Aldi Stores Ltd

Regional Office & Distribution Centre, Goldthorpe

Flood Risk Assessment

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It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party

Job number 122677

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Drawings

Drawing 1 Details of Proposed Culvert

1 INTRODUCTION

Arup have been commissioned by Aldi Stores Limited to undertake a Level 2 Flood Risk Assessment (FRA) for the construction of a proposed Aldi Stores Logistic Centre.

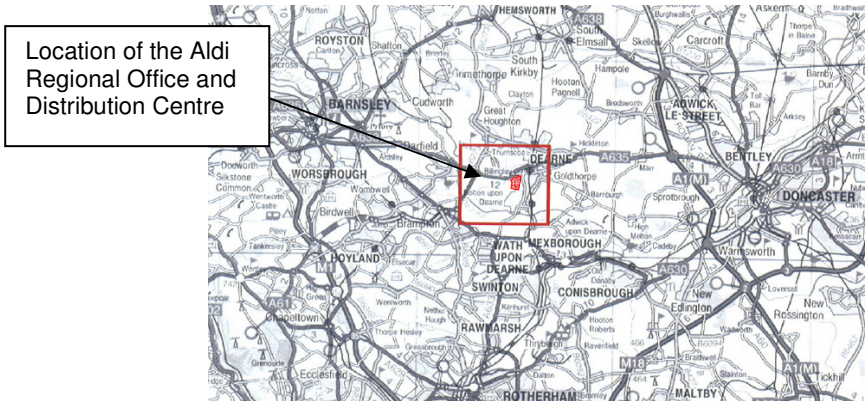
This document provides an assessment of flood risk for the proposed Aldi Logistic Centre at Goldthorpe, Barnsley, as required under PPS25[1]. This flood risk assessment has been prepared on the basis of the available information. As part of this report consultations have taken place with the Environment Agency (EA) and Dearne & Dove Internal Drainage Board (IDB).

[1] DCLG (2006) Planning Policy Statement 25 Development and Flood Risk

2 PROPOSED DEVELOPMENT

2.1 Location

The development is located to the south-west of Goldthorpe village immediately south west of Goldthorpe Industrial Estate (centre on SE 448 035).



2.2 Site Description

The site has been classed by Barnsley MBC as being Employment Land within the Barnsley UDP and is part of the Greenbelt (Policy No. DE3/1-6).

The site is currently arable farmland. Southwards from the northern boundary at the existing road (Dudley Way), the site rises approximately 3m over a slight hill before falling to a ditch approximately 600m from the boundary.

The ditch, which flows from east to west across the northern part of the site, is called Highgate Lane Drain. This ditch is located within a cutting approximately 2m deep.

To the south of the ditch, the land rises approximately 9m over a distance of 500m. Below is a photograph of the watercourse at the eastern edge of the site, looks towards Goldthorpe Industrial Estate. This shows where the ditch emerges from a culvert.



Photo showing the Highgate Lane drain

The site is neighboured by an existing industrial estate to the east, a residential population and school to the south and open fields to the west and north.



Photo of the development site – looking from the proposed access road to the south of the site.

2.3 Proposed Development

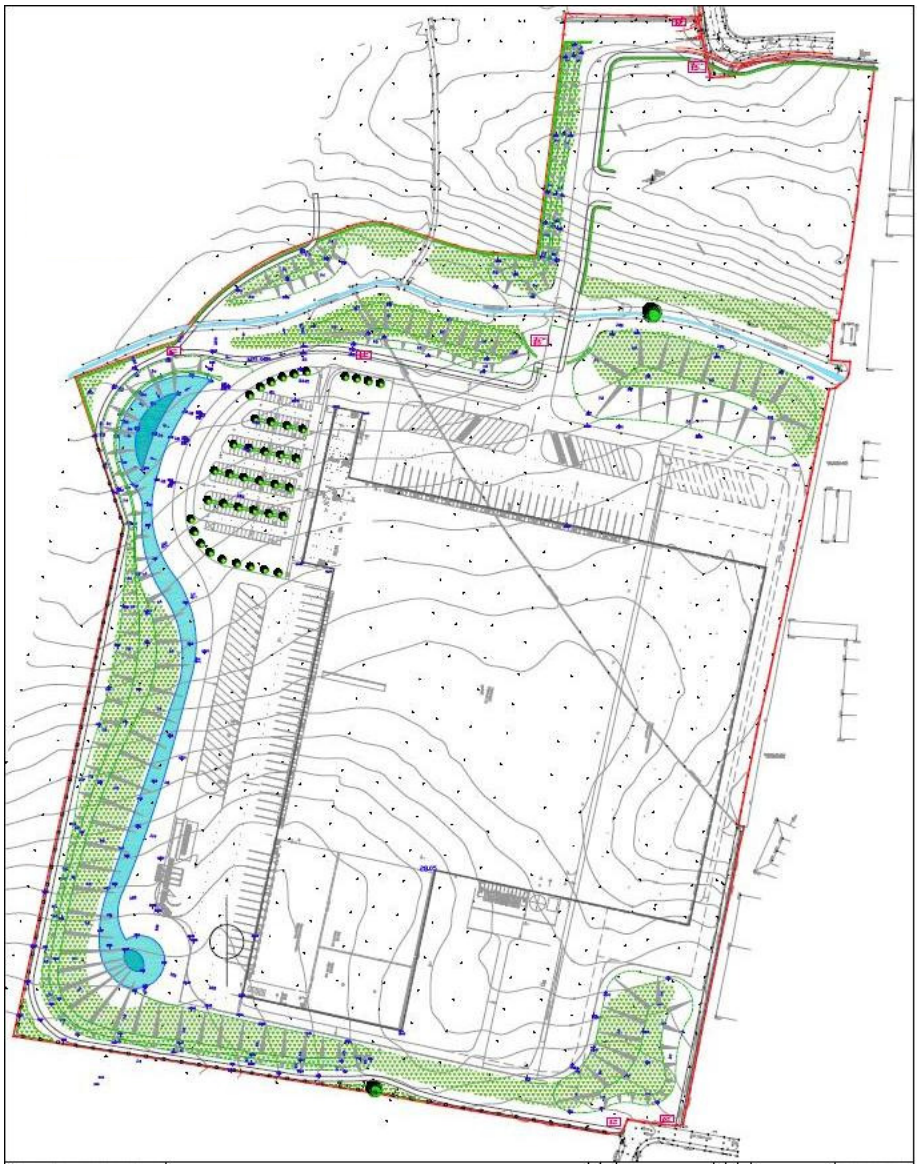
The proposed development comprises the construction of a regional office and distribution centre. This development will form an extension to the Goldthorpe Industrial estate; however the development is proposed to have its own access to the site off Dudley Drive/Commercial Rd. The total boundary area of the development will be 24.6 Ha.

Aldi have identified this site as being in a strategic location for transportation due to its proximity with the A1 and M1 motorways and their access to the rest of the UK. We understand from liaison with Barnsley MBC part of the area is classified as Employment Land within the Barnsley UDP, falling within their development plans for the Goldthorpe Industrial Estate extension (Barnsley MBC Policy No.DE3/1-6), while part is designated as green belt.

The regional office and distribution centre will include surrounding yard areas of hard standing for staff parking and dedicated parking bays for transportation lorries.

The hardsurfaced area around the building is set at generally a surface level of approximately 28 mAOD, some 4m above the existing ground levels at the top of the ditch. The finished floor level for the building is 1.3m above the level of the hardstanding area at 29.35mAOD. The difference in level between the ditch and the hardstanding and building provides the development with protection against flooding.

The regional office and distribution centre is provided with road access via a new road from Dudley Road to the north. This crosses Highgate Lane Drain in a piped culvert with a proposed diameter of 2.1m, as depicted in Drawing 1 at the back of this document.



Proposed site Layout

3 ASSESSMENT OF FLOOD RISK

3.1 PPS25 Limitations

According to PPS25 (Table D2) the Aldi Logistic Centre falls into the category of 'less vulnerable' development. Therefore it is suitable to be located on the proposed site, which is within Flood Zone 1.

3.2 Definition of the Flood Risk Hazard

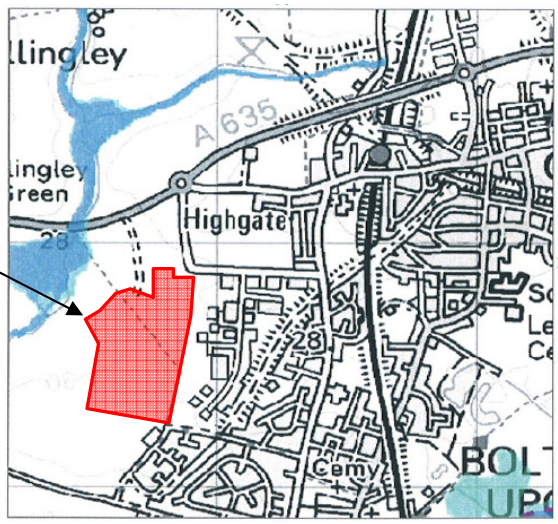
The principal potential source of flooding would be fluvial flooding from Highgate Lane Drain, which lies within the site boundary approximately 0.6km to the north of the actual proposed regional office and distribution centre buildings. The drain collects surface water from the surface water sewer system to the east of the disused railway and the west of Highgate Land (an area of approximately 143 Ha). It is culverted under Goldthorpe Industrial estate and according to the Deane and Dove Internal Drainage Board, is in "good condition" (Report issued by Grantham, Brundell & Farran Feb 2004).

Barnsley Metropolitan Borough Council (MBC) Strategic Flood Risk Assessment (SFRA) has not yet been produced, and therefore there are no details produced from Barnsley MBC to accompany this report.

The risk of direct flooding of the site from existing watercourses is considered to be insignificant as it is outside the floodplain (shown in the EA Flood Map below). The Environment Agency also has no record of flooding in the location.

Location of the proposed Aldi Regional Office and Distribution Centre.

The EA flood Map shows the area to be outside of the flood risk area.



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Environment Agency, 100026380, 2006

The other element of the flood hazard is the potential for the development to increase flood risk downstream by increasing rates of run-off.

Arup arranged a site visit with the IDB (Chris Wright) to discuss any issues or concerns they may have about the development. It was noted that there was no evidence of flooding from the heavy rainfall experienced in June/July 2007 within the development area.

During the site visit with the IDB no major concerns were raised regarding flooding, provided run-off from the site is attenuated to Greenfield rates. However the IDB do require access to the watercourse to carry out maintenance of the watercourses such as debris and vegetation clearance in the autumn and their consent is required for the new culvert.

3.3 Probability of Flooding

The site is shown as being in Flood Zone 1 and the Environment Agency has no record of historic flooding on the site. No known flooding has taken place in the development location according to the Internal Drainage Board.

Therefore the probability of flooding in the area is considered to be low.

3.4 Climate Change

As discussed Barnsley MBC has not yet produced a Strategic Flood Risk Assessment (SFRA) and therefore they have not detailed the effects of climate change in any detail, although with the potential for increased flows in river and sewer systems it is expected that flooding will pose a higher risk to the site than under current climatic conditions.

Given that the land adjacent to Highgate Lane Drain does not experience flooding and that the proposed development is raised some 4m above the level of the drain bank top, the impact of climate change on flood risk to the development is considered to be low.

It is recommended that the site drainage system should be designed to take potential climate change impacts into account and the storage volume contained within the site to attenuate runoff should make a precautionary allowance of a minimum of 10%, assuming a 50 year design life.

3.5 Flood risk management measures

From the information gathered it would seem that the Aldi Goldthorpe Logistic Centre is not at any significant risk of flooding and therefore there are no flood risk management measures proposed with this development, other than ground raising. The site does have the potential to increase flood risk downstream and the runoff attenuation measures are required.

Greenfield runoff calculations indicate that the 1 in 2 year storm will need to be restricted to 4.5 l/s/ha of hardstanding; the 100 year storm to approximately 8 l/s/ha. The on-site storage volume should make a precautionary allowance for climate change of a minimum of 10%, assuming a 50 year design life. After 2055 peak rainfall intensities may increase further (guidance in PPS25 suggests an allowance of 20% (2055-2085) and 30% after 2085), and further consideration should be given to the implications of these further increases by the designers.

Attenuation will be achieved through the use of the attenuation pond proposed in the north west corner of the site together with storage in swales and within the below ground pipe network. The use of permeable pavement to attenuate runoff, and the associated maintenance requirements, should also be considered in detailed design.

3.6 Off site impacts

See 3.5 above.

3.7 Residual Risks

This flood risk assessment has been prepared on the basis of the available information, which suggests that there are no significant flood risk issues associated with the proposed development. However, residual flood risk could occur. These could include:

- Blockage of local drainage systems;
- Flooding due to an extreme flood event.

4 CONCLUSIONS AND RECOMMENDATIONS

The proposed development lies within Flood Zone 1 and is therefore at low risk of flooding.

Site run-off should be attenuated to Greenfield run-off rates, including an explicit allowance for climate change over the lifetime of the development.

Clear roles and responsibilities for maintenance of site drainage systems and sustainable drainage features should be clearly defined by Aldi.

Dearne and Dove IDB should be consulted regarding the details of all features in, over, under or immediately adjacent to Highgate Lane Drain, whose formal consent will be required for any works affecting this watercourse.

DRAWINGS

Drawing 1 Details of Proposed Culvert