FLOOD RISK ASSESSMENT FOR PROPOSED RESIDENTIAL DEVELOPMENT AT AUSTENDYKE HALL, WESTON, SPALDING, LINCS.

FINAL REPORT

GEOFF BEEL CONSULTANCY

MAY 2015

GCB/WARRICK

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1.0 INTRODUCTION

1.1 A full planning application is to be submitted by Julian Warrick Architectural Design Consultant on behalf of Mr & Mrs S Armson for proposed residential development at Austendyke Hall, Austendyke Road, Weston, Spalding, Lincs.

1.2 A Flood Risk Assessment is required to accompany the planning application and meet the requirements and general principles contained in Paragraph 9 of the Technical Guidance to the National Planning Policy Framework (NPPF).

The site, as situated, is located within Flood Zone 3, of the Environment Agency's Flood Zone Maps. The latest Agency Flood Maps have been created as a tool to raise awareness of flood risk with the public and our partner organisations, such as Local Authorities, Emergency Services and Drainage Authorities. The Maps do not take into account any flood defences.

The site however is also shown in Flood Zone 1 and outside of any Hazard Zone of the South Holland District Council's Strategic Flood Risk Assessment Maps (2010) – Residual Flood Depths in year 2110.

The site is also located in the South Holland IDB drainage district.

1.3 Geoff Beel Consultancy was appointed on 30th April 2015 to undertake a Flood Risk Assessment.

2.0 LOCATION

2.1 The development site is located at Austendyke Hall, Austendyke Road, Weston. The National Grid Reference of the central point of the development is TF 29902185.

2.2 The position and extent of the site is shown on Fig 1 - Location Plan at the end of the document.

2.3 The site, located within the South Holland Internal Drainage Board district is shown within Flood Zone 3 as detailed on the Environment Agency Flood Zone Maps and in Flood Zone 1 of the Council's Strategic Flood Risk Assessment Maps (2010) Residual Flood Depths in year 2110 as defended by the Agency's tidal defences and the Internal Drainage Board system.

3.0 THE SITE AND SEQUENTIAL TEST

3.1 The site is currently redundant agricultural premises.

3.2 The area of development is approximately 0.48 hectare.

3.3 The proposed site layout consists the conversion of the existing redundant buildings to two residential dwellings.

3.4 The Sequential Test is met as the site is located in Flood Zone 1 of the Council's Strategic Flood Risk Assessment Maps (2010) and protected against both the 1 in 100 year fluvial event and the 1 in 200 year tidal event.

4.0 EXISTING FLOOD ALLEVIATION MEASURES

4.1 The site is within a defended floodplain, as defined in Appendix 1 of the Environment Agency's 'Policy for the Protection of Floodplains' and is considered to be passive until such time as a flood greater than that for which the defences were designed occurs. The likelihood of flooding due to overtopping or failure of a flood defence embankment is considered to be small.

The development site within the South Holland Internal Drainage Board is protected by the River Welland and Wash tidal defences to the Holbeach Marsh frontage with embankment levels of a minimum of 7.00m aOD.

4.2 The site and the surrounding land drains by gravity to the adjoining Austendyke Drain south of the site and hence via other drains in the Little Holland catchment to discharge into the South Holland Main Drain at the Little Holland Pumping Station.

4.3 The existing standard of drainage for the South Holland Internal Drainage Board is 1 in 50 years return period, compatible with the Department of the Environment, Food and Rural Affairs target level of service for rural drainage and flood defence works. Freeboard of 900mm is provided to the lowest land levels.

4.4 Current maintenance standards within the South Holland Internal Drainage Board and of the Environment Agency defences are generally very good.

During the operation and maintenance of its pumping stations, associated structures and channel systems, particularly those that could affect property, the Board seeks to maintain a general standard capable of providing flood protection to its district. A routine maintenance programme is in place to ensure that the Boards assets are commensurate with the standard of protection that is sought. However, bank slips, blocked culverts etc may occur from time to time and these matters are usually dealt with promptly.

5.0 POTENTIAL SOURCES OF FLOODING

5.1 Four potential sources of flooding have been identified as a result of this assessment:

a) local blockages to IDB main drain system.
b) storm return period of 1 in 50 years being exceeded
c) failure of Little Holland Pumping Station
d) overtopping and breaching of the Wash and River Welland defences

5.2 The probability of flooding from source a) is low due to the maintenance standards already achieved and managed by the IDB.

The probability of flooding from b) is also low due to the South Holland IDB main drain design standard incorporating a minimum 900mm freeboard to the lowest land level which provides adequate storage in events greater than 1 in 50 years.

Previous historic rainfall events of 1968 and 1978, estimated to be greater than 1 in 100 year events, caused no flooding to any residential properties at the time and the Boards policy is to provide a standard of drainage which satisfies NPPF requirements of a 1 in 100 year return period for fluvial protection inclusive of the effects of climate change and developments to the arterial system enables a flexible approach to be adopted and meet the criteria for "sustainable urban drainage".

5.3 Failure of Little Holland Pumping Station may occur due to long term mechanical breakdown or power supply being disrupted. However, in these circumstances, if conditions were such to put properties and land at risk of flooding, the Internal Drainage Board would take emergency action to maintain the drainage level of service by utilising temporary pumping equipment. The probability of such an occurrence is also considered to be low.

5.4 The flood embankments to the Wash and River Welland defences provide a 1 in 200 year return period level of protection.

The 1 in 200 year tidal event to the tidal River Welland and the Holbeach Marsh frontage inclusive of climate change to 2115 is estimated to be 7.20m aOD as against existing embankment levels of a minimum of 7.00m aOD.

There is a low risk during such an event for wave and wind action to cause overtopping and/or breaching of the first line defences. However, the site is further protected by second line defences with embankment levels of 6.00m aOD. Any overtopping/breaching would therefore not reach the development site as shown on the South Holland Strategic Flood Risk Assessment Flood Zone Maps.

Similarly, the River Welland and Crowland Cowbit Washes are located 3.00kms south west of the site and provide protection against the 1 in 100 year plus climate change fluvial flood event.

5.5 Finished floor level has been raised 200mm above existing ground level.

Flood resilient construction will be incorporated up to a minimum level of 300mm above finished floor level with sleeping accommodation remaining on the ground floor. Safe refuge is provided at first floor level of both the barn conversion and the coach house.

5.6 The Environment Agency has recently published The Wash Shoreline Management Plan 2 from Gibraltar Point to Old Hunstanton. The summary of the plan between Gibraltar Point and Wolferton Creek is as follows:-

The intent of management for this Policy Development Zone (PDZ) is to sustain flood defence for the communities and their hinterland on the low-lying areas around The Wash. This includes an increase of management as needed to sustain the current level of flood risk in the face of climate change.

5.7 Surface water drainage from the development site will be to soakaways designed to BRE365 requirements and Building Regulations approval.

6.0 EXTENT OF KNOWN FLOODING

6.1 During the preparation of this assessment, no evidence was discovered of the site being flooded or of any adjoining properties.

7.0 PROBABILITIES AND TRENDS OF FLOODING

7.1 The probability of this development flooding from localised drainage systems is very low.

7.2 The probability of the site flooding with water from any South Holland IDB main drain is less than 1% because of the standards of the existing flood defence systems, storage within existing drainage channels and the location of the site.

7.3 The probability of the site flooding with tidal waters from any main river system is less than 1% because of the standards of the existing flood defences and the location of the site.

7.4 If under very extreme events, levels of floodwater from the South Holland IDB main drains or arterial systems rose to such an extent that the site was affected, the situation would not be sudden. It is very probable that sufficient time would be available to take precautionary actions to limit the extent and potential impact of flooding.

7.5 The water levels in the drainage channels will tend to rise as a result of the impacts of climate change. However the existing systems and defences together with the proposed floor levels at a minimum of 200mm above existing ground level will be appropriate for the design life of the development (i.e. 100 years). Safe refuge is available at first floor level with sleeping accommodation remaining on the ground floor.

8.0 IMPACTS OF FLOODING

8.1 No significant impacts of flooding are anticipated.

8.2 Floor levels of the development will be a minimum of 200mm above existing ground level, which together with the flood resilient construction and proposed soakaway drainage system will offer additional protection against impacts arising from any extreme short duration, localised events.

8.3 The general location of the site within the catchment is such that if flooding occurred from any of the South Holland IDB main drain systems, then probably 2 to 3 days warning time would be available.

8.4 No displacement of water from the site will affect any adjoining properties as a soakaway drainage system to BRE365 design requirements will be installed.

8.5 The developer should ensure that the eventual occupiers of the properties are sufficiently aware of the risk of flooding, and the standard of the existing defences. The Environment Agency provides a Flood Warning Service which includes Flood Warning Codes and uses direct warning methods where the risks and impacts of flooding are high. Indirect warnings are provided to all flood risk areas, even those at low risk of flooding. The main method is media broadcasts via local radio and also by television.

In addition to direct and indirect flood warnings, the Environment Agency operates a 24 hour a day Floodline Service providing advice and information on flooding, contact tel no: 0845 988 1188 and the occupiers of the new development should register with the Floodline Direct Warnings Service to receive future flood warnings.

9.0 RESIDUAL RISK – EXTREME EVENTS

9.1 The residual risk from extreme events is very low on this site, because of its location, within the South Holland IDB area and its location 6.00kms from The Wash and River Welland tidal defences with secondary defences between the marsh frontage and the site. Also being 3.00kms from the River Welland fluvial defences and the Crowland & Cowbit washes.

9.2 The site is within Flood Zone 1 as a result of existing defences according to NPPF classification, the site actually has a very low risk of flooding due to the current standards of drainage and flood defence and land levels. The site is not located within a Functional Flood Plain of any 'main river' or 'main drain' The Environment Agency Flood Zone Maps have been produced irrespective of existing flood defences and standards of protection.

9.3 South Holland District Council in conjunction with the Environment Agency and the local IDB's within the Council area have carried out a Strategic Flood Risk Assessment (2010) of the whole District by appointed Consulting Engineers.

The Strategic Flood Risk Assessment (2010) has produced more definitive Flood Risk Maps than those published by the Environment Agency and at the same time has analysed flood return periods of all tidal and fluvial defences to account for the effects of climate change.

Breach scenarios of embankments failing and/or being overtopped have also been carried out to establish Flood Risk Zones. As a result of the Strategic Flood Risk Assessment (2010) the site is outside any Hazard Zone and Residual Flood Depths in year 2110 as defended by tidal defences and tidal doors.

10.0 CONCLUSIONS AND RECOMMENDATIONS

10.1 As a result of the assessment, the following conclusions have been reached:-

- The proposed development is in a Defended Floodplain. It is located in the Passive Floodplain of The Wash defences and tidal and fluvial River Welland defences and the South Holland IDB protected by defences to both the 1 in 100 year and 1 in 200 year return period events.

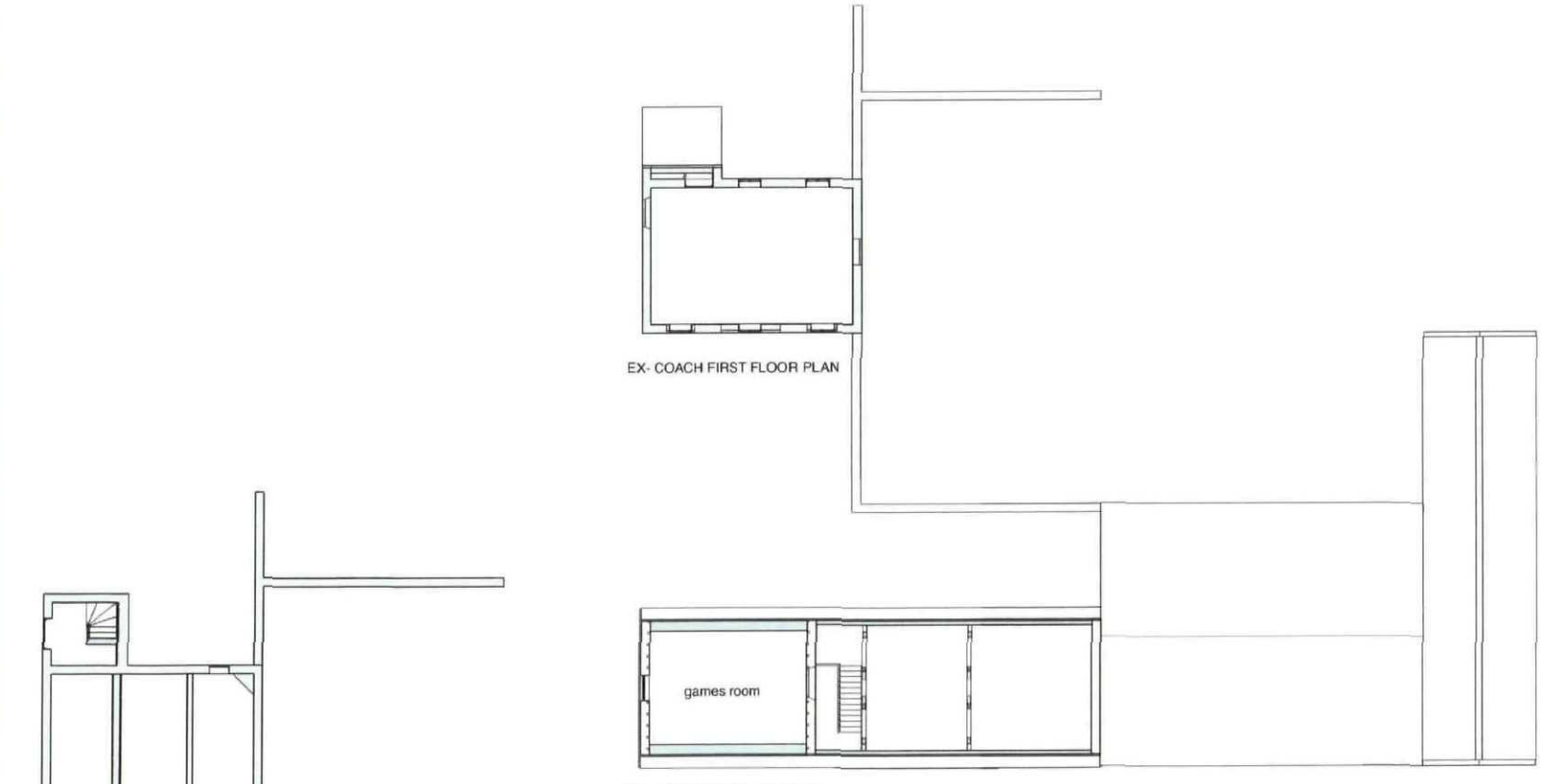
- The site is in Flood Zone 1 as protected by existing defences the actual risk of site flooding from any Environment Agency river system is very low (less than 0.5%).

- Although the site is located within an Internal Drainage District with a minimum standard of drainage of 1 in 50 years, this accords with Defra guidelines for rural development. Freeboard to design water level of 900mm to lowest land level is available for events greater than 1 in 50 years providing further storage within the drainage channels.

- On site rainwater from the development will be discharged via soakaway drainage to BRE365 design requirements.

- Floor level of the conversions will be at a minimum of 200mm above existing ground level with safe refuge at first floor level with sleeping accommodation remaining at ground floor level. Flood resilient construction will be incorporated up to 300mm above finished floor level.

30/04/2015



EX- COACH FIRST FLOOR PLAN

EX- MAIN FIRST FLOOR PLAN

EX- COACH GROUND FLOOR PLAN

EX- MAIN GROUND FLOOR PLAN

PROPOSED BARN AND COACH HOUSE CONVERSIONS
TO CREATE 2 RESIDENTIAL PROPERTIES ADJACENT
AUSTENDYKE HALL AUSTENDYKE ROAD WESTON
HILLS for MR & MRS S ARMSON

DO NOT SCALE FROM THIS DRAWING

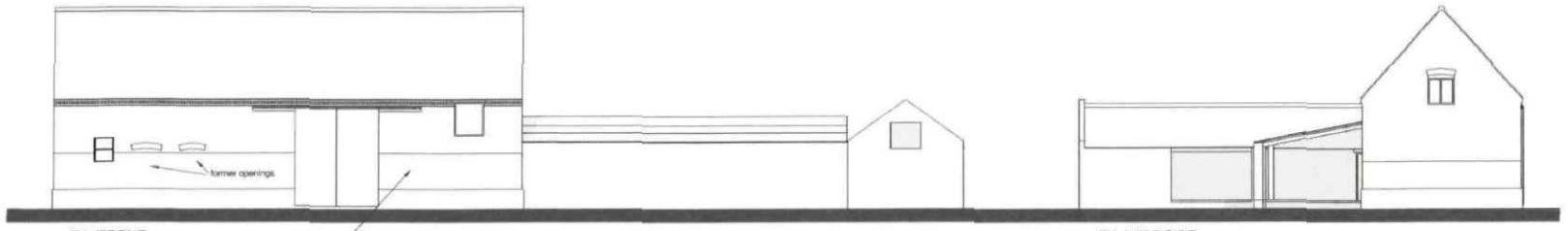
EXISTING PLANS

1/100	APR 2015

J031- PL 2

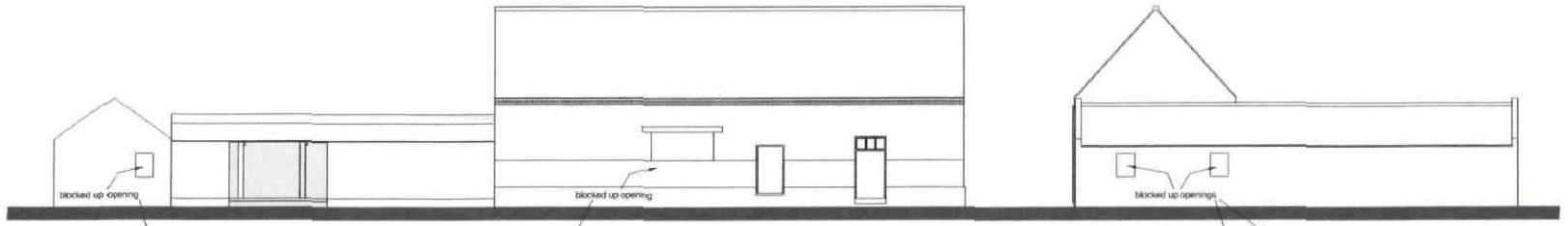
Julian Warrick
Architectural Design Consultant

MAIN BARN



EX- FRONT

EX- LEFT SIDE



EX- REAR

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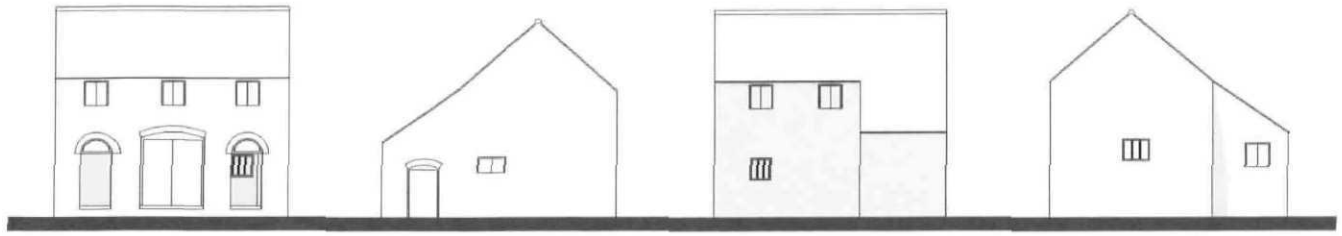
COACH HOUSE



EX- FRONT

EX- LEFT SIDE

EX- REAR

EX- RIGHT SIDE

PROPOSED BARN AND COACH HOUSE CONVERSIONS
TO CREATE 2 RESIDENTIAL PROPERTIES ADJACENT
AUSTENDYKE HALL AUSTENDYKE ROAD WESTON
HILLS for MR & MRS S ARMSON

DO NOT SCALE FROM THIS DRAWING

EXISTING ELEVATIONS

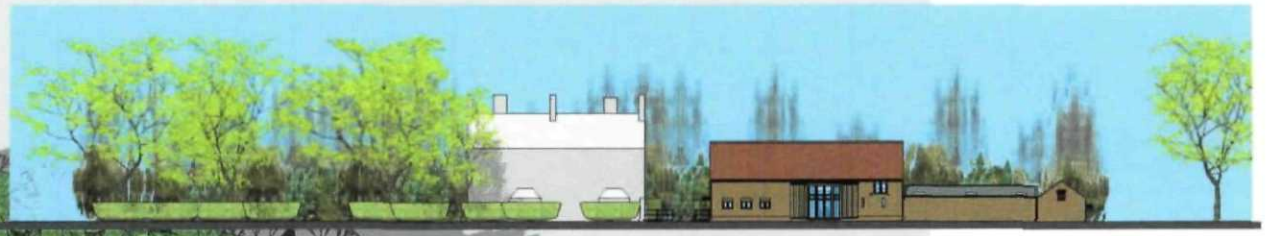
1/100	APR 2015

J031- PL 3

Julian Warrick
Architectural Design Consultant

BUILDING MATERIALS: -

BRICKS - EXISTING AND RECLAIMED FROM SITE
ROOF- EXISTING AND RECLAIMED FROM SITE
WINDOWS - ALL TIMBER BOTH SOFTWOOD AND HARDWOOD
DOORS - TIMBER HARDWOOD
RAINWATER GOODS - BLACK CAST IRON
CLADDING - ONDULINE CORRUGATED SHEETING IN BLACK



STREET SCENE

BLOCK PLAN

SOFT LANDSCAPING: -

TREE TYPES- ALL TO BE PLANTED AS HEAVY STANDARD

THE SMALL GREEN TREES AS SHOWN TO BE ACER SEIRYU TO SAFEGUARD ANY OVERLOOKING BETWEEN THE PROPERTIES.

TO THE PLANTERS ALLOW A VARIETY OF LOW GROWING LOW MAINTENANCE SHRUBS WITH VARIOUS COLOURINGS.

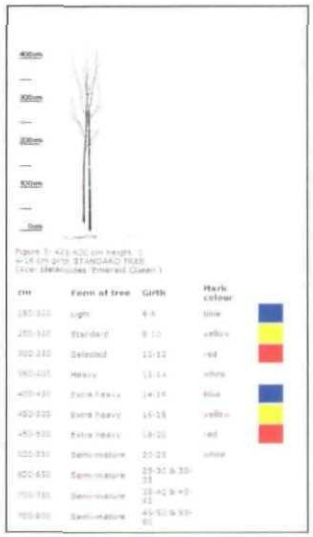
HARD LANDSCAPING: -

PRIVATE DRIVE TO BE LAID IN GRAVEL WITH HARDSTANDING PARKING AREAS IN RED BLOCK PAVING

FRONT BOUNDARIES DELINEATED WITH THE USE OF POST AND RAIL FENCING

NEW BOUNDARY TREATMENT AT THE REAR WHERE NONE EXISTS IS TO BE A CONTINUATION OF THE BRICK WALLING

FOOTPATHS AND PATIOS TO BE LAID IN RED BLOCK PAVING



PROPOSED BARN AND COACH HOUSE CONVERSIONS TO CREATE 2 RESIDENTIAL PROPERTIES ADJACENT AUSTENDYKE HALL AUSTENDYKE ROAD WESTON HILLS for MR & MRS S ARMSON

DO NOT SCALE FROM THIS DRAWING

PROPOSED BLOCK PLAN & STREET SCENE

1/250 1/1250 APR 2015

J031- PL 4

Julian Warrick
Architectural Design Consultant

FIRST FLOOR PLAN

GROUND FLOOR PLAN

PROPOSED BARN AND COACH HOUSE CONVERSIONS
TO CREATE 2 RESIDENTIAL PROPERTIES ADJACENT
AUSTENDYKE HALL AUSTENDYKE ROAD WESTON
HILLS for MR & MRS S ARMSON

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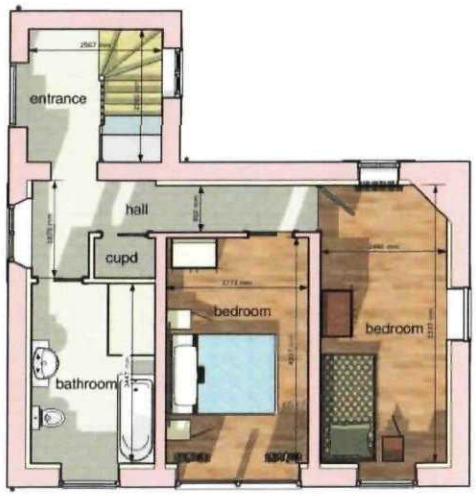
BARN CONVERSION
PLANS & ELEVATIONS

1/75 1/100 | APR 2015

J031- PL 5

Julian Warrick
Architectural Design Consultant



GROUND FLOOR PLAN

FIRST FLOOR PLAN

PROPOSED BARN AND COACH HOUSE CONVERSIONS
TO CREATE 2 RESIDENTIAL PROPERTIES ADJACENT
AUSTENDYKE HALL AUSTENDYKE ROAD WESTON
HILLS for MR & MRS S ARMSON

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COACH HOUSE PLANS & ELEVATIONS

1/50 1/100 | APR 2015

J031- PL 6

Julian Warrick
Architectural Design Consultant

Environment Agency

Enter a postcode or place name: Weston Hills, Lincolnshire Go

Other topics for this area... Flood Map for Planning (Rivers and Sea)

Flood Map for Planning (Rivers and Sea)

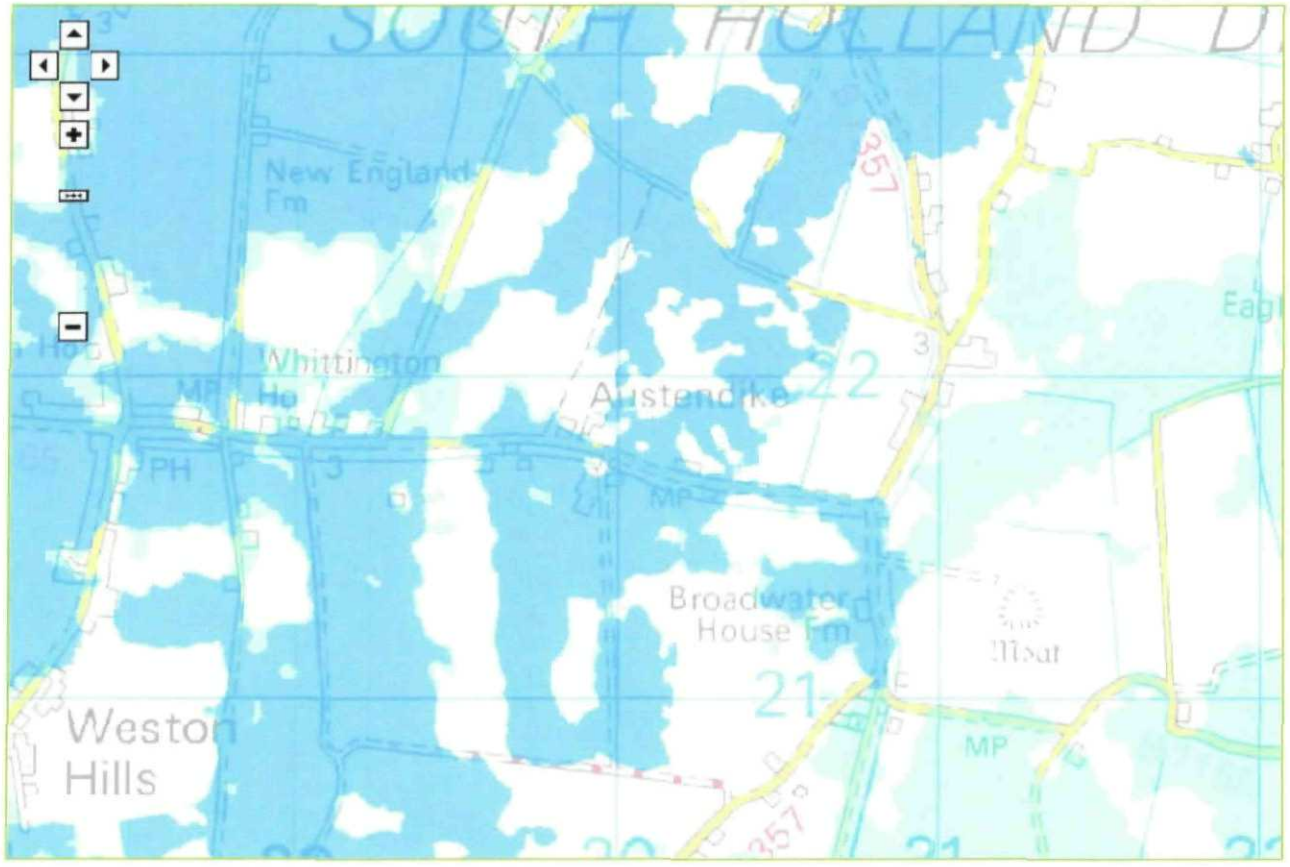
Weston Hills, Lincolnshire at scale 1:20,000

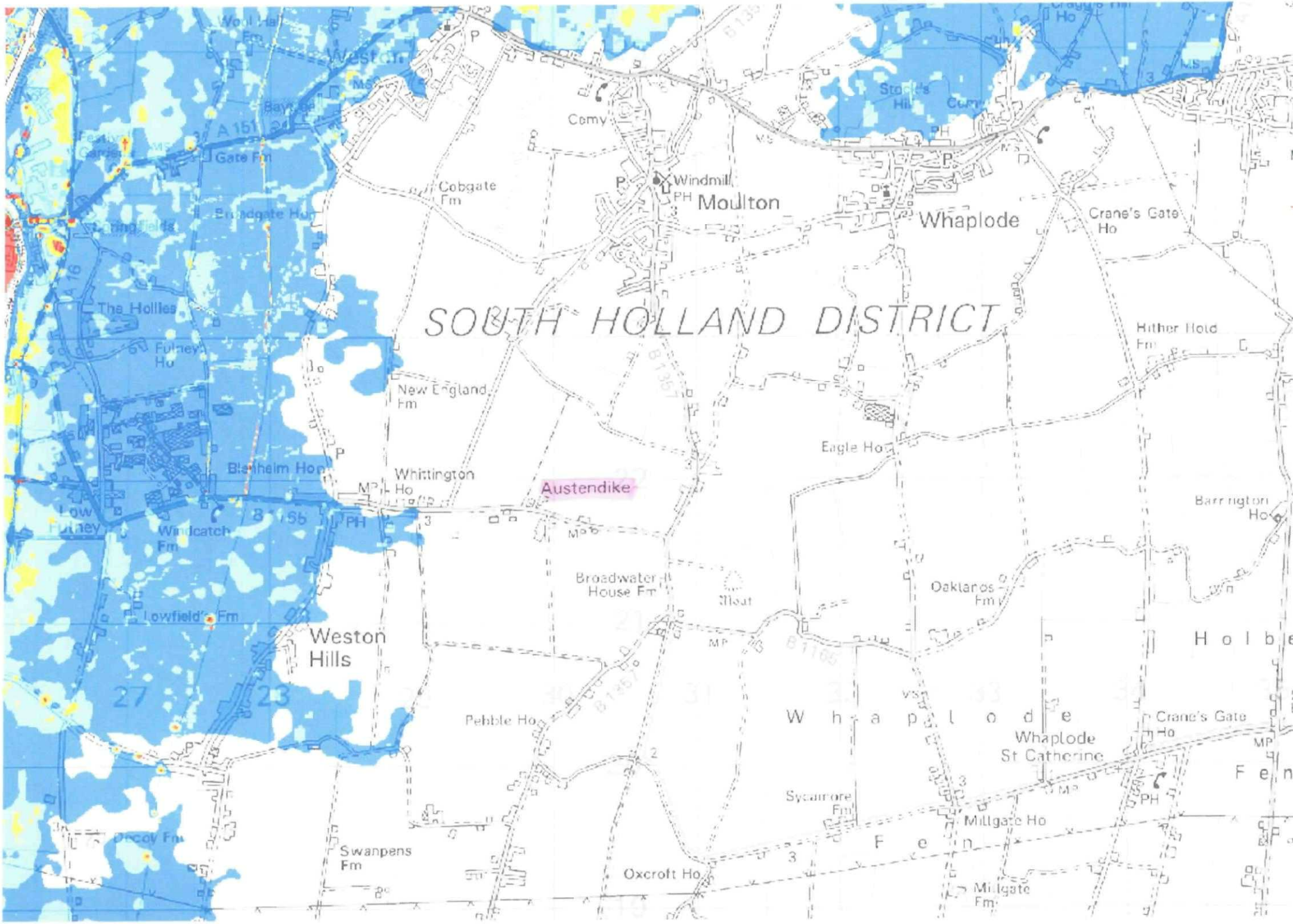
Other maps Data search Text only version

Map legend

Click on the map to see what Flood Zone (National Planning Policy Guidance definitions) the proposed development is in.

- Flood Map for Planning (Rivers and Sea)
  - Flood Zone 3
  - Flood Zone 2
  - Flood defences (Not all may be shown*)
  - Areas benefiting from flood defences (Not all may be shown*)
- Main Rivers
  - River line




SOUTH HOLLAND DISTRICT
Moulton
Whaplode
Weston Hills
Austendike
Whittington Ho
New England Fm
Eagle Ho
Broadwater House Fm
Oaklands Fm
Pebble Ho
Oxcroft Ho
Swanpens Fm
Millgate Ho
Millgate Fm
Whaplode St Catherine
Crane's Gate Ho
Cobgate Fm
Windmill PH
Gate Fm
The Hollies
Fulney Ho
Blenheim Ho
Low Fulney
Windcatch Fm
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Decoy Fm
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Barrington Ho
Holbe
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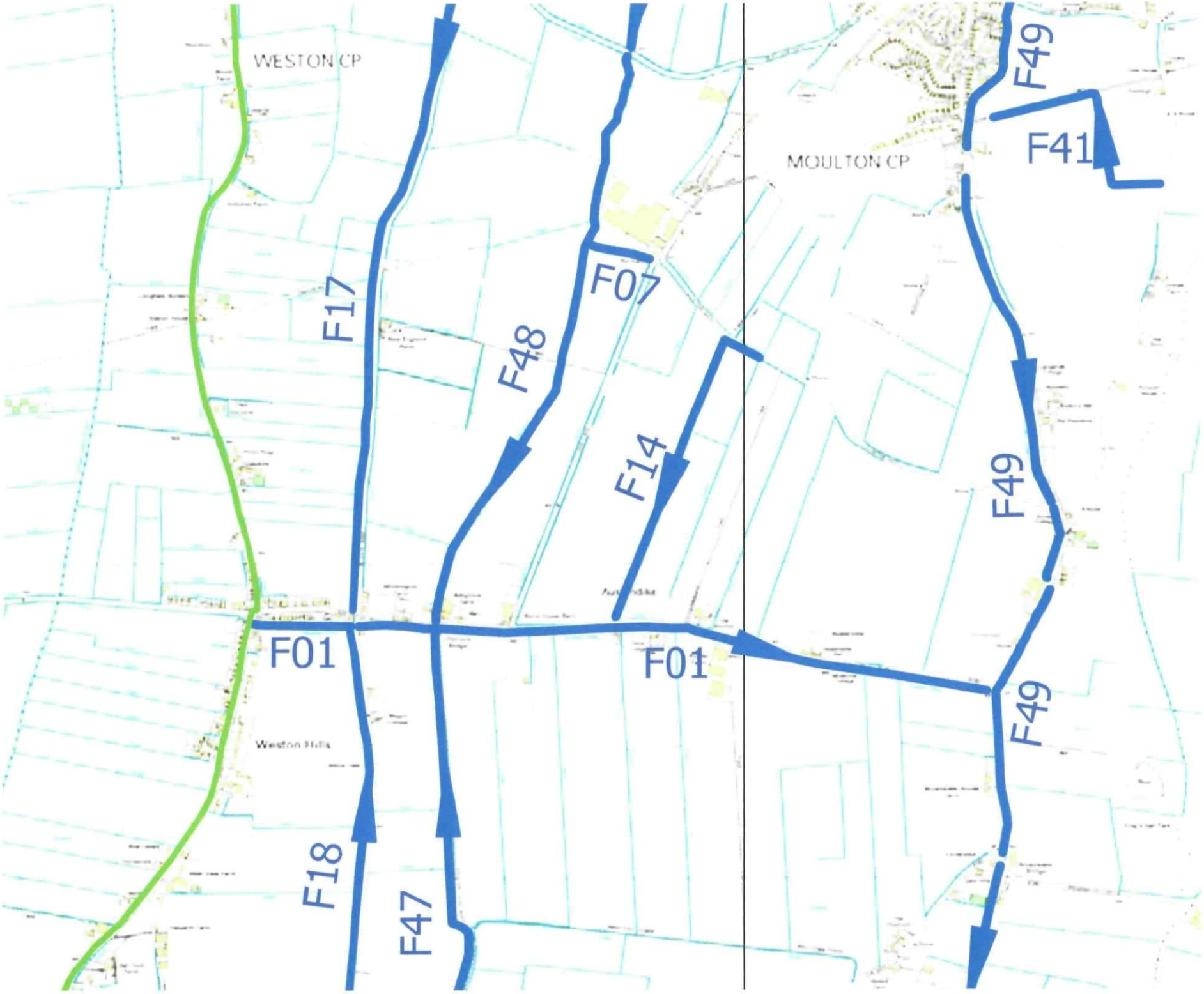
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