

**FLOOD RISK ASSESSMENT
FOR
PROPOSED COMMERCIAL DEVELOPMENT
AT GOSBERTON ROAD
SURFLEET, SPALDING, Lincs.**

FINAL REPORT

GEOFF BEEL CONSULTANCY

FEBRUARY 2015

GCB/HOLT ARCHITECTURAL

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1.0 INTRODUCTION

- 1.1 A full planning application is to be submitted by Holt Architectural Ltd on behalf of Mr & Mrs Purllant for proposed commercial development at Orchard House, Gosberton Road, Surfleet, Spalding, Lincs.
- 1.2 Planning approval requires a Flood Risk Assessment to accompany the application to meet the requirements and general principles contained in Paragraph 9 of the Technical Guidance of the National Planning Policy Framework (NPPF) and for approval by the Environment Agency.

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

The site is however shown in Flood Zone 1 of the South Holland District Council's Strategic Flood Risk Assessment Map and located in the Welland and Deepings Internal Drainage Board district.

- 1.3 Geoff Beel Consultancy was appointed on 9th February 2015 to undertake a Flood Risk Assessment.

2.0 LOCATION

- 2.1 The development site is at Orchard House, Gosberton Road, Surfleet, Spalding. The National Grid Reference of the central point of the site is TF 25002950.
- 2.2 The position and extent of the site are shown on Fig 1 – Existing Plans & Elevations at the end of the document.
- 2.3 The site, located within the Welland and Deepings Internal Drainage Board district is shown within Flood Zone 3 as detailed on the Environment Agency Flood Zone Maps but located in Flood Zone 1 of the Council's Strategic Flood Risk Assessment Map.

3.0 THE SITE AND SEQUENTIAL TEST

- 3.1 The site is existing outbuildings and garden to Orchard House.
- 3.2 The area of development is approximately 0.03 hectare.
- 3.3 The proposed site layout consists the construction of boarding kennels with access to Gosberton Road, after demolition of existing outbuildings.

- 3.4 The Sequential Test and Exception Test will require to be applied by the Local Planning Authority but the development may be permitted as the site may be protected against the 1 in 100 year fluvial event by a combination of existing defences with mitigation measures meeting the requirements of NPPF.

The site is shown in Flood Zone 1 of the South Holland Strategic Flood Risk Assessment maps and the Sequential Test is met.

4.0 EXISTING FLOOD ALLEVIATION MEASURES

- 4.1 The site is located at Orchard House, Gosberton Road with existing land levels generally at 3.60m aOD. The site is also located some 1.00km north of the River Glen.
- 4.2 The Surfleet Sluice Gate some 3.00kms downstream of the site with the adjoining flood embankments offers protection against the tidal flood event of the River Welland and the River Glen. The existing 1 in 200 year modelled flood event of the River Welland is 5.99m aOD whilst the 1 in 100 year estimated flood level of the River Glen inclusive of climate change is 5.06m aOD.
- 4.3 The site is located within the Welland and Deepings Internal Drainage Board district with the nearest 'main drain' open watercourse 150m north-east of the site. Land levels at the site are generally at 3.60m aOD.
- 4.4 The existing standard of drainage for the Welland and Deepings 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 1.00 metre is provided to the lowest land levels.
- 4.5 The surrounding land north of the River Glen drains to the Latham Lode Seas End and hence to the Surfleet Village pumping Station which discharges into the River Glen some 3.00kms downstream of the development site.
- 4.6 Current maintenance standards within the Welland and Deepings Internal Drainage Board 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.
- 4.7 Maintenance standards of the Environment Agency's main rivers and defences are well maintained and regularly inspected for their asset condition.

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 Surfleet Village Pumping Station
- d) failure of Surfleet Sluice
- e) overtopping and breaching of the River Glen 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 Welland & Deepings 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.

5.3 Failure of the Surfleet Village 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 Welland & Deepings IDB would take emergency action to maintain the drainage level of service by utilising temporary equipment. The probability of such an occurrence is also considered to be low.

5.4 Failure of Surfleet Sluice 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 Environment Agency 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.

5.5 The possible overtopping and breaching of the fluvial River Glen and tidal River Welland flood defences which may affect the site under extreme conditions is considered to be low. The present standards of defence of 1 in 100 years and 1 in 200 years respectively would most probably have to be exceeded to create such conditions. If a breach, however, did occur, it is estimated that the floodwaters would not affect the development site as shown on the South Holland Strategic Flood Risk Assessment.

5.6 The South Holland Strategic Flood Risk Assessment shows the site not to be affected by floodwaters as a result of a breach to existing defences.

Proposed floor levels of the development will be 150mm above existing ground level.

- 5.7 The developer will ensure that the eventual occupiers of the premises 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.

6.0 EXTENT OF KNOWN FLOODING

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

7.0 PROBABILITIES AND TRENDS OF FLOODING

- 7.1 The probability of this development flooding from localised drainage systems is very low. It is also intended to construct floor levels 150mm above existing ground level.
- 7.2 The probability of the site flooding with water from any Welland and Deepings river system 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. Similarly the same standard is provided by the Environment Agency's main river and defences of the River Glen.
- 7.3 If under very extreme events, levels of floodwater from any Environment Agency or Welland and Deepings river 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.
- 7.4 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 raising of floor levels 150mm above existing ground level will be appropriate for the design life of the development (i.e. 60 years).

8.0 IMPACTS OF FLOODING

- 8.1 No significant impacts of flooding are anticipated due to the mitigation measures being proposed.
- 8.2 Floor levels of the development will be raised 150mm above existing ground levels offering additional protection against impacts arising from any extreme short duration, localised events. Surface water drainage will be discharged to soakaway designed to BRE365 specification and Building Regulations approval.

- 8.3 The general location of the site within the catchment is such that if flooding occurred from any of the Environment Agency or Welland and Deepings river systems, then sufficient warning time would be available.

9.0 RESIDUAL RISK – EXTREME EVENTS

- 9.1 The residual risk from extreme events is low on this site, because of its location with protection from both the River Glen fluvial and River Welland tidal defences.
- 9.2 The site is within Flood Zone 1 according to NPPF classification with 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 of the whole District by appointed Consulting Engineers.

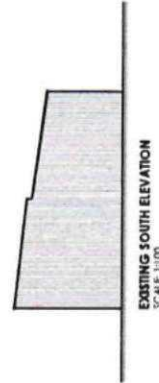
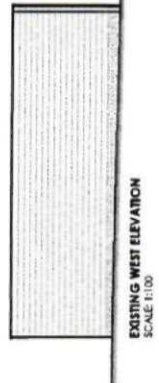
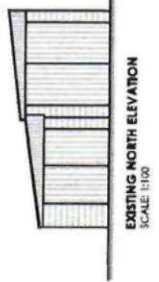
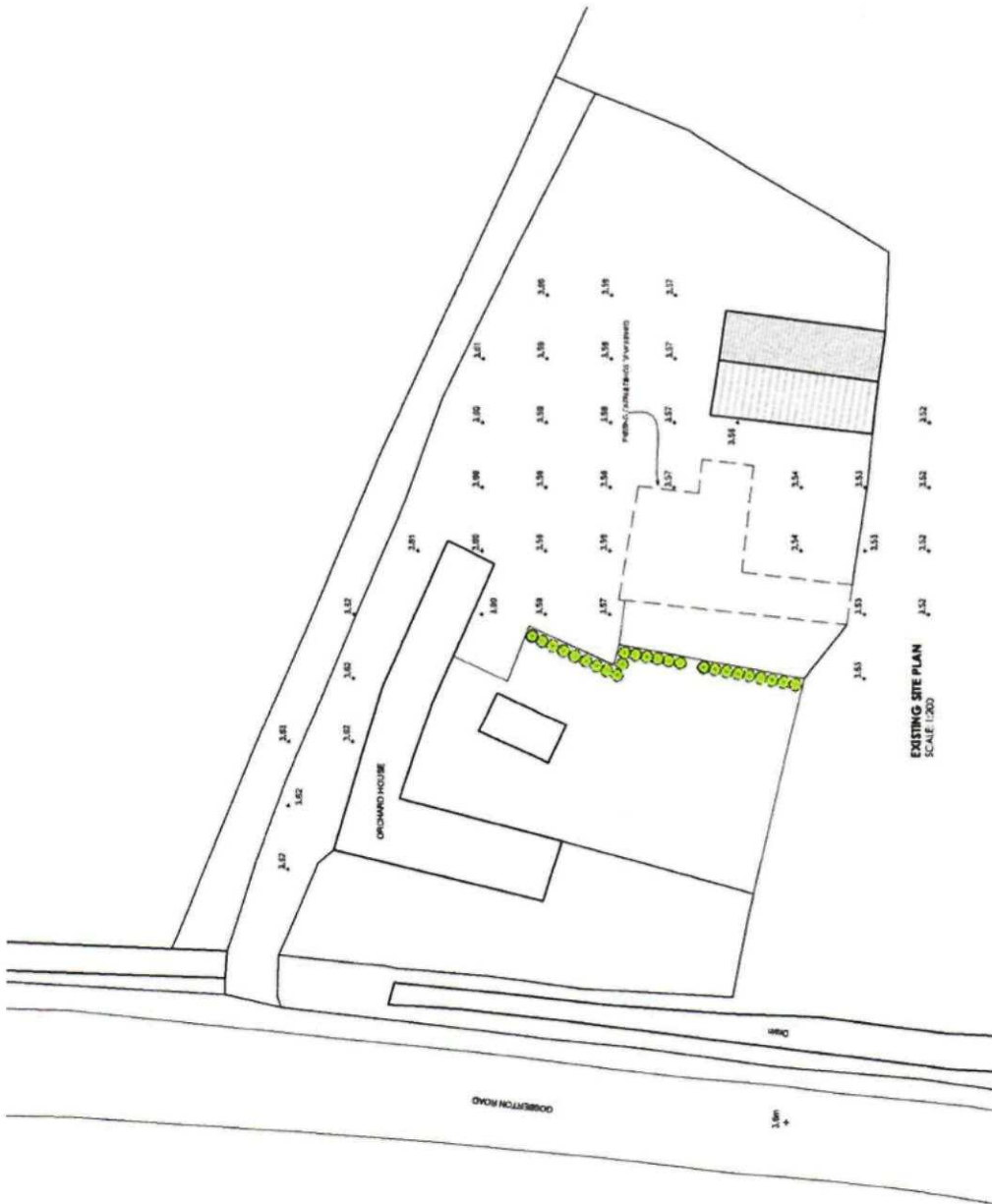
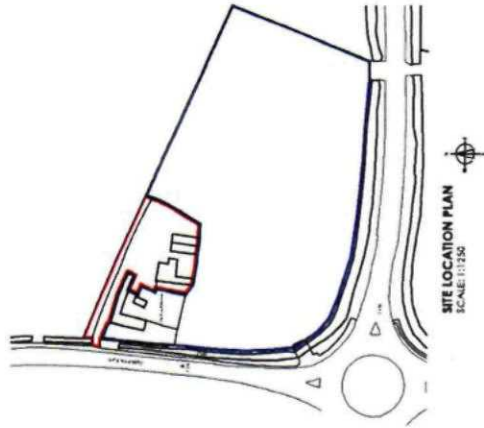
The Strategic Flood Risk Assessment has produced more definitive Flood Risk Maps than those published by the Environment Agency and at the same time has analysed flood return periods of all tidal and fluvial defences for years 2002 and 2052 to account for the effects of climate change.

Breach scenarios of embankments failing and/or being overtopped have also been carried out to establish Flood Risk Zones.

10.0 CONCLUSIONS AND RECOMMENDATIONS

- 10.1 As a result of the assessment, the following conclusions have been reached:-
- The proposed development is not in a Functional Floodplain. It is located in the Passive Floodplain of the River Welland and River Glen defences as well as the Welland & Deepings IDB.
 - The site is in Flood Zone 1, with the actual risk of flooding from the River Glen system being very low.
 - 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.
 - Floor levels will be raised 150mm above existing ground level.
 - On site surface water drainage will be discharged to soakaway to BRE365 specification and Building Regulations approval.

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PLANNING HOLT ARCHITECTURAL 1000 10th Ave. Suite 100 Denver, CO 80202 Tel: 303.733.1100 Fax: 303.733.1101 Email: info@holtarchitect.com	
ORCHARD HOUSE 1000 10th Ave. Suite 100 DENVER, CO 80202 PRELIMINARY	
DEMOLITION OF OLD BUILDINGS AND CONSTRUCTION OF BOARDING KENNELS	
EXISTING PLANS AND ELEVATIONS	
DATE: AS SHOWN @ A1	DATE: JAN 2015
BY: SJB	
15-OH-01	

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PLANNING



ORCHARD HOUSE
GOSBERTON ROAD
SURFLEET
PE11 4BG

DEMOLITION OF OUT BUILDINGS AND
CONSTRUCTION OF BOARDING HOUSES

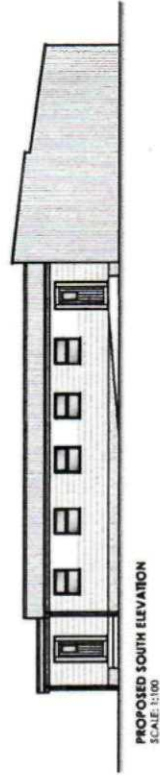
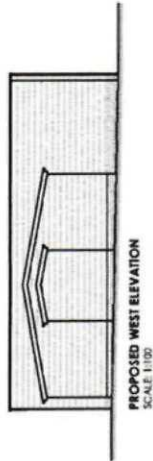
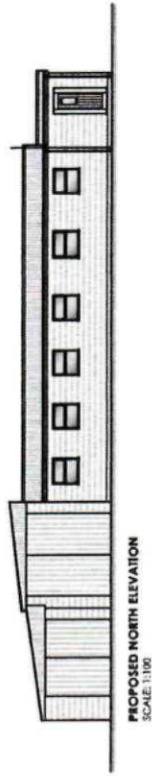
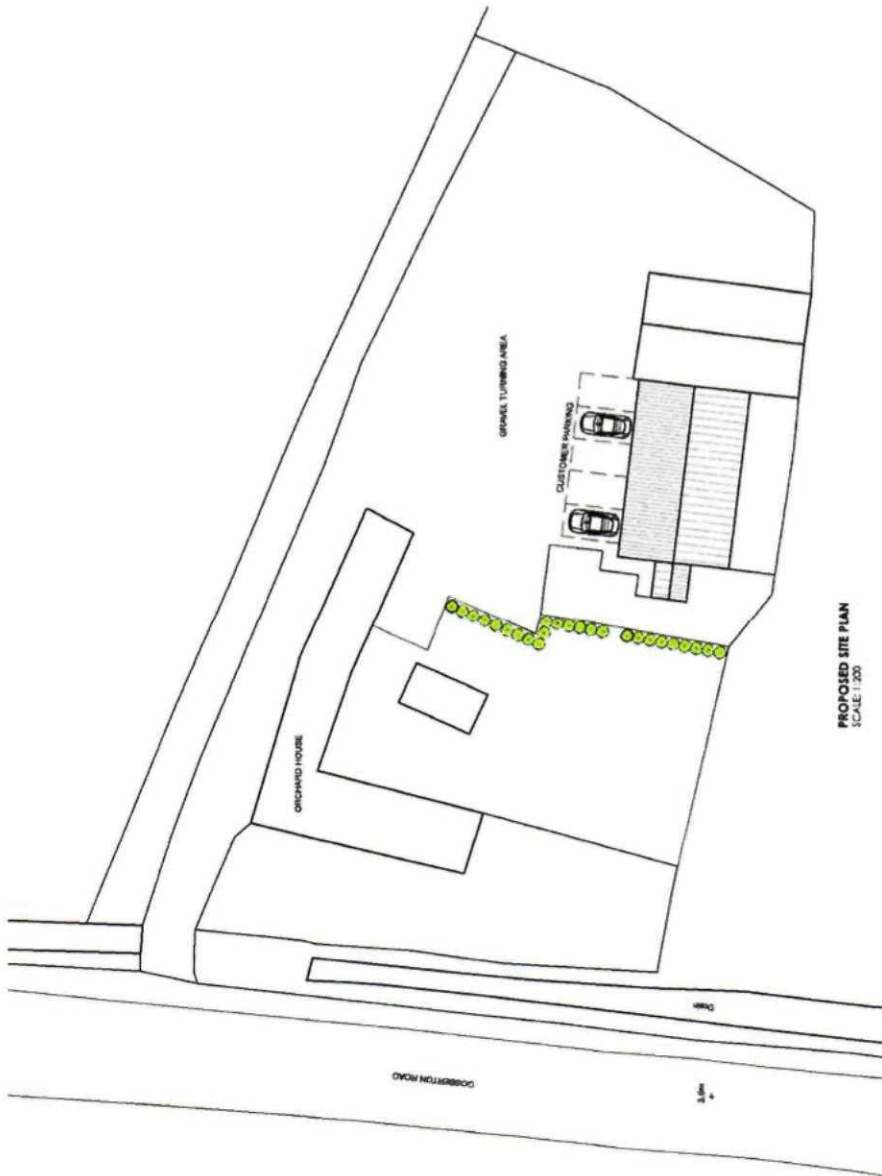
PROPOSED FLOOR PLAN

AS STATED & A!
JAN 2015

15-OH-02 A

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7. All dimensions (to be checked) are to be taken to the centerline of the work, and are not to be taken to the face of the work, and are not to be taken to the face of the work.



Project Name	ORCHARD HOUSE
Location	COMBETON ROAD, SURREY
Client	PEI 148G
Architect	HOLT ARCHITECTURAL
Project No.	15-OH-03 A
Date	JAN 2015
Scale	1:8
Project Description	DEMOLITION OF OLD BUILDINGS AND CONSTRUCTION OF BOARDING KENNELS
Project Status	PROPOSED SITE PLAN AND ELEVATIONS
Project Manager	AS STATED # A1
Project Engineer	15-OH-03 A



Other topics for this area...

Sea)

Sea)

X: 525,500;Y: 329,294 at scale 1:10,000

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

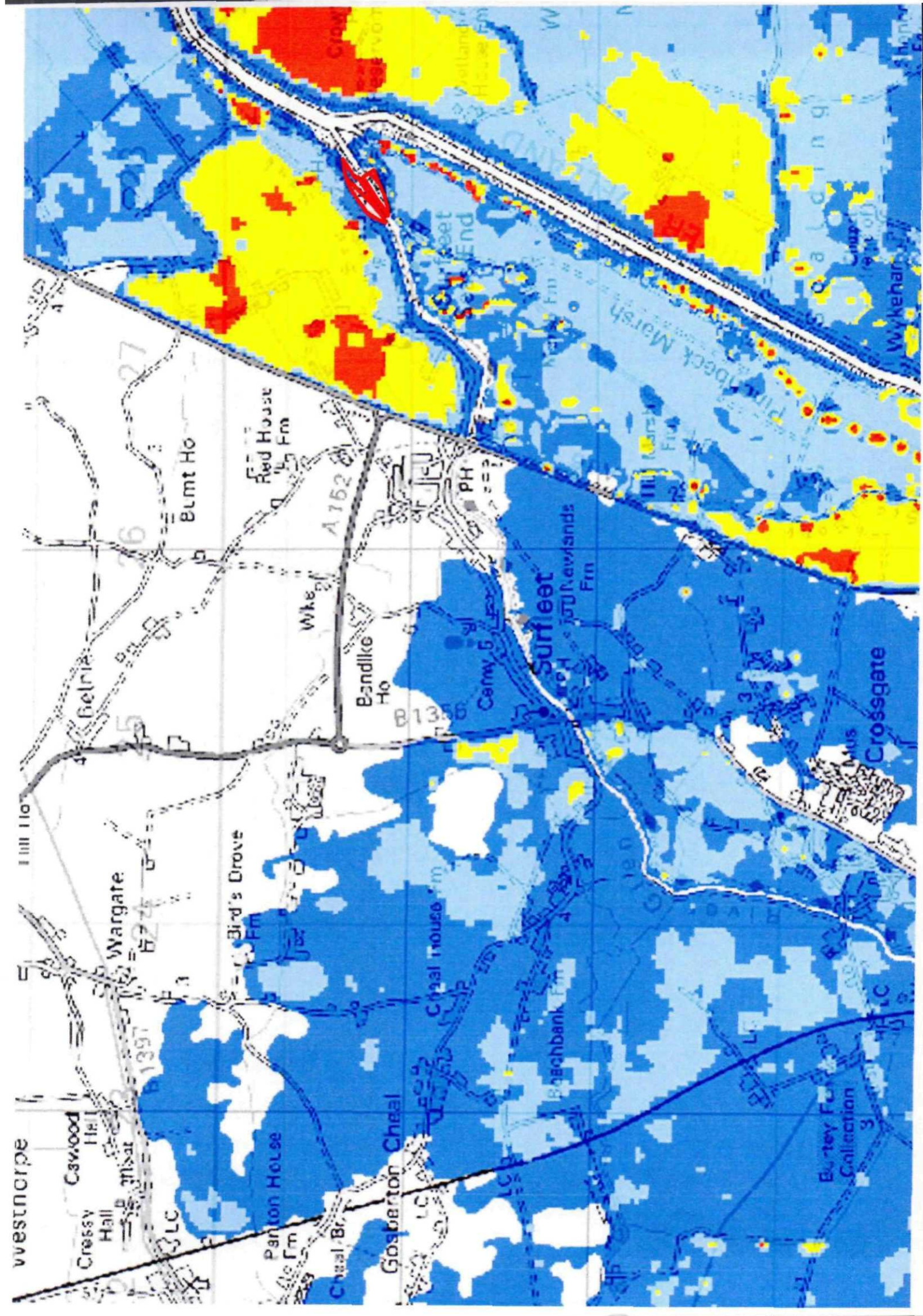
☒ Flood Map for Planning
(Rivers and Sea) 

-  Flood Zone 3
 Flood Zone 2
 Flood defences
 (Not all may be shown*)
 Areas benefiting from
 flood defences
 (Not all may be shown*)

☐ River and Sea levels

Main rivers





Wargate Field

Aorangi House

Clubb House

Medway House

Berkeley House

Stainers

Willow Tree

Ash Tree House

Rose Cottage

Orchard House

Bendyke Farm

Sewage Works

Hartfils Dyke

Latham Lode

Latham Lode Newbury

Latham Lode Seas End

Drains

Tracks

GOBERTON ROAD

0 Meters

520

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