

Knowl Park House
Crowlees Road, Mirfield

Preliminary Flood Risk Review

HSP2020-C3257-C&S-FRAS1-11
September 2020



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Signed for and on behalf of HSP Consulting:

A handwritten signature in black ink, appearing to read 'Mike Baker'.

Mike Baker, Director

Issue & Revision History

Revision	Status	Originator	Checked	Approved	Date
-	DRAFT	P Daykin BSc(Hons) MCIHT MCIQB CEnv	R Hopkinson BEng (Hons) EngTech	P Daykin BSc(Hons) MCIHT MCIQB CEnv	16.09.20
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1 Introduction

1.1 General

- 1.1.1 Architects Frank Shaw Associates (FSA) have been employed by Kirklees Council to develop proposals for a new care facility at the site.
- 1.1.2 Along with other technical specialists, HSP Consulting (HSP) has been commissioned by FSA to provide technical studies which assist in the evaluation of the feasibility of constructing the new care facility.
- 1.1.3 This document summarises findings of initial works undertaken by HSP to evaluate the constraints and significance of flood risk related matters. This initial appraisal has been prepared to assist in RIBA Stage 1 (Preparation and Brief) and RIBA Stage 2 (Concept Design) works.
- 1.1.4 The information presented herein does not purport to be a detailed appraisal of flood risk. The works represent an 'early' review of flood risk matters which typically constrain development. It should be considered as providing outline and/or indicative information only for the purpose of furthering design development.
- 1.1.5 This appraisal is not a substitute for a formal and/or detailed flood risk assessment. However, as illustrated within subsequent commentary, a requirement for a formal Flood Risk Assessment has not been identified.

1.2 Sources of Data

- 1.2.1 This report is based on information from the following principal sources of information:
- i.* Flood Zones for Planning
 - ii.* Long Term Flood Risk Mapping
 - iii.* Strategic Flood Risk Assessment
 - iv.* Critical Drainage Area File Note (JBA Consulting)

2 Site Location, Description & Proposed Development

2.1 Site Location

- 2.1.1 The site is known/identified as Knowl Park House, Crowlees Road, Mirfield, WF14 9PP.
- 2.1.2 The National Grid Reference (NGR) of the site is E420375, N420250 (approximately).
- 2.1.3 The site location is illustrated below:



Extract Illustrating the Existing Site/Site Location

2.1.4 The relevant planning authority is Kirklees Council.

2.2 Site Area

2.2.1 The site is estimated to occupy a plan area of approximately 5,500 m²/0.55 ha.

2.3 Description

2.3.1 The overall site is broadly rectangular in shape and is currently occupied by a care home.

2.3.2 The existing area of buildings and hard paved areas are estimated to be in the range of 35% to 45% of the site area.

2.3.3 An initial walkover of the site indicates that the buildings and hard paved areas are positively drained.

2.4 Proposed Development

- 2.4.1 No detailed development proposals were available for review at the time of writing. In outline terms it is proposed to demolish the existing care home facility and replace with similar, but modernised, facilities.
- 2.4.2 No residential/sleeping accommodation is proposed.

3 National Planning Framework

3.1 Standing Advice

- 3.1.1 For “major developments” within Flood Zone 1, where the development
- i.* Is within 20m of a main river; or
 - ii.* Is in an area with critical drainage problems; or
 - iii.* Is shown within the Strategic Flood Risk Assessment to have a risk of flooding from rivers or the sea in future;

A flood risk assessment is likely to be required.

- 3.1.2 The Town and Country Planning (Development Management Procedure) (England) Order 2015 defines “major development” means a non-dwelling house development carried out on a site having an area of 1 hectare or more.
- 3.1.3 Where a Flood Risk Assessment is not required government advice (<https://www.gov.uk/guidance/flood-risk-assessment-local-planning-authorities#flood-zone-1>) indicates that consultation with the Environment Agency is not prescribed by the regulatory approval process.
- 3.1.4 Notwithstanding the above, the Lead Local Flood Authority (LLFA) should be consulted. The LLFA will typically define the requirements of any proposed drainage system(s), such as sustainability and discharge rates. Moreover, where a development classified as “More Vulnerable” the LLFA may require planning submissions to be accompanied by a Flood Risk Assessment.

4 Flood Risk Vulnerability

- 4.1 Table 2 of “Planning Practice Guide – Flood Risk and Coastal Change” illustrates Flood Risk Vulnerability classifications. This indicates that non-residential uses for health services are considered to be “More Vulnerable”.

5 Local Planning Framework

5.1 Strategic Flood Risk Assessment (SFRA)

5.1.1 The Strategic Flood Risk Assessment (SFRA) produced by JBA Consulting in 2016 does not provide information which indicates that the site will be at risk of future fluvial or tidal flooding.

5.1.2 Volume 2, Figure 2-3, page 21 provides an illustration entitled “Areas Susceptible to Groundwater Flooding”. The scale and features used in the background mapping preclude reliable inference on site specific risk. However, it is inferred that the area of the subject site is at an elevated risk of groundwater emergence. Site specific intrusive investigation is therefore recommended.

6 Consultation Responses

6.1 Environment Agency

6.1.1 No formal consultation required or undertaken. However, for guidance, publicly available reference material has been reviewed, the content of which is summarised below.

6.1.1.1 Fluvial Flood Risk

The extract indicates that the site is located within Flood Zone 1; that is, an area with the lowest conjectural flood risk. It is also inferred to be in excess of 500 m from the nearest main river.

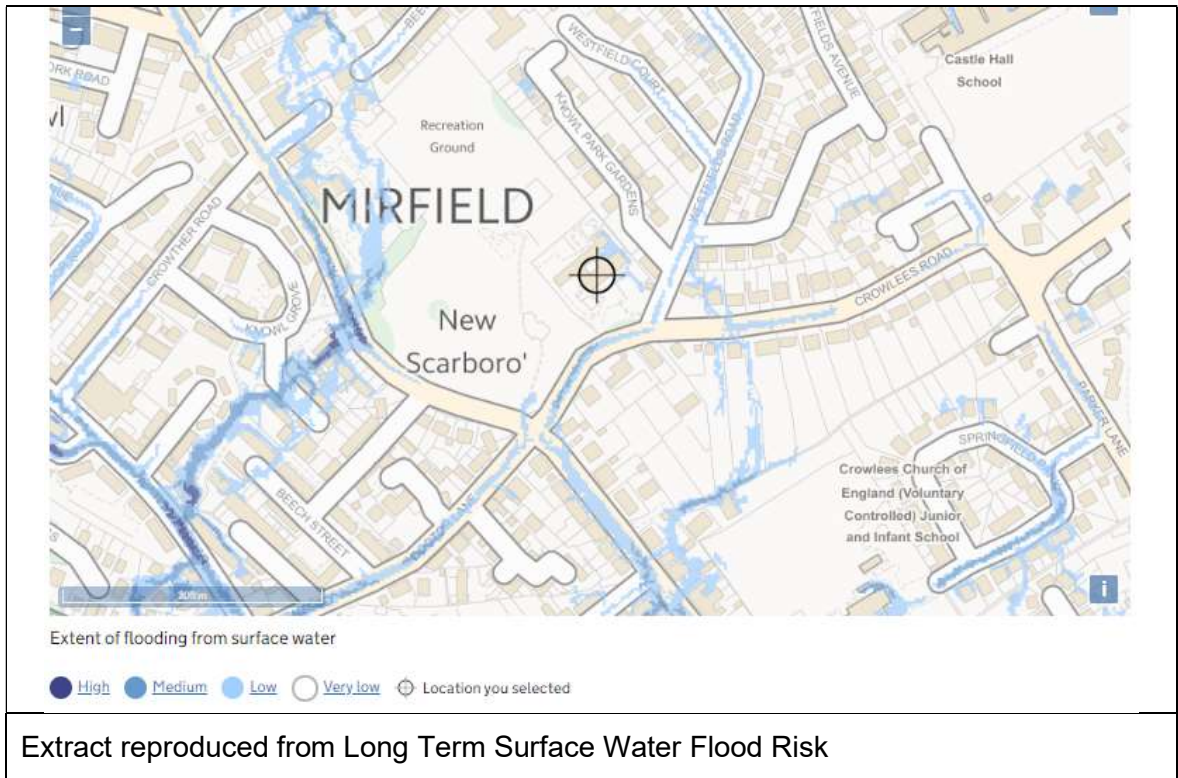


6.1.1.2 Surface Water Flood Risk

The “Flood Risk from Surface Water” map categorises surface water flooding as follows:

- i.* High - a chance of flooding of greater than 3.3%.
- ii.* Medium - a chance of flooding of between 1% and 3.3%.
- iii.* Low - a chance of flooding of between 0.1% and 1%.
- iv.* Very Low - a chance of flooding of less than 0.1%.

For the most part, the site is assessed having a “Very Low” risk of surface water flooding. However, “Low” risk is evident in the eastern margins of the site; see extract below:



6.1.1.3 Flooding From Reservoirs

The site is not depicted as being at risk of flooding from reservoirs.



6.2 Lead Local Flood Authority (LLFA)

6.2.1 As Lead Local Flood Authority, Kirklees Council was consulted in August 2020 as follows:

“As Lead Local Flood Authority and Planning Authority we would be grateful if you could confirm if the above sites are located within a Critical Drainage Area (CDA) and if a Flood Risk Assessment is required.”

6.2.2 Kirklees Council responded on the 13 August 2020 with:

“I [Teresa Harlow, Development Manager] have discussed this with the LLFA and they have stated there is not a designated critical drainage area related to [this] sites. It is, however, recommended that any future application [is] supported by a drainage strategy.”

6.2.3 It is inferred from the above that the LLFA do not require a formal flood risk assessment to be undertaken.

7 Existing Drainage

7.1 The site is brownfield and, based upon a site walkover survey, serviced by a positive surface and foul water drainage system.

7.2 At the time of preparation Public Sewer Records were not available for review.

7.3 Based upon observations made during the Preliminary Walkover Survey and anecdotal evidence it is considered likely that public sewers exist in the vicinity of the site and that the site benefits from both a surface and foul discharge to the public sewers.

7.4 It is recommended that the existing drainage is investigated:

- i.* To demonstrate existing connectivity into the (inferred) public sewer network
- ii.* To obtain information of condition, line and level where outfalls or any other element is to be reused.
- iii.* To confirm if any drainage diversion works are required.

8 Proposed Drainage

8.1 At the time of preparation of this Statement, there was a paucity of information in respect of the development proposals. Therefore, it is not possible to provide a detailed commentary on proposed drainage.

8.2 The following is offered for information only:

- i. It is considered likely that surface and foul drainage from the proposed will discharge into public sewers, as inferred for the existing.
- ii. Given the notionally like-for-like development, substantial constraints and abnormalities on the foul discharge are not considered to be a significant probability.
- iii. Based upon the Strategic Flood Risk Assessment, “*Development should aim for a reduction in surface water runoff rates of at least 30% for Brownfield sites up to a 1 in 100 year storm event, considering climate change*”. However, this will need to be agreed with the Regulators and Statutory Undertakers.
- iv. In practical terms, it is considered unlikely that the existing drainage will accommodate the 100 year storm without flooding. An on-site drainage model may be required in order to enable practical negotiation of the outfall rate with the Undertaker.
- v. Surface water attenuation will, in all probability, be required. The volume to be provided will be dependent upon the agreed discharge rate and proposed drained area.

8.3 With respect to abnormalities and allocating space for drainage, the following information is provided:

- i. Assuming 50 mm/hour rainfall over an existing contributing area of 1900 m², an existing surface water discharge rate of 26.2 l/s can be calculated.
- ii. Assuming a 30% betterment over existing, the following table provides indicative attenuation volumes required for the 1 in 100 year + 40% for climate change events.

Drained Area (m ²)	Discharge Rate (l/s)	Attenuation Volume* (m ³)
1500	18.1	26-49
2000	18.1	40-75
2500	18.1	57-102
*FSR derived storm events, using Micro Drainage Quick Storage Estimate modules		

It should be noted that the above estimate is provisional and will be subject to variation as the design development proceeds.

9 Summary & Conclusions

- 9.1 It is proposed to demolish existing and re-provide non-residential healthcare facilities on the site.
- 9.2 In respect of flood risk, this document does not purport to be a detailed Flood Risk Assessment. Any information presented herein should be considered to be informative rather than definitive.
- 9.3 This document was prepared in advance of a proposed layout or availability of site specific investigations such as drainage connectivity survey, soils investigation etc. The comments provided herein are, for the most part, based upon publicly available information.
- 9.4 With respect to Planning, the site is located in Flood Zone 1; that is, an area considered to be at the lowest risk of fluvial flooding.
- 9.5 The site is not considered to be at significant risk of flooding from other sources. However, consideration is recommended in respect of pluvial (long term surface water/overland flow) risk. Intrusive Site Investigation is also recommended in order to further appraise the potential for infiltration drainage systems and/or influence of groundwater.
- 9.6 The site is less than 1 ha in plan area.
- 9.7 The Lead Local Flood Authority has confirmed that the site is not located within a Critical Drainage Area.
- 9.8 With respect to flood risk, the site is categorised as “*More vulnerable*” but given the conjectural flood risk(s) for the area is compatible with Planning Policy. The site is below the 1 ha threshold requiring a formal Flood Risk Assessment.
- 9.9 The management of surface water runoff from the proposed development is considered to be the most significant flood risk related matter.
- 9.10 In respect to runoff, the design standard is expected to be the 1 in 100 year +40% for Climate Change Event.
- 9.11 The existing site is inferred to discharge surface and foul water into public sewers.
- 9.12 It is anticipated that the proposed will continue to drain to public sewers.
- 9.13 A restricted surface water discharge is anticipated. Current guidance suggests the maximum permissible rate will be as existing less 30%. The final rate is to be agreed with the Lead Local Flood Authority and Sewerage Undertaker.
- 9.14 It is considered likely that surface water attenuation will be required.

- 9.15 In the absence of information, a definitive comment upon the requirement for pumped drainage systems cannot be provided at this time. However, it is considered likely that a gravity only drainage solution will be feasible.
- 9.16 It is recommended that a fall away from building entrances and preferential flow routes are provided in order to mitigate the risk of flooding from exceedance events.
- 9.17 Overall, with respect to flood risk, the site is considered:
- i.* To be at low risk of flooding;
 - ii.* Compatible with planning objectives; and,
 - iii.* The management of surface water runoff and overland flow/exceedance routes will require consideration.



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