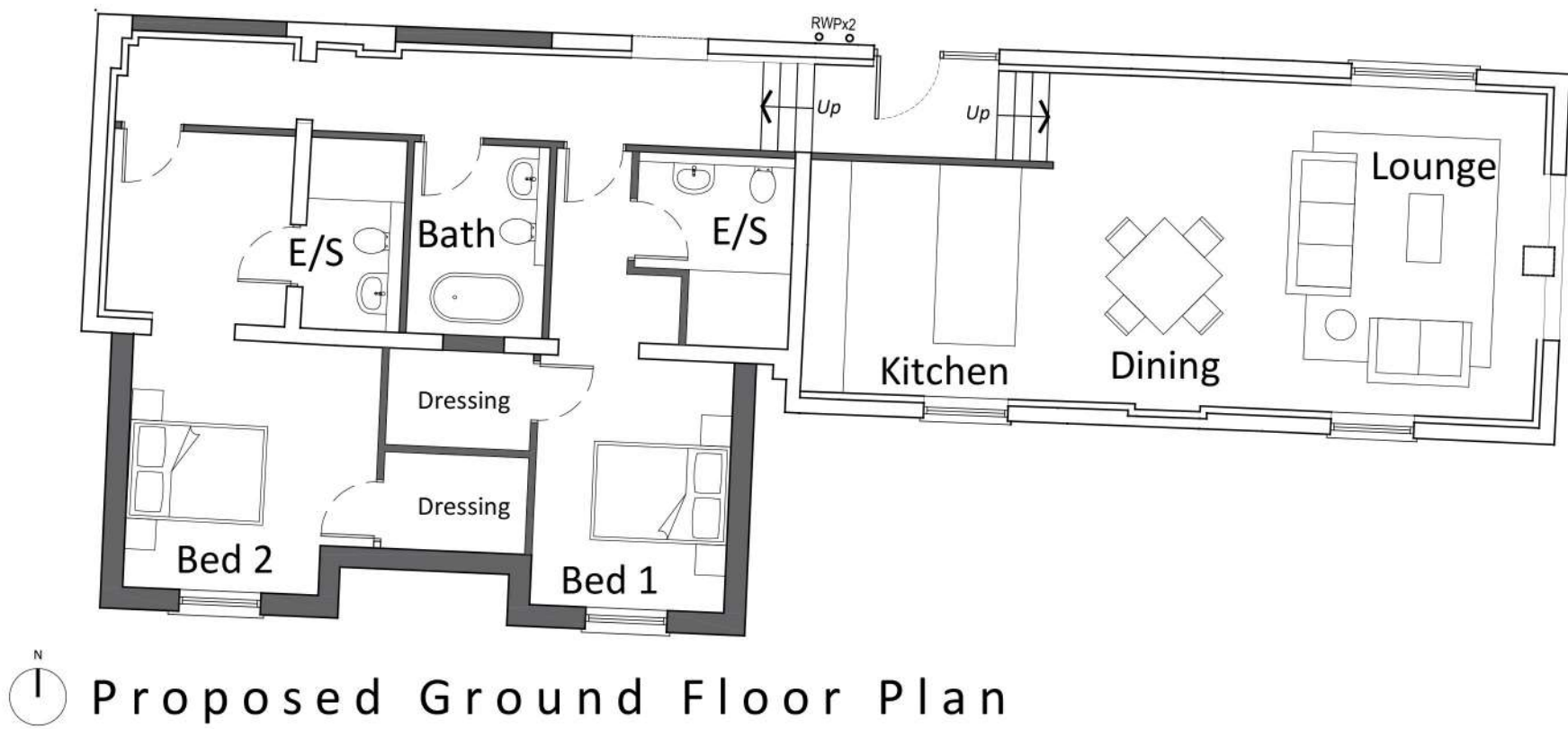
Proposed West Elevation

Proposed North Elevation



Proposed East Elevation

Proposed South Elevation



Proposed Ground Floor Plan



Proposed Roof Plan

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Robert Doughty
Consultancy

32 High Street, Helpringham
Sleaford, Lincolnshire, NG34 0RA

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

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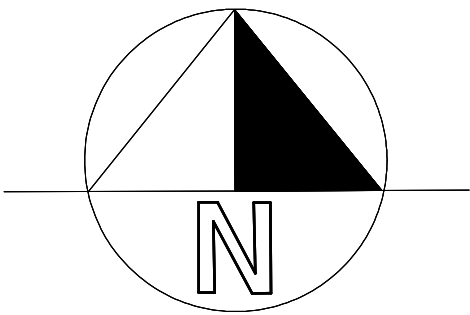
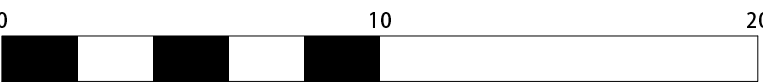
Project
The Hollies Farmyard
Pilmore Lane, Funley, Spalding, PE12 6EG

Drawing
Plot 5 Proposed Plans and Elevations

Scale @ A2 1: 100	Date 13/07/26	
Drawn By PSS	Checked By -	
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Drawing No. 1623-3_FP_GA06	Rev -
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Plan 6



NOTES

ABBREVIATIONS & SYMBOLS

AV	AIR VALVE	OHC	OVERHEAD CABLE
BH	BORER HOLE	PB	POST BOX
BOL	BOLLARD	PNV	PIPE INVERT LEVEL
CATV	CABLE TV MH	PM	PARKING METER
CCTV	SECURITY CAM	PO	POST
CL	COVER LEVEL	PT	POST TOP LEVEL
CH	CHANNEL	PRF	POST & RAIL FENCE
COL	COLUMN	PNW	POST & WIRE FENCE
DC	CABLE TV LID	RE	EDGE OF ROADING KERB
DP	DOWN PIPE	RL	ROADING LEVEL POINT
DR	DRAIN	RL	RIDGE LEVEL
EL	EAVES LEVEL	RP	REACTION POST
EP	ELECTRIC POLE	RS	ROAD SIGN
EPH	EARTH ROD	SLA	STONE LEVEL
FB	FLOWER BED	SOFF	SOFFIT LEVEL
FI	FIRE HYDRANT	SV	VALVE
FIL	FINISHED FLOOR LEVEL	SW	SURFACE WATER
FP	FLAG POLE	TAC	TACTILE PAVING
FW	FOWL WATER	TH	TRIAL HOLE
GV	GAS VALVE	TL	TRAFFIC LIGHTS
HW	HEADWALL	TLN	TELEGRAPH POLE
IC	INSPECTION COVER	TOW	TOP OF WALL LEVEL
IL	INVERT LEVEL	TP	TRACK
KB	KERB BOTTOM	UTL	UNABLE TO LIFT
KO	KERB OFFSET	VP	VENT PIPE
KT	KERB TOP	WL	WATER LEVEL
LP	LAMP POST	WLVL	WATER LEVEL
LC	LIGHT COLUMN	WM	WATER METER
MH	MANHOLE	WO	WASH OUT POINT
MP	MARKER POST		

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

1. THE POSITION OF THIS SURVEY IS BASED ON GPS OSTN15 GRID
2. ALL LEVELS RELATE TO HGTS TAKEN USING TRIMBLE VRS NOW
3. TREES SPREADS ARE DRAWN TO SCALE AND SHOW THE GENERAL AVERAGE CANOPY SPREAD
4. ALL BELOW GROUND LEVEL INFORMATION INCLUDING VOIDS, DRAINAGE & SERVICES HAVE BEEN IDENTIFIED FROM THE SURFACE LEVEL ONLY. THEREFORE PIPE SIZES ETC ARE ESTIMATIONS ONLY. ALL CRITICAL DIMENSIONS SHOULD BE CHECKED PRIOR TO THE COMMENCEMENT OF ANY SITE WORKS
5. EVERY EFFORT HAS BEEN MADE TO LOCATE AND SURVEY ALL VISIBLE FEATURES. IT SHOULD BE NOTED THAT SOME ITEMS MAY HAVE BEEN OBSERVED 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
S2	526707.957	323315.746	5.747
S3	526707.688	323230.888	5.786
S1	526697.868	323266.127	5.549

SURVEY DATE	28 / 05 / 2024	INITIALS	JT/SRW
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REV	AMENDMENTS	DRN	DATE

Client:

ROBERT DOUGHTY CONSULTANCY

Project Title:

MISS VERONICA FROHOOK
THE HOLMES FARMYARD
FULNEY DROVE, LINGS
PE12 6BW

Drawing Title:

TOPOGRAPHICAL SURVEY

Scale @ A1:	1 : 200	Date:	29 / 05 / 2024
Drawing No:	CHS24-112-01		
C.A.D. Title:	rdc fulney drovetopo (chs 24-112-01).mjo		
Drawn By:	JT	Checked By:	SRW

**CASTLE HILL
SURVEYS LTD**

Land Surveying & Site Setting Out Services
Commerce House, Carlton Boulevard,
Lincoln, LN2 4WJ Tel : 07710649549
E-mail : castlehillsurveys@outlook.com
Website : www.castlehillsurveys.co.uk