EPD Scotforth

TECHNICAL NOTE

Existing Drainage Scoping

DOCUMENT CONTROL SHEET

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P01	06/03/2024	First Issue
P02	08/03/2024	Figures 4 and 5 amended
P03	19/03/2024	Updated to suit EPD comments on Lower Burrows
P04	14/06/2024	Updated with some comments from Scotforth regarding local drainage issues

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Introduction

Burrows Graham Ltd. have been commissioned by EPD Landscapes to carry out a review on existing drainage paths and topographical features within three main areas highlighted within the Scotforth local plan as areas of separation to provide green space and visual screening.

The three areas to be reviewed are;

1. Bailrigg
2. Lower Burrow
3. Burrow Heights

Bailrigg

The area for which this assessment has been carried out over is as shown below. It is predominantly to the north of Bailrigg in the greenfield land up to the overhead power lines and to the south down to Bailrigg House.

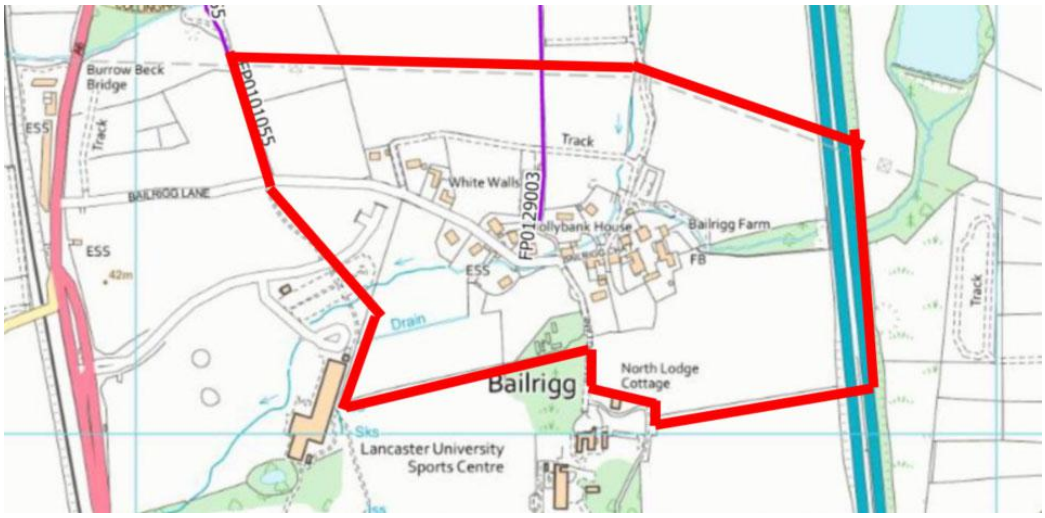


Figure 1: Bailrigg Assessment Area

Existing Drainage Flood Risk

The general topography of this area shows the greenfield areas falling generally east to west from the M6 towards Scotforth Road (A6) and Burrow Beck. As shown below the area is entirely within Flood Zone 1, as such has a low risk of fluvial flooding.



Figure 2: EA Fluvial Flood Map

The EA surface water flood maps show areas of medium/high risk associated with the watercourse that runs through Bailrigg Village towards Scotforth Road. This is likely to be due to the topography which in itself would prevent development within these areas without significant level changes and a large scale diversion of the existing watercourse which is likley to be unfavourable with the Lead Local Flood Authority.

Bailrigg village has experienced periodic flooding primarily caused when extreme rainfall events causes overland flows which runs off the M6 southeast of Bailrigg and over saturated ground and down Bailrigg Lane itself. This has resulted in properties being flooded and the road impassable to pedestrians and cyclists (travelling to and from the university). In addition, surface water runs off the drumlin slopes to flood the lower section of Bailrigg Lane.

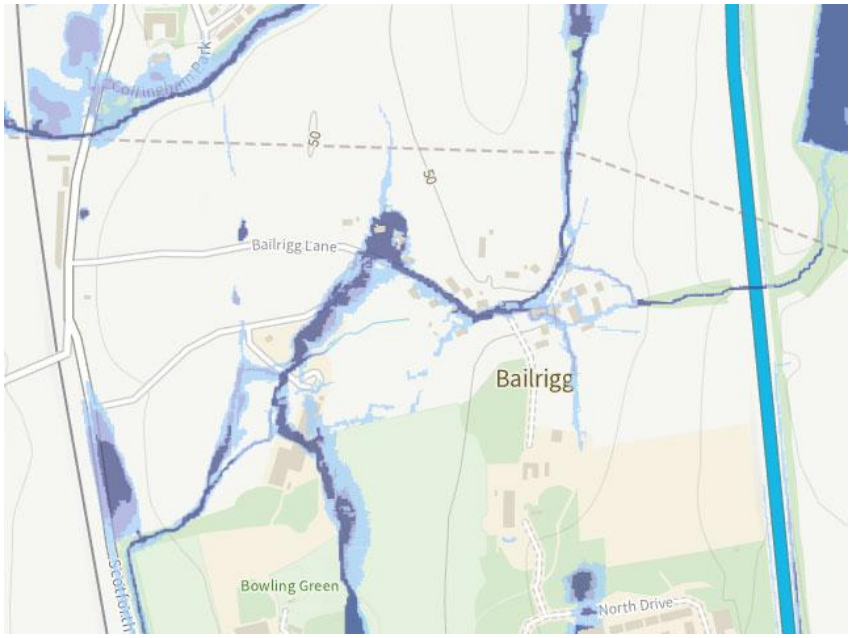


Figure 3: EA Surface Water Flood Maps

General Topographical Features

There is a significant level difference within this area, coupled with the overhead power cables and areas of higher risk surface water flooding, we don't foresee it suitable to develop this zone for anything other than landscape and visual mitigation.

Lower Burrow

The area for which this assessment has been carried out over is shown below. The area is explicitly the immediate area surrounding the current dwellings at Lower Burrows.

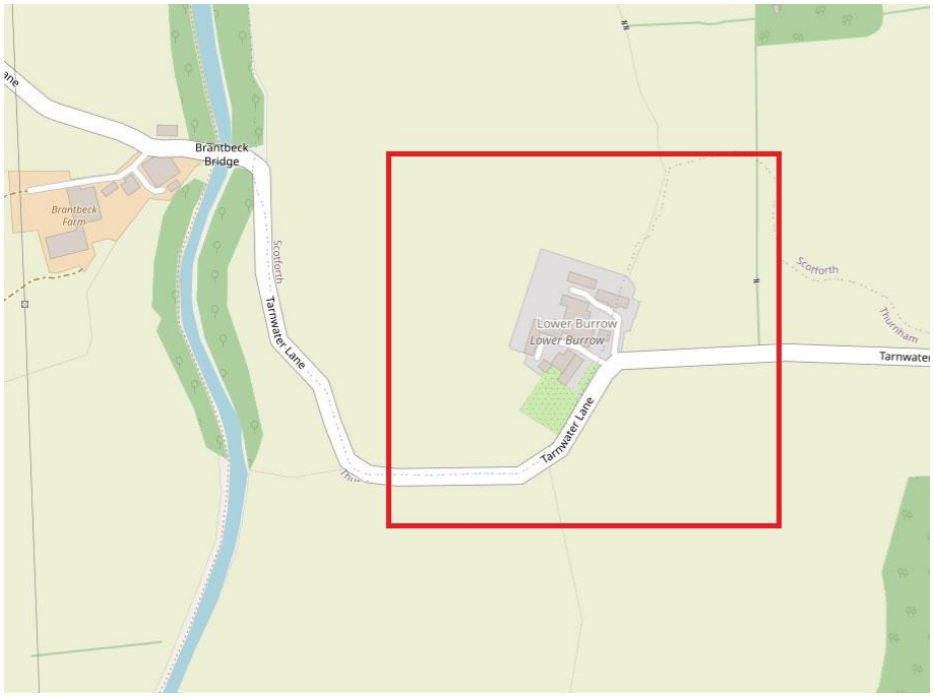


Figure 4: Lower Burrow Assessment Area

Existing Drainage Flood Risk

The general topography of this area is flat lying with no major drainage or topographical features. The area is fully within Flood Zone 1 and as such the area carries a low risk of fluvial flooding. There are areas of medium risk to surface water flooding on the highway and the field to the south of the dwellings.

During winter months a rising water table increases hydrostatic pressure to generate resurgences especially in the area around Lower Burrow where the surface drainage converges and this has repeatedly caused flooding of its biodisk and Tarnwater Lane

This is supported by photographic evidence and the JBA surface water risk map in figures 5, 6 & 7 below. This evidence would suggest that the area is not suitable for development due to ongoing surface water flooding issues.



Figure 5: Surface Water Flooding at Lower Burrow



Figure 6: Surface Water Flooding at Lower Burrow

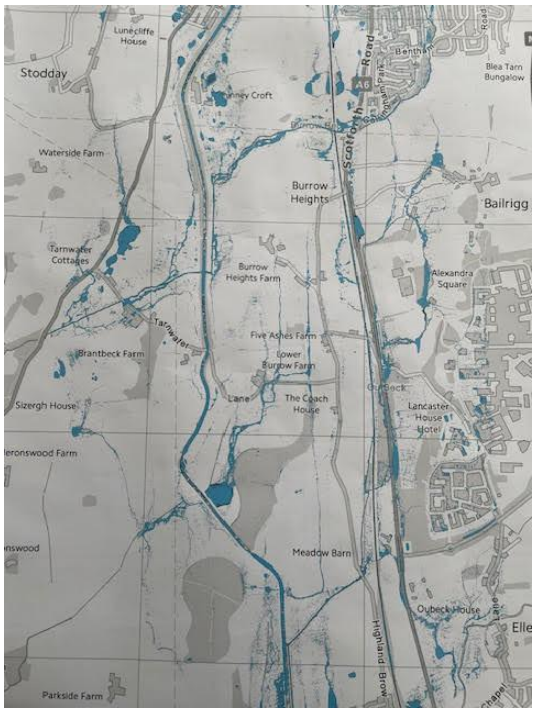


Figure 7: JBA Surface Water Flooding Map

Burrow Heights

The area for which this assessment has been carried out over is as shown below. The area is generally around the dwellings adjacent to the junction between Burrow Heights Lane and Burrow Road.

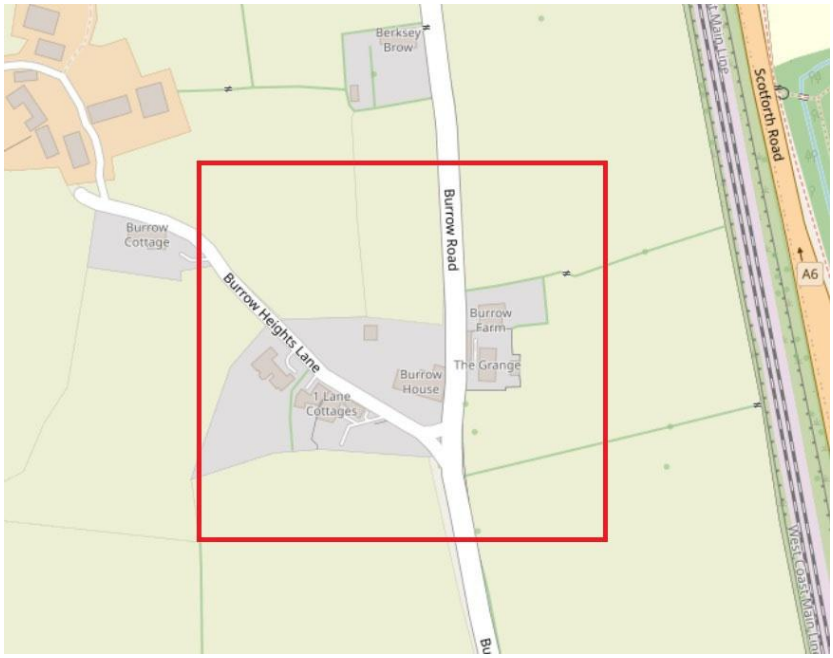


Figure 7: Burrow Heights Assessment Area

Existing Drainage Flood Risk

The general topography of this area is flat lying with no major drainage or topographical. The area is fully within Flood Zone 1 and as such the area carries a low risk of fluvial flooding. There are some minor areas which carry a medium risk of surface water flooding but this is likely to be due to the existing topography and could be mitigated against through minor changes in level to accommodate the landscaping requirements.

The drumlinoid landscape around Burrow Heights however frequently generates ephemeral streams on lower gradients receiving upslope surface drainage and these generally flow in a southerly then westerly direction towards Lower Burrows. This contributes significantly to the flooding at Lower Burrow as water runs off the drumlin slope. The clayey soils reduce infiltration on the slopes of the drumlin and promote both surface storage and overland flow. This would need to be taken into consideration for any small development (ones and twos) in the future.