

Flood Risk

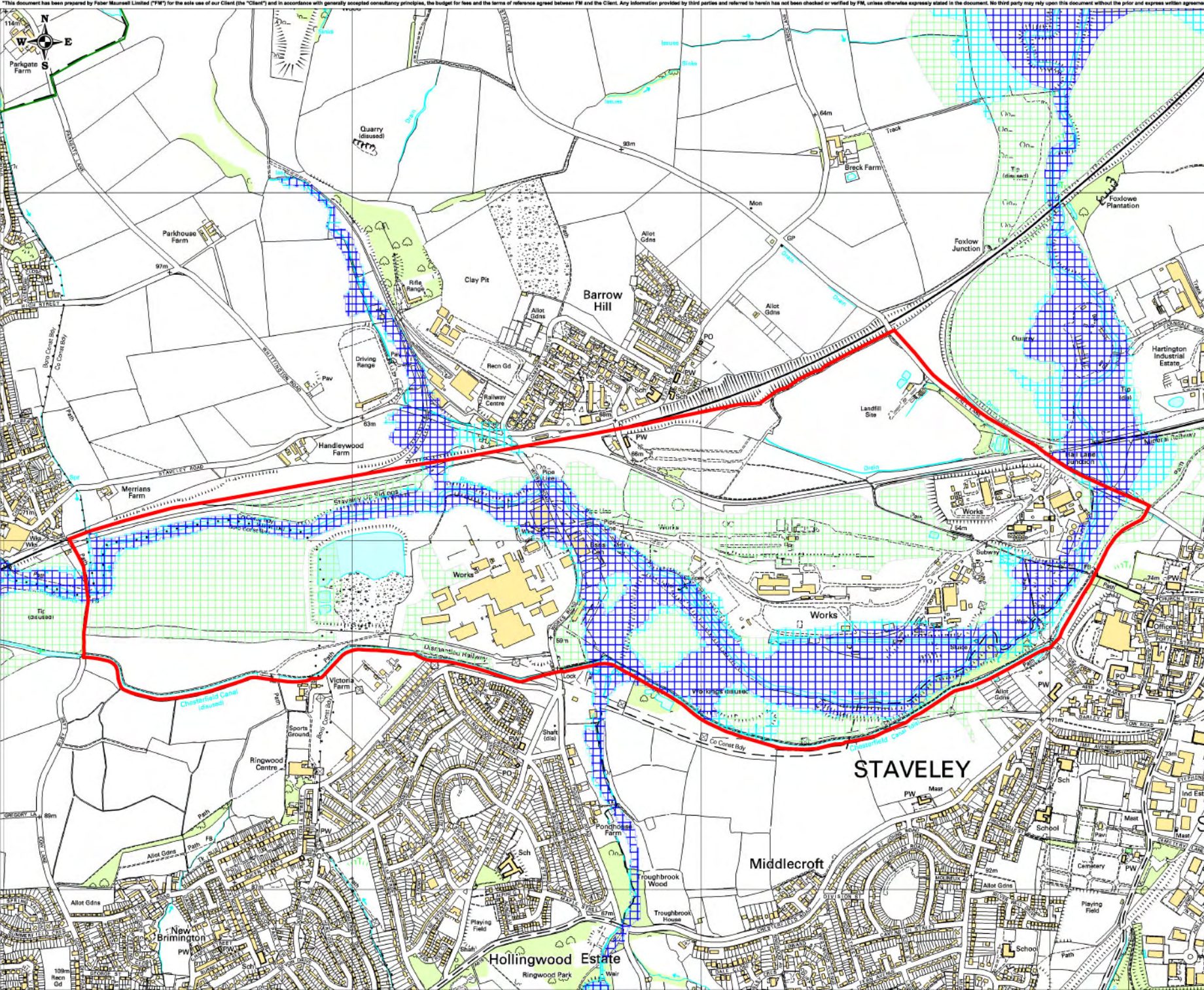
- 6.1 A full detailed review of the flood risk assessment is included in Appendix 4.
- 6.2 Planning Policy Statement 25: Development and Flood Risk (Communities and Local Government, 2007) (PPS25) is the current guidance on development and flood risk in England and Wales. This guidance is supplemented by 'Development and Flood Risk: A Practice Guide (Communities and Local Government, 2008). Together, these documents guide planners on how to evaluate sites in respect of flood risk.
- 6.3 PPS25 requires a Flood Risk Assessment (FRA) to consider all potential forms of flooding, including river, sea, estuarial, land drainage, groundwater, overland flow, surface water run-off, sewer systems, water mains and artificial water bodies (lakes, reservoirs, canals etc). PPS25 requires the FRA to consider the impact of all these potential forms flooding on both the development site and off site parties and land.
- 6.4 At this stage, due to the information currently available, the FRA of the Staveley site has concentrated mainly on the risk of flooding from rivers and surface water. The River Rother flows in a westerly direction through the site. The other main watercourse on site is the Chesterfield Canal, which also flows in a westerly direction along the southern boundary of the site.
- 6.5 Based on the Environment Agency Flood Map, the site lies within Flood Zones 1, 2 and 3. Flood Zone 3 is broken down into two further categories, 3a and 3b and the site lies in both. The definitions of these Flood Zones, as provided in PPS25 are given below:
- Zone 1 – Low probability (less than 1 in 1,000 annual probability of river or sea flooding in any year).
 - Zone 2 – Medium probability (between 1 in 100 and 1 in 1,000 annual probability of river flooding or between 1 in 200 and 1 in 1,000 annual probability of sea flooding in any year).
 - Zone 3a – High probability (1 in 100 or greater annual probability of river flooding in any year or 1 in 200 or greater annual probability of sea flooding in any given year).
 - Zone 3b – High probability (1 in 20 or greater annual probability of flooding in any given year). This is also classified as functional floodplain (developed areas within the 1 in 20 year outline are however considered as Zone 3a – see Chesterfield Strategic Flood Risk Assessment).
- 6.6 The Environment Agency map of the summer 2007 flood event (Plan 6.1) shows that almost half of the site was affected by flooding during this event (approximately 48% of the site). The extent of flooding during the summer 2007 event was derived using various methods, and the Environment Agency consulted Local Authorities to verify the flood outline was accurate within their boundary. Chesterfield Borough Council signed off the 2007 flood outline as being accurate, and later in 2009, these outlines will be adopted by the Environment Agency as part of the official Flood Zone 2 outline.

- 6.7 Based on consultation (both informal and formal), the site visit, and the work undertaken, it is believed that the 2007 flood outline within the site boundary is incorrect. This flood outline should be challenged (Plan 6.4) by the Council in the future. If the outline is not challenged, future development within the site will be severely restricted.
- 6.8 PPS25 classifies the vulnerability of developments to flooding into five categories, based on their use. The vulnerability categories and examples of how developments are classified, is provided below:
- Essential Infrastructure (e.g. transport routes, electricity generating power stations);
 - Highly Vulnerable (e.g. emergency services, mobile home parks);
 - More Vulnerable (e.g. residential and educational establishments, hospitals);
 - Less Vulnerable (e.g. commercial buildings and offices); and
 - Water Compatible Development (e.g. docks, marinas, water transmission infrastructure).
- 6.9 Based on the vulnerability of a development, PPS25 states what Flood Zone(s) the development can be located within. The flood risk vulnerability and flood zone 'compatibility' of developments is summarised in Table 6.1.
- 6.11 For the Exception Test to be passed it must be demonstrated that:
- There are sustainability benefits that outweigh the flood risk;
 - It is on previously developed land or there are no other suitable sites; and
 - The new development is safe and does not increase flood risk elsewhere.
- 6.12 Within the site, the type of development that is permitted will be restricted by the fact areas of the site are located within Flood 2, 3a and 3b. Furthermore, the Sequential Test will be required for development located outside of Flood Zone 1.
- 6.13 The Sequential Test is a risk-based test that aims to steer new development to areas with the lowest probability of flooding (Flood Zone 1). The Sequential Test will need to be undertaken by the planners, and passed for any development to be located in Flood Zone 2 and 3.
- 6.14 All development types are permitted in Flood Zone 1. Where development is located within Flood Zone 1, finished floor levels should be located 150mm above the external level. This is based on adopting a precautionary approach in line with PPS25 guidance in relation to surface water flooding.

Table 6.1: Flood Risk Vulnerability and Flood Zone 'Compatibility' (Extract from PPS25, Table D.3)

Flood Risk Vulnerability Classification		Essential Infrastructure	Water Compatible	Highly Vulnerable	More Vulnerable	Less Vulnerable
Flood Zone	1	✓	✓	✓	✓	✓
	2	✓	✓	Exception Test required	✓	✓
	3a	Exception Test required	✓	x	Exception Test required	✓
	3b	Exception Test required	✓	x	x	x

- 6.10 For example, residential housing is classified as 'More Vulnerable'. According to Table D3 of PPS25, residential housing can be located in Flood Zone 1 and 2, it cannot be located within Flood Zone 3b and the Exception Test must be passed for it to be located in Flood Zone 3a.
- 6.15 In Flood Zone 2 'Essential Infrastructure', 'Water Compatible', 'More Vulnerable' and 'Less Vulnerable' development are permitted. The Exception Test is required to locate 'Highly Vulnerable' development in Flood Zone 2.



This document has been prepared by Faber Maunsell Limited ("FM") for the sole use of our Client (the "Client") and in accordance with generally accepted consultancy principles, the budget for fees and the terms of reference agreed between FM and the Client. Any information provided by third parties and referred to herein has not been checked or verified by FM, unless otherwise expressly stated in the document. No third party may rely upon this document without the prior and express written agreement of FM.

NOTES

- Do not scale from drawing.

Key

- Site Boundary
- 2007 Flood Extent
- Flood Zone 3
- Flood Zone 2

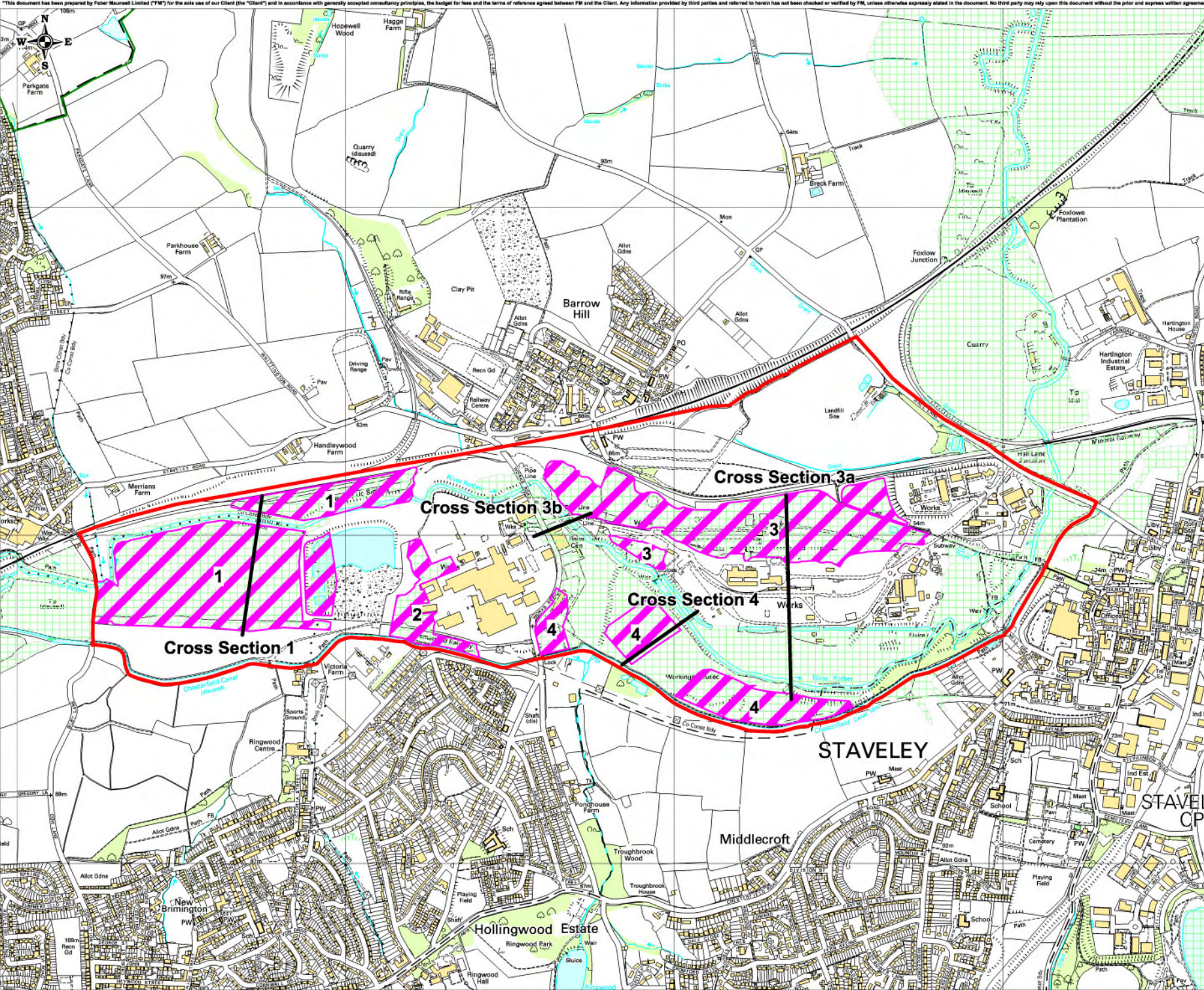
Rev	Date	SA	AWC	AWC	GEK
	March 09	SA	AWC	AWC	GEK
Client:	Chesterfield Borough Council				
Project:	Staveley Area Action Plan				
Title:	Flood Zone 2 and 3 and Historical Flood Outlines				
Design:	AWC	Drawn:	SA		
Chk'd:	AWC	Scale:	1:10,000@A3		
app'd:	GEK	Date:	MARCH 09		

FABER MAUNSELL | AECOM

5th Floor
2 City Walk
Leeds, LS11 5AR
Location:

Tel: 0113 391 6800
Fax: 0113 391 6899
www.fabermaunsell.com

Dwg: **6.1** Rev: **A**



- NOTES**
- Do not scale from drawing.
- Key**
- 2007 Flood Extent
 - Area to challenge
 - Site Boundary
 - 1 Specific Area

Rev	Date	Drawn	Design	Chkd	app'd
B	May 09	SA	AWC	AWC	GEK
A	March 09	SA	AWC	AWC	GEK
Rev	Date	Drawn	Design	Chkd	app'd

Client: Chesterfield Borough Council

Project: Staveley Area Action Plan

Title: 2007 Flood Extent and Areas To Challenge

Design: AWC Drawn: SA
 Chkd: AWC Scale: 1:10,000@A3
 app'd: GEK Date: MARCH 09

- 6.16 Where development is permitted within Flood Zone 2, based on the type of development or passing the Exception Test, finished floor levels should be located 300mm above the 1 in 100 year flood level plus climate change allowance. Again, this is based on adopting a precautionary approach in line with PPS25 guidance.
- 6.17 The type of development permitted within the parts of the site located within Flood Zone 3 is more restricted than in Flood Zone 1 and 2. In Flood Zone 3b only 'Water Compatible' development is initially permitted and 'Essential Infrastructure' is also permitted if the Exception Test is passed. In Flood Zone 3a only 'Water Compatible' and 'Less Vulnerable' development is initially permitted. If the Exception Test is passed, 'More Vulnerable' and 'Essential Infrastructure' development will also be permitted.
- 6.18 Where development is permitted within Flood Zone 3, based on type of development or passing the Exception Test, finished floor levels should be located 600mm above the 1 in 100 year flood level plus climate change allowance. During times of flood, safe access and egress from buildings located within Flood Zone 3 should also be provided and flood resilient and resistant techniques should be utilised in Flood Zone 3. Furthermore, wherever development is located within Flood Zone 3 compensatory flood plain storage should be provided to ensure the development does not result in a loss of flood plain storage.
- 6.19 PPS25 promotes a sequential approach to development for sites located within several flood zones. The sequential approach directs the most vulnerable types of development towards the areas of least risk within the site. For example, on a site located within Flood 1, 2 and 3 residential housing would be directed to Flood Zone 1; and landscaped and car parking areas would be directed to Flood Zone 2 and 3.
- 6.20 PPS25 also promotes the use of Sustainable Drainage Systems (SuDS) wherever possible. The key planning objectives in PPS25 are to appraise, manage and where possible, reduce flood risk. SuDS provide an effective way of achieving these objectives and appropriate SuDS should be installed on site to manage the risk of flooding from surface water. A more detailed drainage assessment should be completed for the site at a later stage.
- 6.21 While part of the site lies in Flood Zone 2 and 3, it is considered that the site can be safely developed following the principles of PPS25. Furthermore, if appropriate mitigation measures are implemented, including raised finished floor levels, water resistant and resilient construction and safe access and egress, then the flood risk to the site and development located within the site is considered to be low and acceptable.

