

474 Cowley Rd (Former Powells Timber Yard)

Ref	SPS18
Primary Flood Zone	Flood Zone 2
Vulnerability Classification	More vulnerable

Site Details

Site Location:	X:	453767	Address: Cowley Rd, OX4 2DL
	Y:	204770	
Site Area:	0.34 ha		Additional Information: The site is currently occupied by a Timber Yard, which is mostly impermeable.
Proposed Function:	Residential		
Ground Level Range (m AOD):	59.694m-60.557m		

Fluvial Flood Risk*

	1 in 100 Yr (+20% Climate Change)	1 in 1000 Yr
Percentage Inundated (%)	0%	100%
Inferred Flood Level (m AOD)	59.53m	60.63m
Inferred Flood Depths (m)	0.00m	0.07m-0.94m
Speed of Onset	Based on FEH catchment descriptors, the catchment upstream of the site is relatively impermeable and urbanised with an average slope. The site is located 100m northwest of the watercourse. Speed of onset values are expected to be moderate.	

* Only flood extents were available for the Boundary Brook model, therefore flood levels and depths have been inferred based on comparing the extents against LIDAR levels. Speed of onset summarised based upon a review of the catchment characteristics.

Summary: The site is at moderate risk of fluvial flooding; the site lies outside of Flood Zone 3a however the entire site is within Flood Zone 2 (see fluvial flood map overpage). When accounting for climate change, for the 100-year (+20% climate change) event, 0% of the site is modelled to be inundated. The inferred flood level for this event is 0.16m below the minimum site level (see climate change map). The site is not within the historical flood map.

Defence Infrastructure

Description:	No flood defence infrastructure
Owner:	N/A
Standard of Protection:	N/A
Condition:	N/A

Potential Access & Egress Route: Access/Egress via Cowley Rd in a north westerly direction. Subsequent travel would likely be towards the centre of Oxford (see access/egress map overpage).

Flood Risk: The initial parts of the route are shown to be within Flood Zone 2. Inferred flood depths along this section are estimated to be between 0.4-0.5m with flow velocities likely to be low given the flatness of the road. Within 50m the route becomes flood free, however early flood warning will be important to ensure site users can utilise the route before floodwaters inundate the site and wider area.

Pluvial & Other Sources of Flood Risk

The risk of pluvial flooding has been assessed using the EA surface water flood maps (see pluvial flood map overpage). The site is at low risk of pluvial flooding, with only a very small area in the north of the site predicted to flood in the 1000-year event. Pluvial flooding is predicted along the Cowley Rd which acts to channelise rainfall. The road serves as the main access route to the site and pluvial hazard for the 1000-year event indicates *Danger for most* (see pluvial hazard map).

The underlying geology at the site comprises seasonally wet loamy and clayey soils with impeded drainage underlain by sedimentary bedrock in the form of Mudstone. In this regard, groundwater flood risk is considered to be low.

The EA's Flood Risk from Reservoirs Map shows no risk of reservoir flooding at the site and based on the LLFA's flood incident data, there have been no recent historical flood incidents recorded close to the site. Based on the LLFA's flood incident data, there have been no recent historical flood incidents recorded close to the site.

FRA Implications, SuDS & Exception Test

Hydraulic modelling of the Boundary Brook has indicated that the site is at moderate risk of fluvial flooding. The site lies in Flood Zone 2, however is outside of Flood Zone 3a. A residential development (more vulnerable infrastructure) is proposed, such infrastructure is permissible in Flood Zone 2. When accounting for climate change, 0% of the site is at risk during the 100-year (+20% Climate change) event. Based on the flood levels for this event the site should also be at minimal flood risk when considering the latest central climate change allowance for the area of 26%, however a site-specific FRA should look to confirm this.

The site's access route is mostly flood free, with exception of the start of the route which lies within Flood Zone 2. Early flood warning will be important to ensure site users can utilise the route before floodwaters inundate the site and wider area. A site-specific FRA should look into this in more detail.

The pluvial flood risk at the site is considered to be low, however the access route identified for the site is subject to significant pluvial hazard. A site-specific FRA should consider in more detail the nature of the flood risk to determine how quickly it occurs and the accuracy of the EA surface water flood maps. The drainage strategy for the proposed development should be suitably designed to manage additional runoff arising from the development and ensure that pluvial flood risk at the site and to third party land is not increased.

In assessing and demonstrating the viability of any SuDS solution for the site, a site-specific FRA should follow the Non-statutory technical standards for SuDS. The geology at the site comprises wet loamy and clayey soils with impeded drainage underlain by impermeable bedrock in the form of Mudstone. This means that the significant use of infiltration SuDS solutions is unlikely to be viable. It is recommended that a geotechnical investigation is undertaken at this site to obtain further information relating to infiltration rates, this will confirm whether infiltration could be viable in some areas. Attenuated discharge to a watercourse or a sewer will also need to be considered as part of a site-specific FRA.

Overall, a residential development at the site should be achievable, with a large proportion of the site lying outside of Flood Zone 3a. It is important that a sequential approach is implemented at the site. This is difficult to apply if only considering the EA flood zones as the site lies entirely within Flood Zone 2 whilst being outside of Flood Zone 3a. However, as a starting point more vulnerable residential dwellings should be sited in higher areas with less vulnerable ancillary infrastructure (i.e., Car parking, open space) located in lower lying areas at greater flood risk.

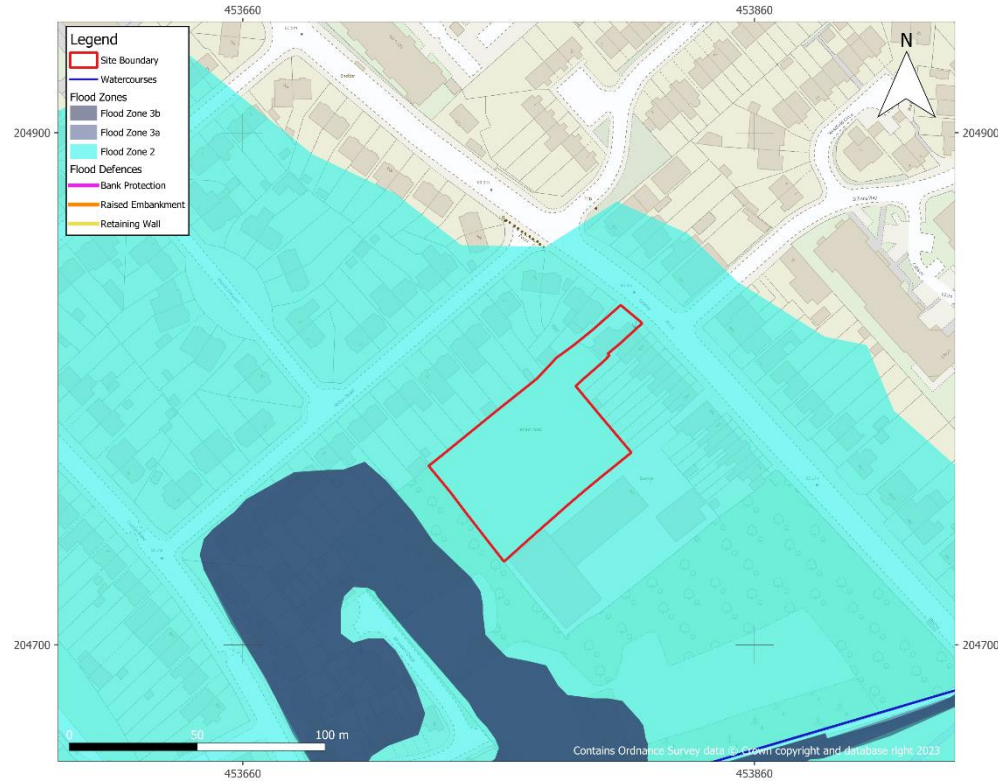
A site-specific FRA should confirm the suitability of the existing Boundary Brook model to assess flood risk at the site given its age. The site is generally considered to be at low risk, however more refined model data would improve confidence in any assessment and confirm any ground raising requirements with regard to flood levels. A review of pluvial flood risk along the site access is also recommended.

Fluvial Hazard	Moderate Risk
Pluvial Hazard	Low Risk
Developable	Proposed development type should be appropriate, however more refined model data and a further review of pluvial flood risk would increase confidence in assessment.

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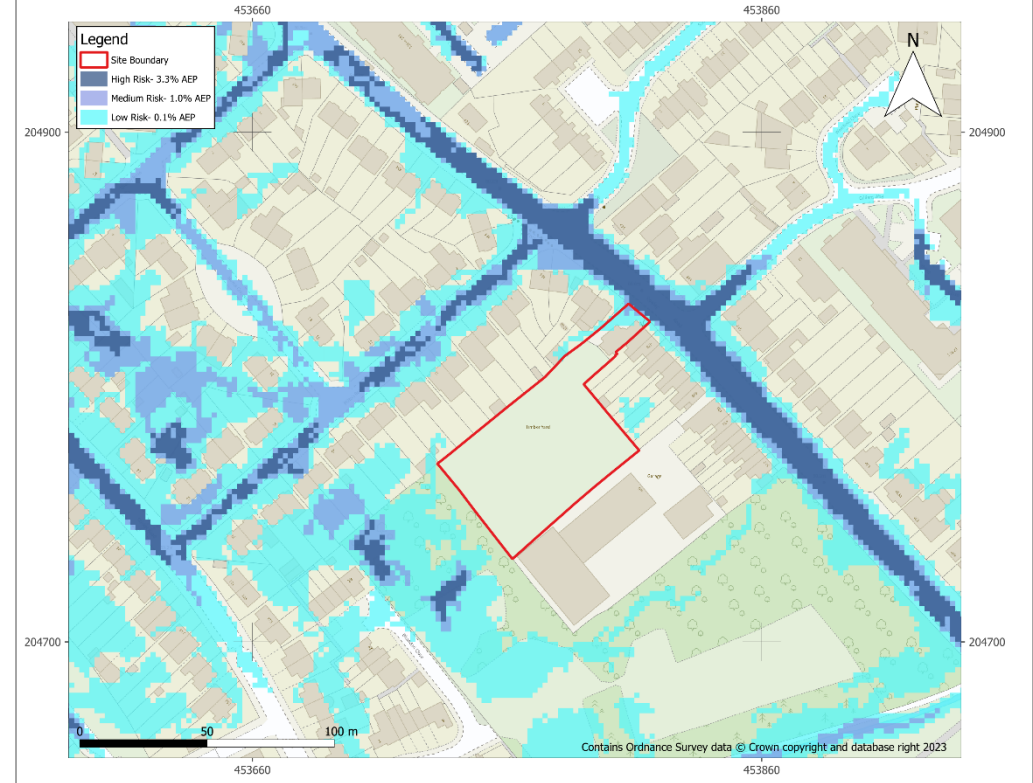
Fluvial Flood Map



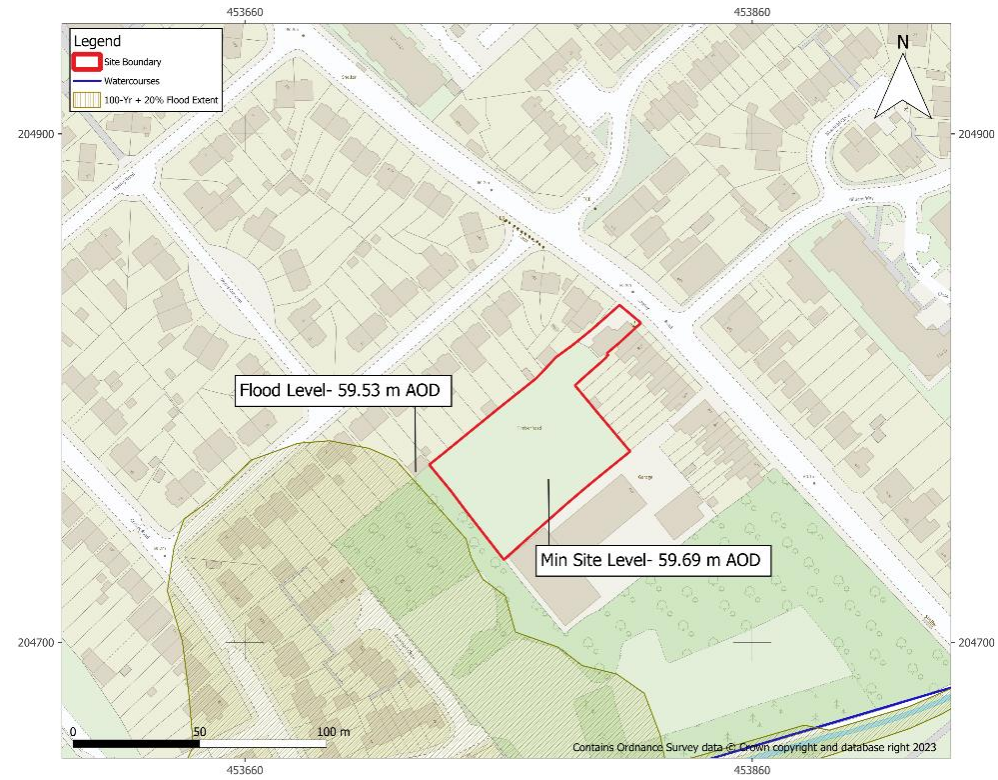
Historical Flood Map



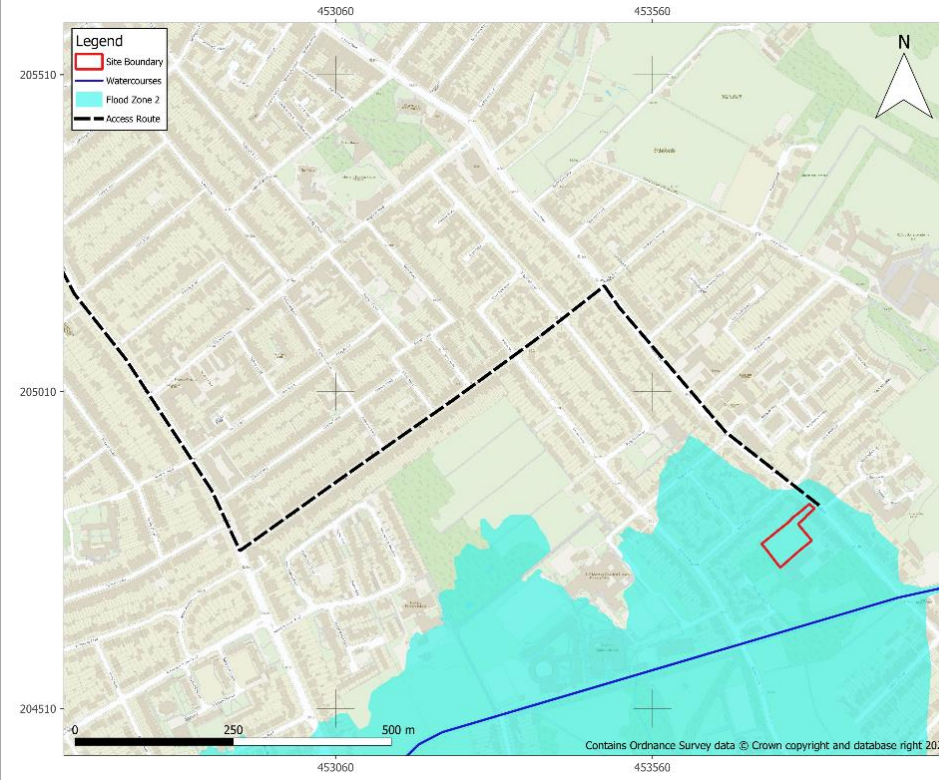
Pluvial Flood Map



Flood Extent (100 Yr + 20% Climate Change)



Access/Egress Routes



Pluvial Hazard Map (1000-Yr)

