

**RESIDENTIAL DEVELOPMENT –
SCHOOL BROW, MORESBY PARKS
FLOOD RISK ASSESSMENT – JUNE 2023****1. DEVELOPMENT DESCRIPTION AND LOCATION****a. What type of development is proposed and where will it be located?**

This flood risk assessment supports a planning application for a proposed 56 home residential development located on land adjacent to School Brow in Moresby Parks, Cumbria.



Figure 1: Location of Proposed Development – Red Line Indicates Site Boundary

The site location indicators are as follows:

OS X (Easting)	299419
OS Y (Northing)	519683
Nearest Post Code	CA28 8UX
Lat (WGS84)	54.562345
Long (WGS84)	-3.5570012
Nat Grid	NY994196 / NY 99419 19683

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The site is currently occupied entirely by agricultural farmland and the full area bounded in Figure 1 is marked for development. The proposed layout of the site is shown in Appendix A. As the site is currently greenfield, there will be a significant increase in the total hard area of the site as a result of this proposal.

The development covers approximately 2.88ha. The general shape of the site is rectangular, constrained to the south by School Brow, to the west and north by agricultural land and to the east by Moresby Primary School and playfields.

The proposed development will be accessible via two new junctions with School Brow.

b. What is its flood risk vulnerability classification?

In the flood risk vulnerability classification, the development is classified as being “More Vulnerable”.

- **More Vulnerable**

Buildings used for dwelling houses, student halls of residence, drinking establishments, nightclubs, and hotels.

c. Is the proposed development consistent with the Local Plan for the area?

The development will meet a housing need within the local area, and so is consistent with the aims of the Copeland Local Plan.

d. What evidence can be provided that the Sequential Test and where necessary the Exception Test has/have been applied in the selection of this site for this development type?

As the proposed development lies on land entirely classified as Flood Zone 1, no sequential or exceptions tests will need to be carried out by the planning authority.

e. Will your proposal increase overall the number of occupants and/or users of the building/land, or the nature or times of occupation or use, such that it may affect the degree of flood risk to these people?

The site is currently agricultural farmland.

The proposed development will result in an increase in the number of occupants present on the site both during the day and overnight which will pose an increase in the risk of harm by flooding. A mitigating factor is that the site is within the Environment Agency (EA) Flood Zone 1.

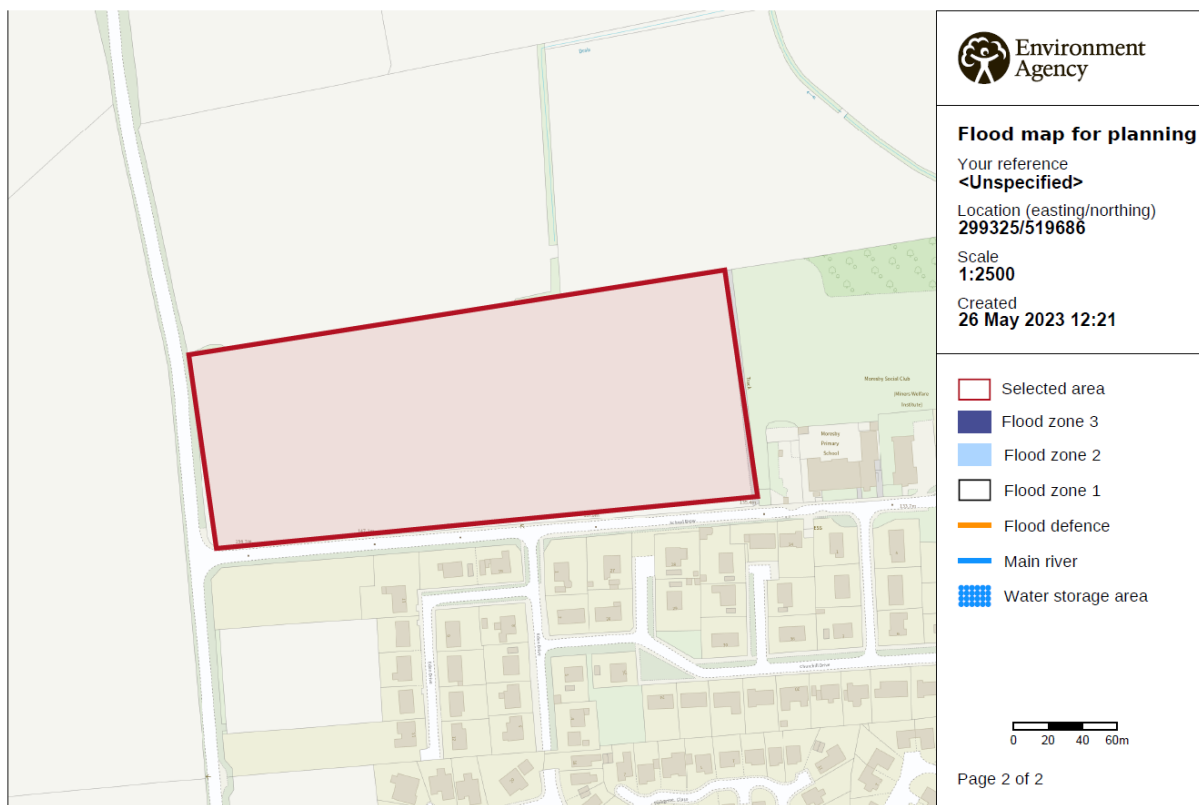
2. DEFINITION OF THE FLOOD HAZARD

a. What sources of flooding could affect the site?

The likelihood of flooding from all sources is assessed as follows:

From Main Rivers and Other Watercourses

In accordance with the EA Flood Plans available online, the entirety of the site is located within Flood Zone 1 – see Figure 2.



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Figure 2 – EA Flood Map for Planning

Land within Flood Zone 1 is considered to be land having less than a 1 in 1000 annual probability of river flooding or sea flooding.

From Tidal Sources

Not possible at this location.

From Reservoirs

The site is not situated within proximity to a reservoir and as such is not at risk of flooding from reservoir mismanagement.

From Ground Water Return Flow

The topographical location of the site is such that problems from ground water return flow are not anticipated.

From Surcharged Sewers

From United Utilities (UU) records, there are both surface water and foul sewers located to the south of site beneath gardens of the existing residences. If these sewers were to become blocked or surcharged, then floodwater would travel to the east and away from the development and as such would not pose a significant risk.

From Blocked/Surcharged Culverts

There are no known culverts within proximity to the development.

Surface Water Runoff

According to the Government long term flood risk website the risk of surface water flooding across the entirety of the site boundary is very low. A very low risk means that the area has a yearly chance of flooding which is less than 0.1%.

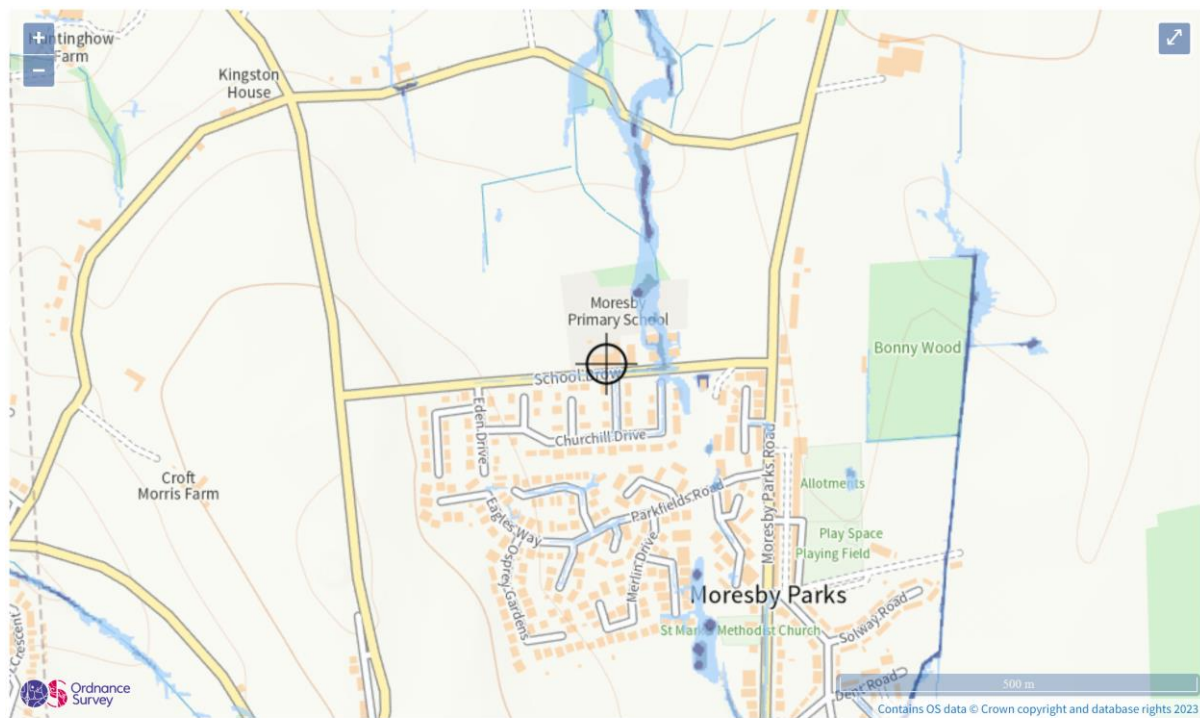


Figure 3 – Surface Water Risk for the Proposed Development Location

A summary of the potential sources of flooding is given below:

Potential Source of Flooding	Assessed Risk	Remedial Measures Required
Main River and Other Watercourses	Low	No
Tidal	N/A	No
Artificial Water Bodies	N/A	No
Ground Water Return Flow	Low	No
Surcharged Sewers	Very Low	No
Blocked/ Surcharged Culverts	N/A	No
Surface Water Runoff	Very Low	No

b. For each identified source in box 2a above, can you describe how flooding would occur, with reference to any historic records where these are available?

From Main Rivers and Other Watercourses

Study of the EA flood maps show that the proposed buildings and access are within Flood Zone 1 and therefore not within areas at significant risk of flooding from river sources.

From Ground Water Return Flow

The topographical location of the site is such that problems from ground water return flow are not anticipated.

From Surcharged Sewers

It is anticipated that there are no public sewers adjacent to the site that could cause a flood risk.

From Blocked/Surcharged Culverts

There are no known culverts that could pose a flooding risk to the development.

From Reservoirs

There are no nearby reservoirs that could pose a flooding risk to the development.

Surface Water Runoff

According to the Government long term flood risk website, the entirety of the site is at a very low risk of surface water flooding.

c. What are the existing surface water drainage arrangements for the site?

The site is currently an agricultural field which drains to ground. An existing drainage ditch to the northeast captures any overland flow generated when the ground is saturated.

3. PROBABILITY

a. Which flood zone is the site within?

The EA Flood Map for Planning indicates that the proposed development lies entirely within Flood Zone 1, which is considered to be land having a 1 in 1000 or lower annual probability of river flooding or sea flooding.

b. If there is a Strategic Flood Risk Assessment covering this site. Does this show the same or a different flood zone compared with the Environment Agency’s flood map?

Mapping shown within the Strategic Flood Risk Assessment for the borough of Copeland matches the information provided by the EA.

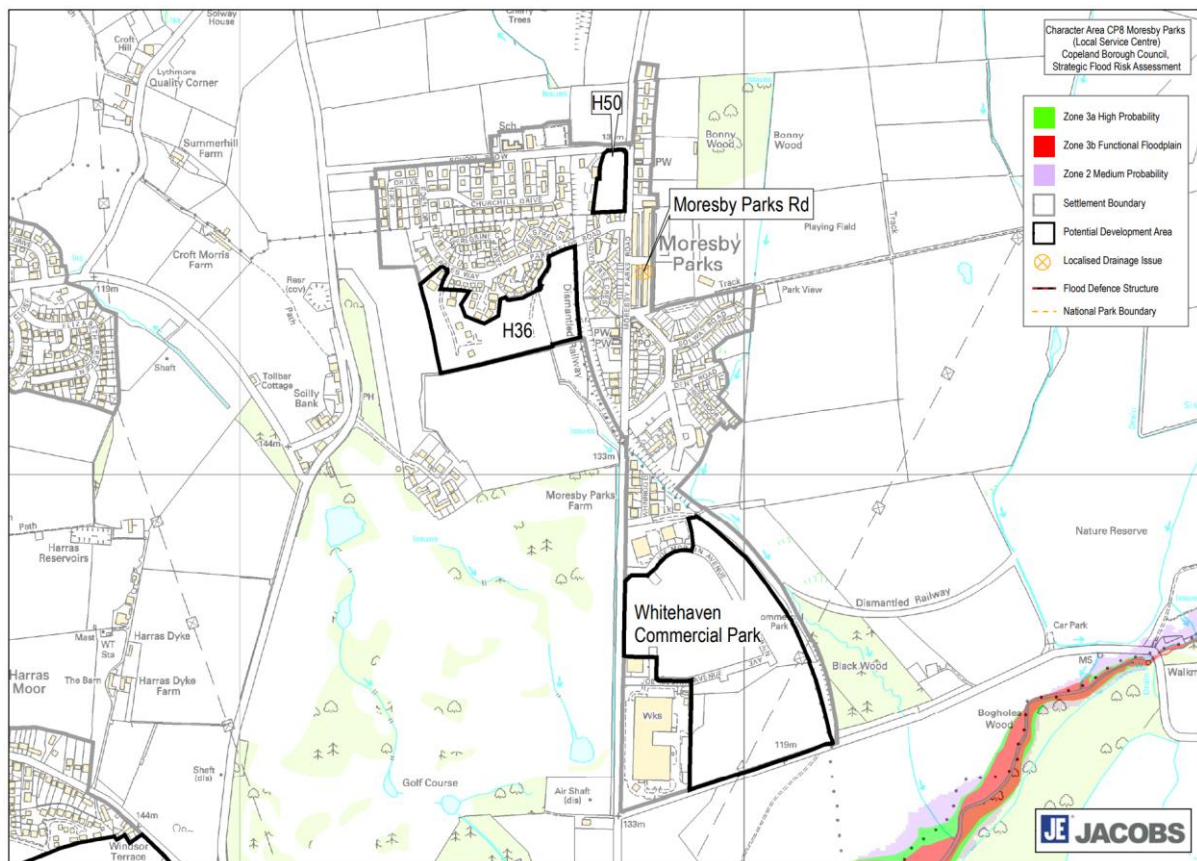


Figure 4 – Strategic Flood Risk Mapping for Moresby Parks

c. What is the probability of the site flooding, taking account of the maps of flood risk from rivers and the sea and from surface water, on the Environment Agency's web site, and the Strategic Flood Risk Assessment, and of any further flood risk information for the site?

The EA Flood Map for Planning indicates that the proposed buildings and access lie within Flood Zone 1 which is considered to be land having a 1 in 1000 or lower annual probability of river or sea flooding.

The site is situated such that the proposed buildings and access are at a very low risk of surface water flooding.

It is therefore assumed that the development is at a very low risk of flooding.

4. CLIMATE CHANGE

How is flood risk at the site likely to be affected by climate change?

Climate change may increase the frequency of potential flood events and may increase flood levels but as no significant flood risk as been identified for this development, flooding as a result of the effects of climate change is not anticipated.

5. DETAILED DEVELOPMENT PROPOSALS

Where appropriate, are you able to demonstrate how land uses most sensitive to flood damage have been placed in areas within the site that are at least risk of flooding (including providing details of the development layout)?

The entire development has been located within EA Flood Zone 1.

6. FLOOD RISK MANAGEMENT MEASURES

How will the site/building be protected from flooding, including the potential impacts of climate change, over the development's lifetime?

It is assumed that the proposed dwellings, car parking and access roads will discharge to into the existing drainage ditch to the northeast of site. The surface water will be attenuated, and the discharge rate controlled to the existing greenfield runoff rate (Q_{BAR} rate).

Access and Escape:

Access to the site will be via two new junctions with School Brow. Both accesses will be within EA Flood Zone 1.

7. OFF SITE IMPACTS

a. How will you ensure that your proposed development and the measures to protect your site from flooding will not increase flood risk elsewhere?

It is assumed that the proposed impermeable areas will discharge to into the existing drainage ditch to the northeast of the site. Surface water will be attenuated, and the discharge rate controlled to the existing greenfield runoff rate (Q_{BAR} rate).

b. How will you prevent run-off from the completed development causing an impact elsewhere?

As stated above, discharge from site will be attenuated and controlled to Q_{BAR} rate so as to not increase the risk of flooding downstream from the development.

c. Are there any opportunities offered by the development to reduce flood risk elsewhere?

Not at this location.

8. RESIDUAL RISKS

a. What flood-related risks will remain after you have implemented the measures to protect the site from flooding?

The flood risk will remain low following completion of works.

b. How, and by whom, will these risks be managed over the lifetime of the development? (e.g., flood warning and evacuation procedures).

It is recommended that the site be registered with the Environment Agency Warning System so that warning of flooding risks is received.

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June 2023

APPENDIX A – PROPOSED SITE PLAN

Rev	Description	Drawn	Date
a	Tweaks to parking and affordable housing	TH	31/05
b	Additional House types	HRH	07/06
c	Tweaks to layout	HRH	13/06
d	Tweaks to layout and parking	HRH	19/06
e	Tweaks to layout	HRH	19/06



House Name	Notes	sq m	sq ft	no of units	total sq ft
Rutland	5 bed	200	2153	4	8611
Rutland	4 bed	200	2153	4	8611
Kielder	4 bed	165	1776	8	14208
Pitsford	4 bed	150	1615	10	16146
Derwent	Dormer bungalow	130	1399	5	6997
Thirmerre	Dormer bungalow	120	1292	4	5167
Graham	3 Bed	130	1399	9	12594
Colliford	Discounted	100	1076	10	10764
Colliford	Full Price	100	1076	4	4306
totals				58	87404

Gross Site Area in Metres	11295	121578		28800
Gross Site Area in Acres				7.12
Strategic Public open Space in M				2200
Strategic Public open Space in Ac				0.54
Net Site Area in Metres				26600
Net Site Area in Acres				6.58
Net Site Area in Hectares				2.66
Density (Sq.Ft per Acre)				13283
Density (Units Per Acre)				8.8
Density (Units Per Hectare)				21.78



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Purpose:
Planning

Project:
 Proposed Development,
 Moresby

Title:
 Detail Layout

Scale: 1/50
 Project No: 2095

Sheet Size: A1
 Drawing No: 100

Drawn: jc
 Date: 05-23
 Revision: e