BRIGHT YOUNG

# FLOOD RISK ASSESSMENT (FRA)

Yew Tree Farm
For Radcliffe Developments (Farnley) Ltd

Date 30/06/2021
Ref **4011/FRA001**

BRIGHT YOUNG

# Report Details

| | |
|---|---|
| **Client** | **Radcliffe Developments (Farnley) Ltd** |
| **Report Title** | FLOOD RISK ASSESSMENT (FRA) |
| **Project** | Yew Tree Farm |
| **Ref.** | 4011/FRA001 |
| **Bright Young Contact** | J Bright – jeff@brightyoung.co.uk |

# Quality Assurance

| Issue No. | Status | Issue Date | Comments | Author | Technical Review | Authorised |
|---|---|---|---|---|---|---|
| 1 | Approval | 30/06/2021 | - | **Hugh Morris** BSc CEng MICE | **Jeff Bright** BEng CEng MIStructE | **David Young** BSC AMICE |


## Bright Young Consulting Ltd

Consulting Engineers

Sandal Business Centre
Asdale Road,
Wakefield
WF2 7JE

Tel 01924 249500

Company No 05809281

BRIGHT YOUNG

# Contents


INTRODUCTION ..... 2

Project Understanding ..... 2

Scope of Works ..... 2

Sources of Information ..... 2

SITE DESCRIPTION ..... 2

RELEVANT POLICY AND GUIDANCE ..... 3

Introduction ..... 3

Policy ..... 3

Consultations ..... 3

FLOOD RISK ASSESSMENT ..... 4

Flooding from Rivers ..... 5

Flooding from Surface Water ..... 7

Groundwater Flooding ..... 7

Surface Water Run-Off ..... 7

Flood Risk Elsewhere ..... 7

CONCLUSIONS AND RECOMMENDATIONS ..... 9

Conclusions ..... 9

Recommendations ..... 9

APPENDICES ..... 10

# INTRODUCTION

## Project Understanding

Radcliffe Development (Farnley) Ltd intend to develop a parcel of land at Yew Tree Farm, The Village, Farnley Tyas, HD4 6UD, in accordance with design proposals developed by Orange Design Studios to provide a development of new houses, conversions of existing buildings and 3 retained buildings, to provide a total 22 houses.

Bright Young Consulting Ltd have been engaged to prepare a FLOOD RISK ASSESSMENT (FRA) in support of a detailed planning application for the development.

## Scope of Works

This report is commensurate with the scale and type of development proposed and utilises information available to determine the flood risk at this site and considers, if necessary, a methodology to allow this site to be developed with minimum flood risk. It considers and assesses: -

- Whether the proposed development is likely to be affected by flooding.
- Determination of any sources of flood risk.
- Whether the proposals will increase the risk of flooding elsewhere.
- Details of how any flood risk will be managed so that the development remains safe.

## Sources of Information

The following sources of information have been reviewed and assessed for the purpose of this Flood Risk Assessment:

- Environment Agency (EA) opensource data.

# SITE DESCRIPTION

The site is adjacent to The Village, Farnley Tyas at Grid reference SE 16503 12697 (416503E, 412697N).

The pre-development site is a brownfield site being buildings and hard-standing areas. For this FRA, the development site should be considered brownfield.

A topographical survey has been undertaken of the site and the gross area of the development site is approximately 6500 sq m (0.652 Hectares). The site slopes from levels around 245m to 248m and generally falls from the site northwards to the Village.

An OS plan and an aerial location plan of the site is shown below. The site outlined red.




Site Location Plan




Site Location Plan – Aerial Photograph

# RELEVANT POLICY AND GUIDANCE

## Introduction

The aim of this section of the report is to discuss the main aspects of the local and national planning policies that are relevant to any proposed development on the site and relevant guidance and legislation.

## Policy

This Flood Risk Assessment has been prepared in accordance with the National Planning Policy Framework (NPPF).

## Consultations

No consultation has taken place at this point with the approving local authorities in respect of flood risk. Appropriate Environment Agency published data has, however, been reviewed in relation to the development proposals. It is expected that detailed consultation will take place as the scheme develops with the regulators through the planning process.

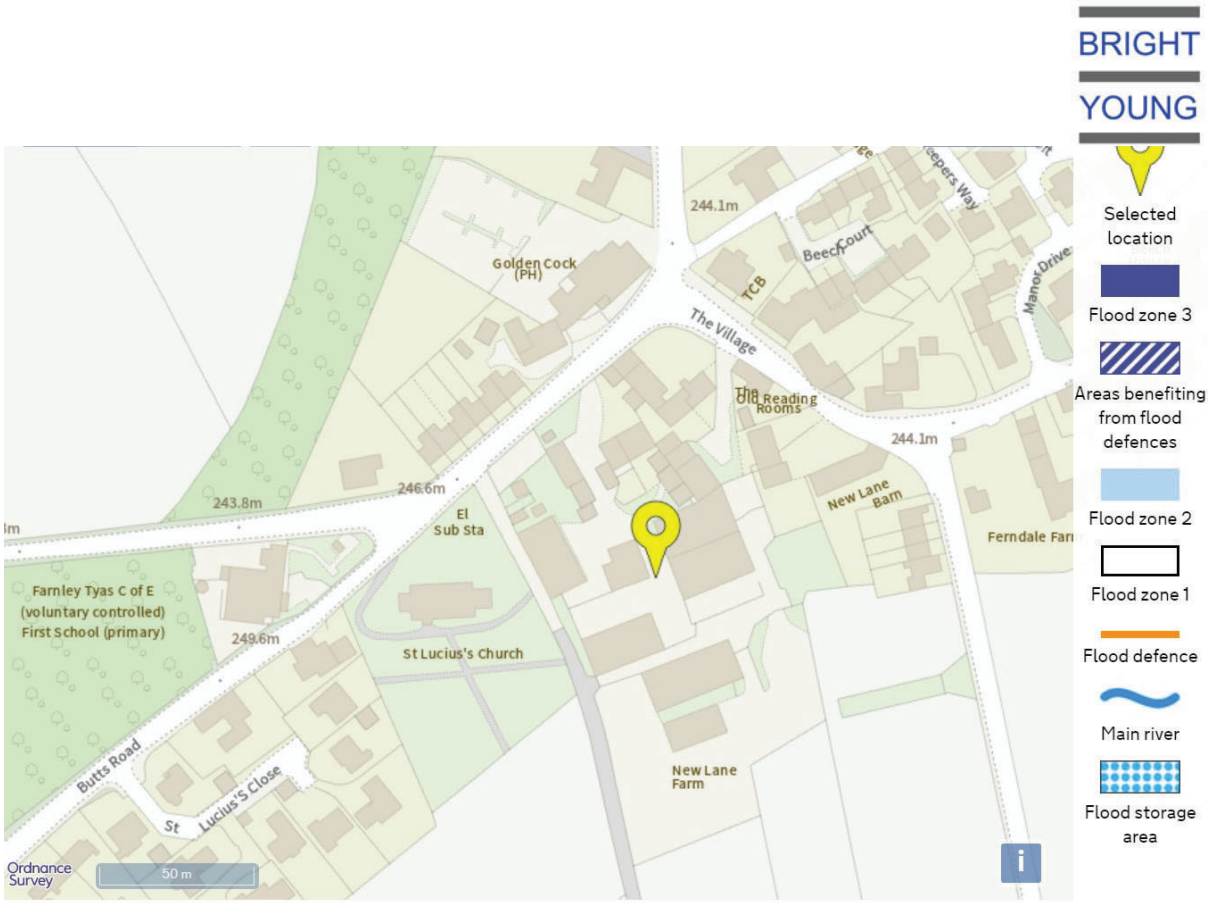
# FLOOD RISK ASSESSMENT

## Flooding from Rivers

The Environment Agency (EA) flood map of fluvial flooding has the site within flood zone 1. The site is not potentially at risk of flooding from nearby rivers.

Overall, the EA class this site has being of very low risk of flooding and is suitable for this type of development.

Below are extracts from the Environment Agency (EA) flood data, confirming the site is within flood zone 1. The site also no recorded history of flooding:




Show flood zones

EA Fluvial Flooding data

The proposed development is new housing. The EA class this type of development as more vulnerable. Using the EA flood risk vulnerability classification (shown below) determines that the type of development proposed is suitable for this location and flood zone. No sequential test or exception test is required.

| Flood Zones | Flood Risk Vulnerability Classification | | | | |
|---|---|---|---|---|---|
| | Essential infrastructure | Highly vulnerable | More vulnerable | Less vulnerable | Water compatible |
| Zone 1 | ✓ | ✓ | ✓ | ✓ | ✓ |
| Zone 2 | ✓ | Exception Test required | ✓ | ✓ | ✓ |
| Zone 3a † | Exception Test required † | ✗ | Exception Test required | ✓ | ✓ |
| Zone 3b * | Exception Test required * | ✗ | ✗ | ✗ | ✓* |

Key:

✓ Development is appropriate

✗ Development should not be permitted.

## Flooding from Surface Water

The Environment Agency publish on their website details of potential surface water flood areas. These are areas where intense rainfall or other events causes overland flow before water entering a watercourse or sewer.

The Surface Water flood map for the development site shows that there is no potential for surface water flooding on the site.

The surface water flood map is shown below.




EA Surface Water Flooding data

## Flooding from Reservoirs

The flood risk from reservoirs is very small and unlikely to happen. The EA publish flood risk maps for areas that may be affected by a reservoir failure. The risk from reservoir flooding is very low and the associated EA map indicates that the area is unaffected by a possible reservoir failure.

## Groundwater Flooding

Groundwater flooding usually occurs in low lying areas underlain by permeable rocks and aquifers that allow groundwater to rise to the surface through the permeable subsoil following long periods of wet weather. Low lying areas may be more prone to flooding because the water table is usually at a much shallower depth and groundwater paths tend to travel from high to low ground.

The site is not low lying and it would be expected that if any water to occur on site, then this would flow from the site following the natural contours.

Given that the site is not low lying and ground levels fall away from the site, then the risk of ground water flooding is likely to be low.

## Surface Water Run-Off

The pre-development site is generally houses and hard-standing and so existing surface run-off would be from the impermeable areas and generally run-off from the site and into the surrounding roads and drainage systems.

## Flood Risk Elsewhere

This development site is within flood zone 1 and so it's development will not affect flood risk elsewhere.

The proposed surface water run-off from the development will be managed in a sustainable way with a high quality surface water system designed to a high standard. As such, potential flood risk from surface water from the site will be reduced post-development.

The surface water system has been considered more fully in the Drainage Strategy for the development.

Potential flood risk elsewhere created by this proposal should be considered to be low.

A plan of the post-development site is shown below.




Post-Development site plan

# CONCLUSIONS AND RECOMMENDATIONS

## Conclusions

- This proposed development site is in flood zone 1.
- All sources of flood risk have been considered and the overall flood risk for this site should be considered low and so suitable for the development proposed.
- This development will not increase flood risk on or off site.

## Recommendations

- Floor levels for all properties should be set at least 150mm above the adjacent finished ground levels.

# APPENDICES

## APPENDIX A – Limitations

The discussion, conclusions and recommendations contained in this Report represent the professional opinions of Bright Young Consulting Limited (BYC), based upon the information listed in the Report, exercising the duty of care required of an experienced Engineering Consultant. BYC does not warrant the accuracy of the information or data forming the basis of the report and will not be responsible for any opinions which BYC has expressed, or conclusions which it has reached in reliance upon information which is subsequently proven to be inaccurate.

This Report was prepared by BYC for the sole and exclusive use of the Client and for the specific purpose for which BYC was instructed. Nothing contained in this Report shall be construed to give any rights or benefits to anyone other than the Client and BYC, and all duties and responsibilities undertaken are for the sole and exclusive benefit of the Client and not for the benefit of any other party. In particular, BYC does not intend, without its written consent, for this Report to be disseminated to anyone other than the Client or to be used or relied upon by anyone other than the Client. Use of the Report by any other person is unauthorised and such use is at the sole risk of the user. Anyone using or relying upon this Report, other than the Client, agrees by virtue of its use to indemnify and hold harmless BYC from and against all claims, losses and damages (of whatsoever nature and howsoever or whensoever arising), arising out of or resulting from the performance of the work by BYC.