

PROPOSED HOUSING DEVELOPMENT

PADDOCK ROAD

STAINCROSS

BARNSELEY

S75 6LG

FLOOD RISK ASSESSMENT

Report 753/FRA1

## 1. INTRODUCTION

This Flood Risk Assessment (FRA) has been prepared to accompany a planning application for a housing development on a parcel of land located off Paddock Road, Staincross, Barnsley, S75 6LG.

The site is centred at national grid reference Se 33486 10222 (433486E, 410222N).

This report considers the likelihood that flooding may occur through all sources and assesses the flood risk for the proposed development.

## 2. PRE-DEVELOPMENT SITE

The pre-development site is a greenfield site which is located to the south of Paddock Road and immediately north and east of the Mapplewell Recreation Ground.

The site extends to approximately 19 400 sq m (1.94 Hectares) and is shown below in the location plan with the site outlined red.

The site slopes from north to south and towards the recreation ground. Levels vary from about 111.50m to 115.00m on the northern boundary to around 99.50m to 101.00m on the southern boundary.



LOCATION PLAN

## FLOOD RISK ASSESSMENT

### 3. FLOOD RISK

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

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.
- Any recommended mitigation measures.

The Environment Agency (EA) flood risk maps has been assessed through the Environment Agency website. No further consultation has been made to the EA at this point.

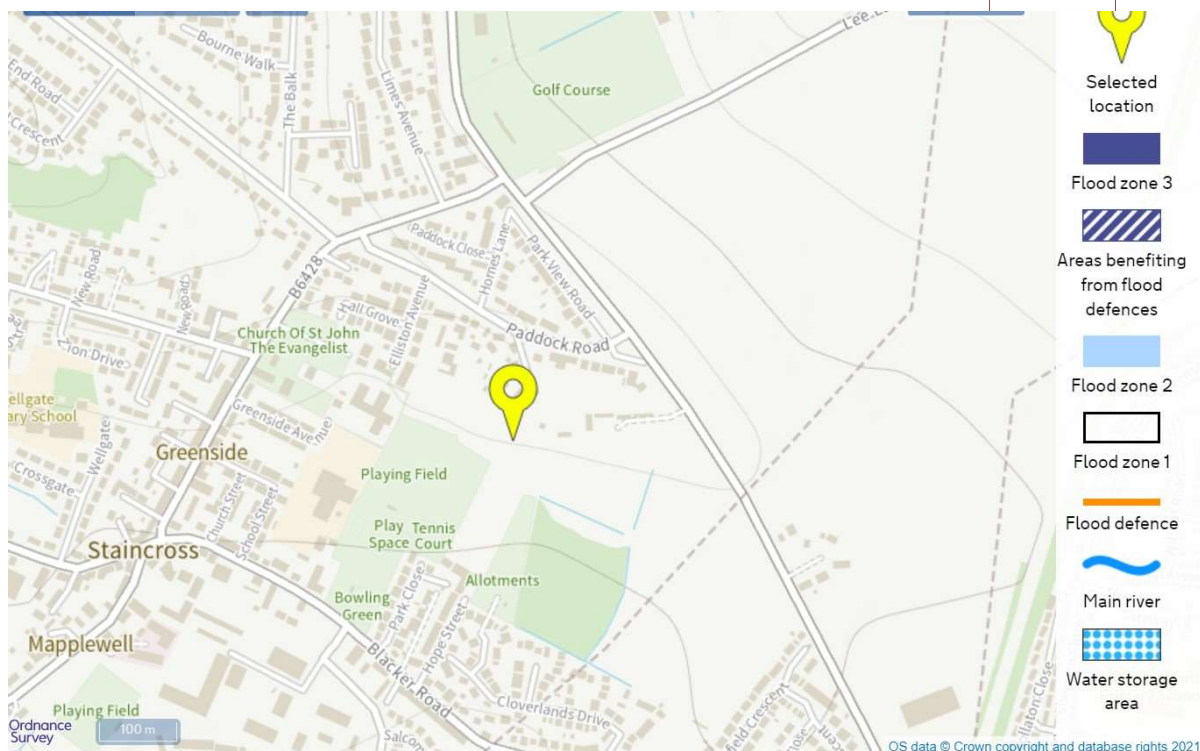
The Barnsley Strategic Flood Risk Assessment (SFRA) and the Barnsley MBC Preliminary Flood Risk Assessment have been reviewed in the preparation of the FRA and any pertinent information included within this FRA.

#### 4. FLOOD MAP

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.

Below is an extract for the Environment Agency (EA) website, confirming the site is within flood zone 1 and not at risk of flooding.

The site is suitable for this development.



Show flood zones

## EA FLOOD MAP

### 5. FLOOD RISK VULNERABILITY

The proposed development is 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 for this development site.



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.

#### EA FLOOD RISK VULNERABILITY CLASSIFICATION

## 6. 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.

Any surface water occurring on the proposed development site would flow southwards in line with the site levels and contours. To mitigate against any possible surface water flooding affecting any house, the usual general good practice of setting the houses 150mm above general external levels is recommended.

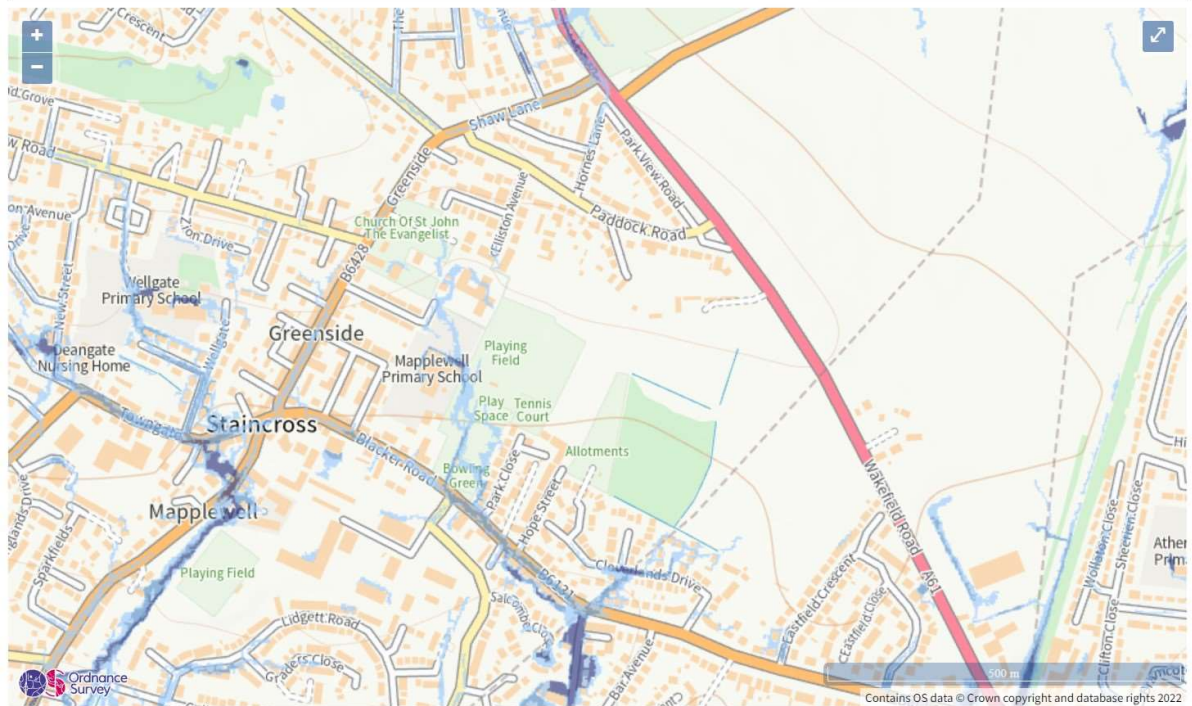
The surface water flood map is shown below.

Flood risk

Extent of flooding

Location

S75 6LG



Extent of flooding from surface water

High Medium Low Very low

## EA SURFACE WATER FLOOD MAP

### 7. FLOODING FROM RESERVOIRS

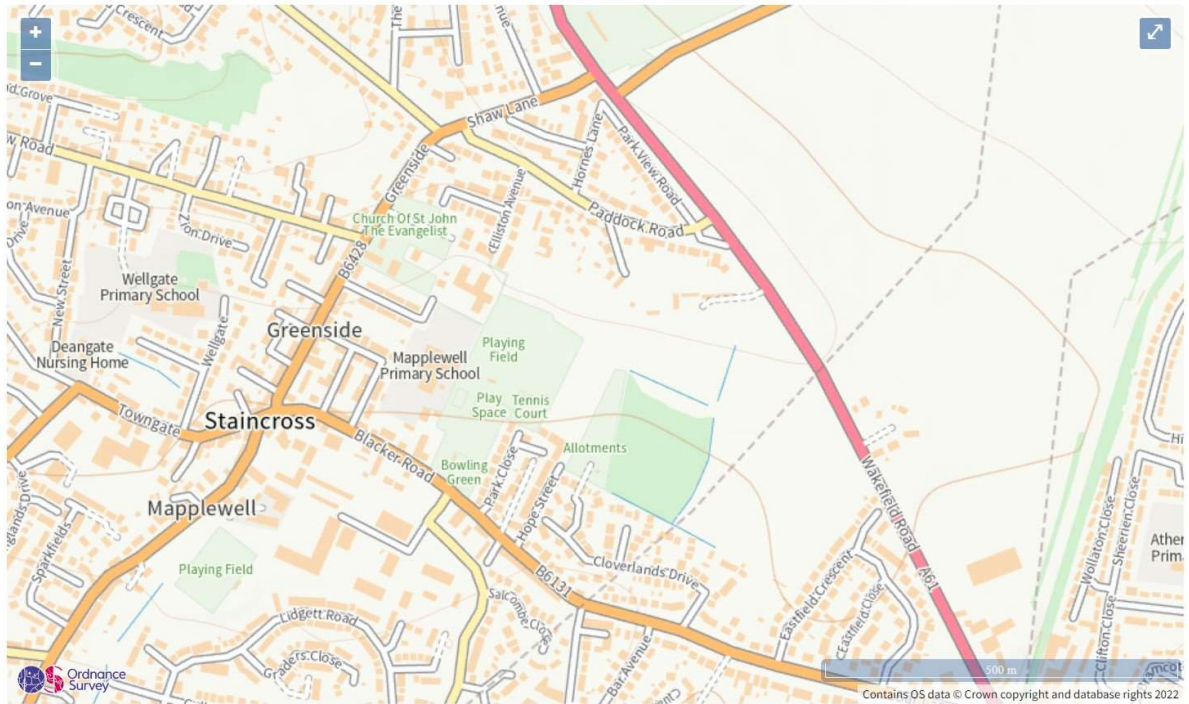
The flood risk from reservoirs is very small and unlikely to happen. The EA publish flood risk maps for areas that may be affected by a reservoir failure. The risk from reservoir flooding is very low and the map is shown here for completeness only, but does show the area is not affected by a possible reservoir failure.

Flood risk

Extent of flooding

Location

S75 6LG



Maximum extent of flooding from reservoirs:

● when river levels are normal    ■ when there is also flooding from rivers

## EA RESERVOIR FLOODING MAP

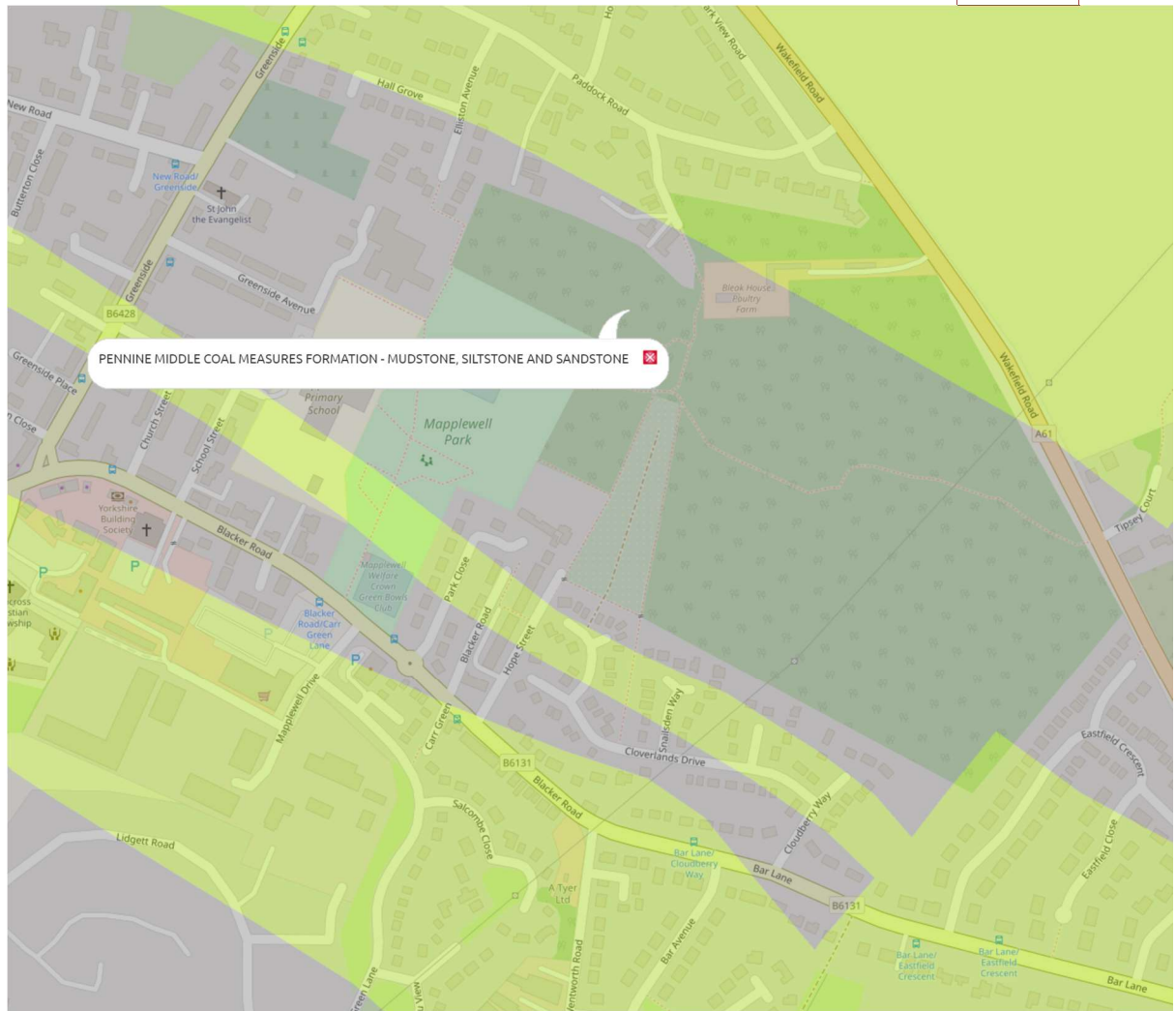
### 8. GROUNDWATER FLOODING

Ground water flooding usually occurs in low lying areas underlain by permeable rock 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. The underlying geology is Coal Formations – Mudstone, siltstone and sandstone and so not subject to potential ground water flooding.

A map of the geology of this area is shown below.



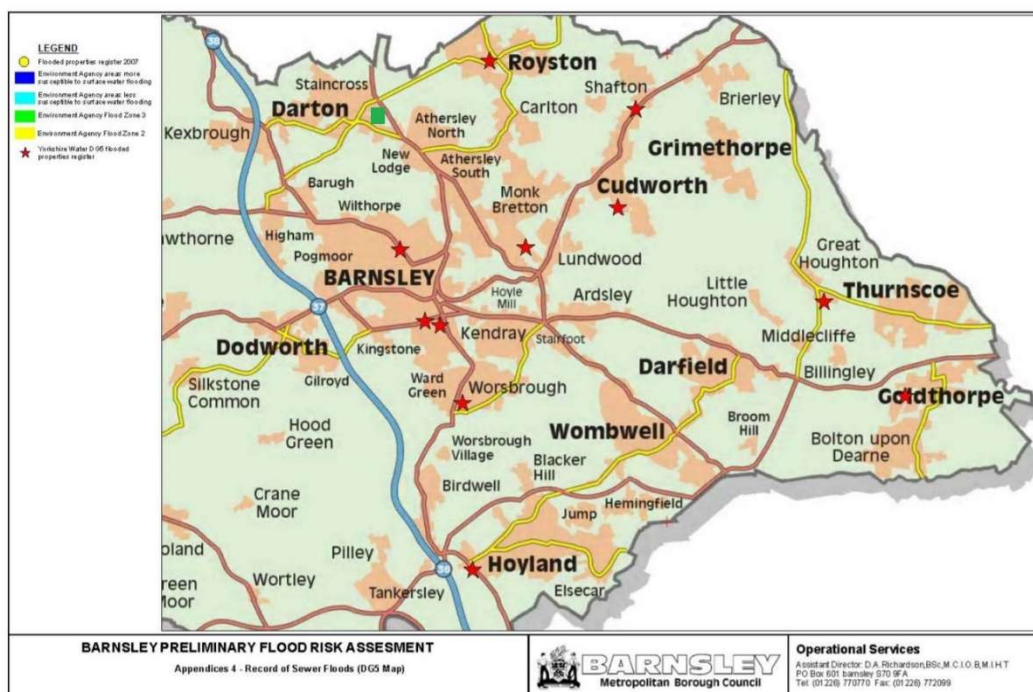


**MAP OF SITE GEOLOGY**

## 9. SEWER FLOODING

The Barnsley Preliminary Flood Risk Assessment has published locations of recorded sewer flood incidents that have affected housing. An extract from the map is shown below with the sewer flooding locations shown as red stars and the proposed development site shown a green square.

No flood incidents have been recorded on or close to the development site.

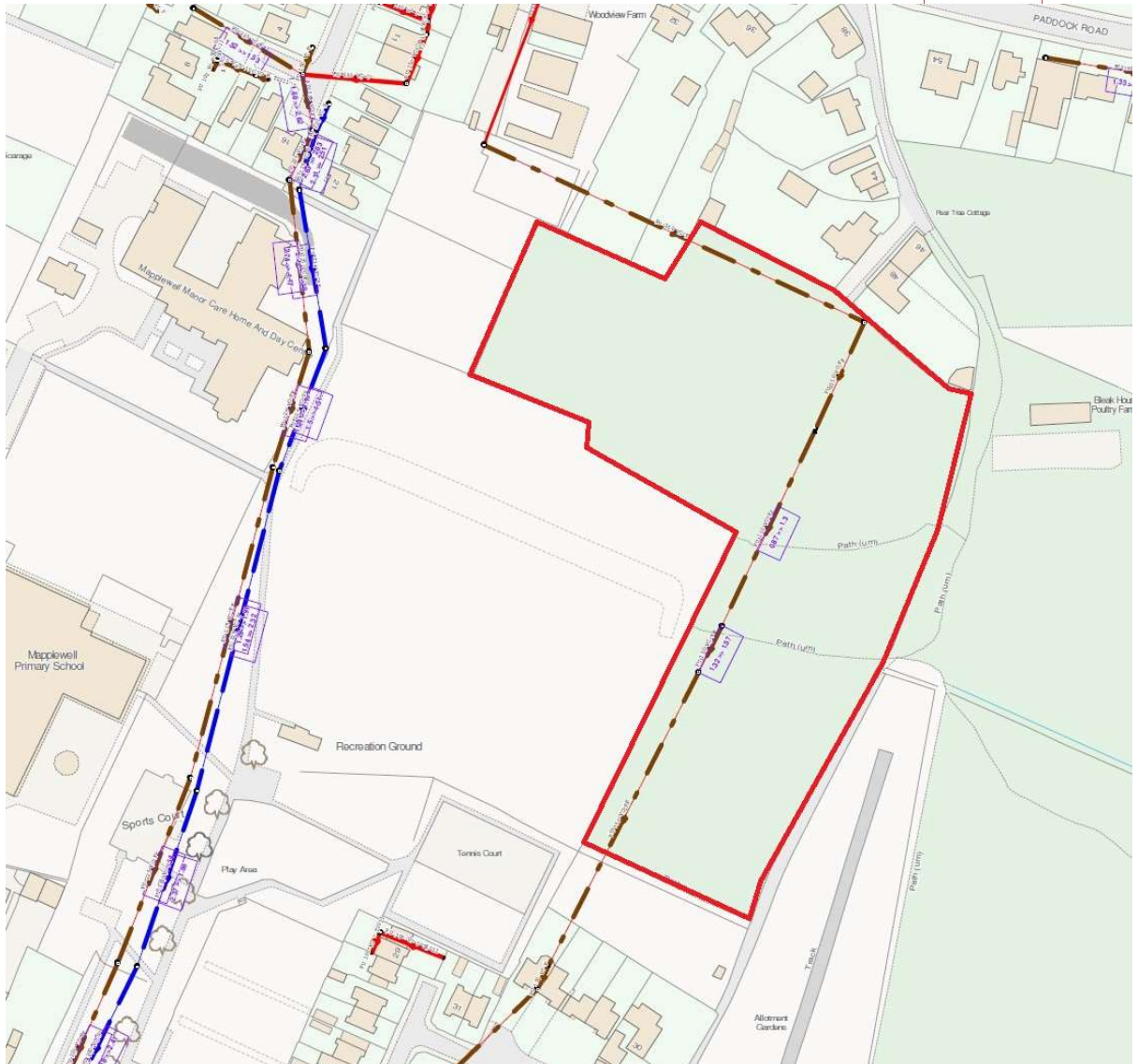


**Appendix 4**

**MAP OF RECORDED SEWER FLOODING INCIDENTS**

There is a foul public sewer running through the site and to avoid any flood risk to this sewer, it has been requested that no surface water be connected to this foul sewer for the new development. This will be adhered to with a new and separate surface water system being used to drain the new development.

A plan of the existing public sewer on the development site is shown below.



MAP OF PUBLIC SEWERS ON THE DEVELOPMENT SITE

## 10. PLANNING PRE-APPLICATION ADVICE

As part of the pre-application advice, Barnsley Council have advised the following on flood risk

**Drainage CC3 and CC4** The Council has no records of any culverted or open watercourses crossing the site and are not aware of any flooding issues associated with the site.

## 11. SURFACE WATER RUN-OFF

The pre-development site is a greenfield site and existing surface water run-off will be at greenfield run-off rates.

The development site will have a high quality surface water system to deal with surface water on the development and this drainage system will connect to the public surface water to the west of the site at greenfield run-off rates as agreed with Yorkshire Water. Therefore, flood risk from proposed surface water run-off should be considered low.

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



## POST-DEVELOPMENT SITE PLAN



## 12. FLOOD RISK ELSEWHERE

The development site will have a high quality surface water system installed and offered for adoption with Yorkshire Water for future maintenance. The system will be sufficient to deal with large storm events whilst limiting run-off from site to greenfield run-off rates. As such, this development will not increase flood risk either on or off-site.

## 13. POST-DEVELOPMENT SURFACE WATER SYSTEM

The post-development surface water system will be designed to ensure that no more surface water run-off is discharged off-site than with the pre-development surface water system. This is achieved by attenuating flows to greenfield run-off rates and providing surface water storage on site.

## 14. CONCLUSIONS

- This proposed development site is in flood zone 1.
- All sources of flood risk have been evaluated and all sources of flood risk should be considered as being LOW and so the proposed development is suitable for this site.
- This development will not increase flood risk on or off site.
- A separate high quality surface water drainage system will be used that will be adopted by Yorkshire Water, who will supply the maintenance for the lifetime of the development.

Report by

A handwritten signature in blue ink, appearing to read 'Hugh Morris', with a long horizontal line extending to the right.

Hugh Morris  
BSc CEng MICE  
23<sup>th</sup> August 2022