

**Flood Risk Assessment****1.0 Introduction:**

This Flood Risk Assessment (FRA) is for the land adjacent to Bower Hill (427399/402107). The FRA has been produced in respect of a planning application for a non-residential storage building and access road.

Site Name	Marshall Brothers Ltd 2020/1033 Land adjacent Bower Hill Road
Location	Oxspring, Sheffield, S36 8WZ
Easting/Northing	427399,402107
Application Site Area (ha)	0.405 ha
Development Type	Non- residential/ Commercial use
NPPF Vulnerability	Less vulnerable
EA Flood Zone	Flood Zone 1, 2 & 3a
EA Office	Yorkshire
Local Planning Authority	Barnsley

Table 1.1 Site Summary**1.1 Sources of Data**

This report is based on the following information:

- i. Site Location Plan
- ii. Site Plan
- iii. Environment Agency information
- iv. Barnsley Council SFRA
- v. Flood Plan

1.1 Existing Site

The site is located adjacent to Bower Hill Road, Oxspring, South Yorkshire. The site is bounded by the River Don to the south and Pickliffes Rocher to the north, where a public footpath runs.

The River Don is south to the proposed development site and is lower than the proposed yard area.

From the site plan the site falls towards the river from the north. The highest point of the site has a level of 188.0 m AOD, and the lowest 179.0m AOD.



Figure 1.1

Site Location - Development 0. 405 ha

1.2 Proposed Development

Development: Non domestic building, with one open end with floor space of 167sqm. Building will be used to store machinery. The yard area is a hardcore base where stone will be stored. Access road from access at Bower Hill to yard area hardcore and road plainings approximately 100 meters in length and 4 meters wide to allow for use of tractors, trailers and vehicles.

1.3 Flood Risk Planning Policy

National Planning Policy Framework

The NPPF sets out the Government's national policies on different aspects of land use planning in England in relation to flood risk.

Planning Practice Guidance is also available online.

The Planning Practice Guidance sets out the vulnerability to flooding of different land uses.

The Planning Practice Guidance also states that alternative sources of flooding, other than fluvial (river flooding), should also be considered when preparing a Flood Risk Assessment.

This Flood Risk Assessment is written in accordance with the NPPF and the Planning Practice Guidance.

Flood Zones

The Flood Zone Map for Planning has been prepared by the Environment Agency. This identifies areas potentially at risk of flooding from fluvial or tidal sources. An extract from the mapping is included as Figure 1.2.

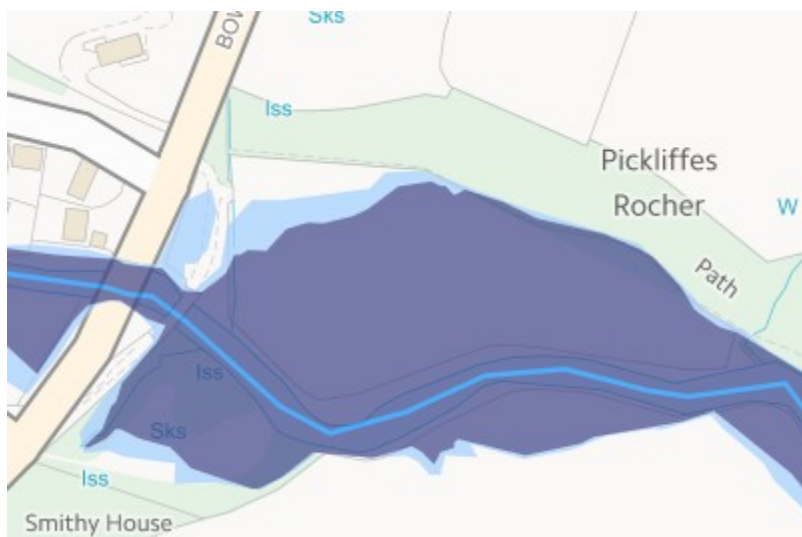


Figure 1.2 Environment Agency Flood Zone Mapping

This site is shown to be located within Flood Zone 1, 2 and 3a.

Flood Zone 3 (High Probability) is defined as land assessed as having an annual probability of flooding of greater than 1%. As per NPPF guidelines you must consider the usage of the land and the flood risk vulnerability classification. Water compatible development is considered in all Flood Zone areas.

The development of the site does include improving drainage.

There will be nothing stored in the building that can be affected by ground level water.

There is also no electricity in the building that can be affected by flooding.

The open-ended agricultural building cannot be affected by flooding and has appropriate guttering and drainage.

The site is water compatible.

Strategic Flood Risk Assessment

The Barnsley Council Flood Risk Assessment (SFRA) was prepared to review flood risks on a much wider scale to assess the potential for new development within the local area.

1.4 Potential Sources of Flood Risk

The table below identifies the potential sources of flood risk to the site, and the impacts which the development could have in the wider catchment prior to mitigation. These are discussed in greater detail in the forthcoming section. The mitigation measures proposed to address flood risk issues and ensure the development is appropriate for its location and are explained below.

Flood Source	Risk Level	Description
Fluvial	Medium/High	The site is located in flood zone 1,2 & 3a. Flood defences and drainage action will lower risk level. Improvements required.
Tidal	None	No tidal influences.
Canals	None	None present
Groundwater	Low	Ground conditions are ever changings and groundwater levels fluctuate. Drainage action will lower risk further.
Reservoirs and waterbodies	Low	The site is shown to fall inside the area at risk of reservoir flooding.
Sewers	Low	The site is higher than surrounding sewers and is therefore very low risk.
Pluvial run off	Medium	An area in the site, not proposed for building zone is medium risk of surface water flooding. Drainage measures (soakaway) have been put in place to prevent this in the future.
Effect of Development on Wider Catchment	None	The development plan will be improving drainage and flood defence in the area. The dyke to the west of the site will be unblocked and improve drainage.

Table – Pre Mitigation Sources of Flood Risk

1.5 Fluvial Flood Risk

Risk of flooding from rivers – the site is shown to be within Flood Zone 1, 2 and 3a. The proposed development is water compatible and cannot be affected by flooding. The data from the Environmental Agency shows the potential risk of flooding annually is less than 1%. Data collected from the monitoring station (site ID 9326) in Oxspring Bower Hill (next to land) which monitors the River Don. The water level must be above 1.35m for minor flooding to possibly occur.

Mitigation measures to address the risk posed by the watercourses (River Don) surrounding the site are discussed.

1.6 Groundwater Flood Risk

Groundwater levels fluctuate on the site and mitigation measures will be put in place to ensure drainage is improved. Risk level low – no risk to development.

1.7 Flood Risk from Reservoirs and Large Waterbodies

Reservoir failure flood risk mapping has been prepared by the Environmental Agency which shows the largest area that could potentially flood if a reservoir were to fail. The map displays the worst case scenario, and as the proposed development will be water compatible poses no risk.



Figure 1.8 Environmental Agency Reservoir Flood Map

1.8 Flood Risk from Sewers

The site lies above any Yorkshire Water sewers. There is no risk of flooding from sewers to the site.

2.0 Pluvial Flood Risk

There is a small area in the field which is at risk of surface water flooding.

The mapping from the Environmental Agency below shows.

This is below the proposed access road and storage building.

Development of this site is inclusive of improved drainage and a soakaway to prevent surface water

flooding in the future. Further details on mitigation will be included.

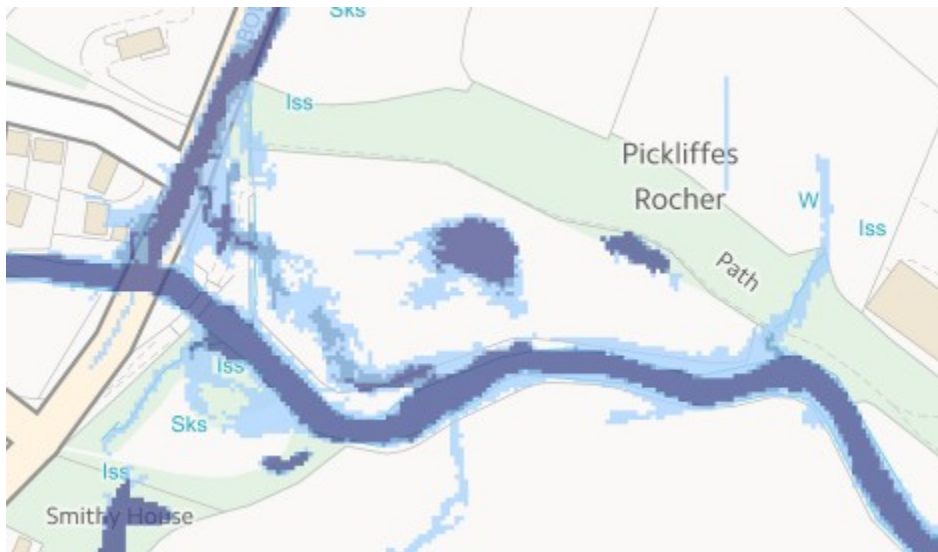


Figure 2.0 Environmental Agency Surface Water Flood Map

2.1 Effect of Development on Wider Catchment

The current site is to be considered greenfield. This results in the amount of impermeable area on

this site being increased (access road and footings for structure). Mitigation put in place and the

improvement action plan inclusive of flood defences, soakaway, drainage and appropriate

guttering for building will ensure that there is no effect on wider catchment.

2.2 Flood Risk Mitigation

After identifying the sources of flooding which could possibly pose a risk to the site and proposed

development. This section of the FRA sets out the mitigation measures which are to be considered

for the site development to reduce the risk of potential flooding.

2.3 Site Arrangements

The building and access road will be on the highest part of the land, avoiding any pluvial flood risk.

2.4 Finished Levels

The development is water compatible and there is nothing to be stored at ground level other than

stone. The machinery used is above ground level and is not at risk of any potential flooding. There

is no electricity, sewers or systems vulnerable to flooding.

Adequate roofing and guttering for the drainage of rain water has been added to the storage

building, and the hardcore base is suitable for drainage.

A flood defence to the south of the development is to be built along the River Don, similar to the

defence built at the other side of the river, this will help prevent any fluvial flooding.

2.5 Drainage and land maintenance

The development is 0.4 ha of a 1.9 ha greenfield. The field requires a new drainage system to

prevent and surface water flooding, and the existing dyke to the West of the site requires

unblocking and maintenance.

A soakaway is to be dug out and drainage will run across the grazing area, South to the River Don.

2.6 Conclusion and Recommendations

This Flood Risk Assessment (FRA) is compliant with the requirements set out in the National Planning Policy Framework (NPPF) and the associated Planning Practice Guidance.

The FRA has been produced on behalf of Marshall Brothers Ltd

This report demonstrates that the proposed development and improvements are not at significant flood risk as the usage suggests the development will be water compatible. Marshall Brothers intend to improve the drainage and minimise flood risk. Strategic surface water drainage and flood defences will be implemented. This action minimises future risk of flooding.

The development will not increase flood risk to the wider catchment area.