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Flood Risk Assessment Report

Application for Park and Ride Scheme with associated developments at Dunswell

Client Ashcourt Group Limited Foster Street Hull United Kingdon

Our Ref

J6066

Rev Date By Engineer

23 October 2024 MH

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Introduction

GTCE have been commissioned by Ashcourt Group Limited of Foster Street, Hull, United Kingdom, HU8 8BT to carry out a flood risk assessment in relation to a development site to the North of Dunswell.

Since the introduction of the ODPM Planning and Policy Guidance Note 25 – 'Development and Flood Risk' (PPG25), the Local Authority Planning Department in conjunction with the Environment Agency have to evaluate all developments in respect to flood risk.

PPG25 was however superseded by Planning Policy Statement 25 (PPS25) Development & Flood Risk in December 2006 and revised in March 2010.

PPS25 has now been superseded by the National Planning Policy Framework (NPPF) with particular reference to Paragraph 9 of the Technical Guidance to the NPPF published in March 2012 (revised in July 2018).

The aims of planning policy on development and flood risk are to ensure that flood risk is taken into account at all stages in the planning process to avoid inappropriate development in areas at risk of flooding, and to direct development away from areas at highest risk.

Where new development is, exceptionally, necessary in such areas, policy aims to make it safe without increasing flood risk elsewhere and where possible, reducing flood risk overall.

This site-specific flood risk assessment forms part of the necessary evaluation of the proposed development as set out in Paragraph 9 of the Technical Guidance to the NPPF.

Extracts included in this report have been taken from various sources such as the NPPF, the Technical Guidance to the NPPF, the Council's Strategic Flood Risk Assessment (SFRA) Report & sundry other publications and these are generally shown in italics.

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Proposed Development

The proposed development can be split into four areas; the park and ride car park to the south of the development site with the East Yorkshire Motor Services Depot to the north of that within the central and eastern part of the site, two drive through units to the west of the site, a coffee shop drive through unit to the north of those unite, and a retail unit with associated hardstanding to the northern most element of the site.

The site is located in the location as shown at Figure 1 below:-



Figure 1:- Site location

A plan of the proposed developments is shown in the appendices to the report.

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Flood Risk Criteria

The Environment Agency flood map and the East Riding SFRA mapped data shows that the entirety of the site is within Flood Zone 3 – see extract Flood Map below.

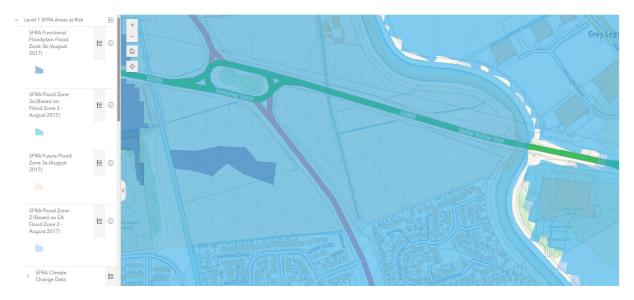


Figure 1:- Flood Zone 3a

Flood Zone 3 is defined as the high probability zone in terms of flood risk (Ref: Table 1 Flood Zones in the Technical Guidance to NPPF) where land is assessed as having a 1 in 100 or greater annual probability of river or sea flooding (>1%), or a 1 in 200 or greater annual probability of flooding from the sea (>0.5%) in any year.

A Level 1 Strategic Flood Risk Assessment was approved by the Cabinet of East Riding of Yorkshire County Council and was formally signed off by the Environment Agency in November 2019.

It is the requirement of the developer and Local Planning Authority (LPA) to carry out, where necessary, the Sequential and Exception Tests outlined in the NPPF document.

Ref: Paragraph 167 of NPPF – All (local) plans (prepared by local planning authorities) should apply a sequential risk-based approach to the location of development – taking into account all sources of flood risk and the current and future impacts of climate change – so as to avoid, where possible, flood risk to people and property. They should do this, and manage residual risk, by:

a) applying the sequential test and then, if necessary, the exception test as set out below;

b) safeguarding land from development that is required, or likely to be required, for current or future flood management;

c) using opportunities provided by new development and improvements in green and other infrastructure to reduce the causes and impacts of flooding, (making as much use as possible of natural flood management techniques as part of an integrated approach to flood risk management); and

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d) where climate change is expected to increase flood risk so that some existing development may not be sustainable in the long term, seeking opportunities to relocate development, including housing, to more sustainable locations.

The land use for this development is *a site used for holiday or short-let caravans and camping*, and as such is classified in Table 2 (Flood risk vulnerability classification) in the Technical Guidance to NPPF as a *more vulnerable* use of land.

Table 3 (Flood Zones, compatibility) in the Technical Guidance to NPPF states that *more vulnerable* uses of land in Flood Zone 3 requires the Exception test. The Sequential Test should also apply.

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Sources of Flooding

The site has Beverley and Skidby Drain running through it and the far east end of the site runs up against the River Hull defences. The far west of the site is approximately 280m to the east of Beverley and Skidby Drain as can be seen at figure 2 below.



Figure 2:- Potential sources of flooding

The report will therefore assess the risk to the proposed development of flooding as a result of water levels in the River Hull, Beverley and Skidby Drain, and Beverley and Barmston Drain.

Flooding due to the potential lack of capacity of the local public sewer network in the event of heavy rain also needs to be taken into account as part of the flood risk assessment.

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Flood Risk to Development Site

Fluvial and Tidal

The Environment Agency Flood Risk from Rivers and Sea Map data and the mapped data from East Riding of Yorkshire Council (ERYC) indicates a potential of flooding on site from Rivers and Sea of between 1.1% and 3.3% chance. This would be in the case of overtopping or breach of the River Hull, combined with increased levels within Beverley and Barmston Drana and Beverley and Skidby Drain.



Figure 4:- Defra Map

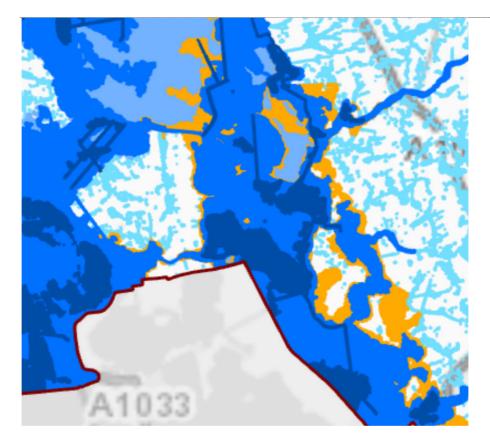


Figure 5:- ERYCC Map

Historical Flooding

Historic Flooding data from the ERYC shows no historic flooding at the development site. A copy of the Historic Flooding map can be found at figure 6.

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Figure 6:- Historic Flooding map

Surface and Ground Water

The EA 'Flood Risk from Surface Water' map indicates that surface water due to rain will not pose a risk on site from the high risk (each year the area having a chance of flooding from rainfall of greater than 3.3%) or medium risk events (each year this area having a chance of flooding from surface water of 1%). According to the Surface Water flooding map there would be flooding on elements of the site during a low risk flood event (each year these areas having a chance of flooding from surface water of 0.1%). Figure 7 below shows the surface water flooding map.

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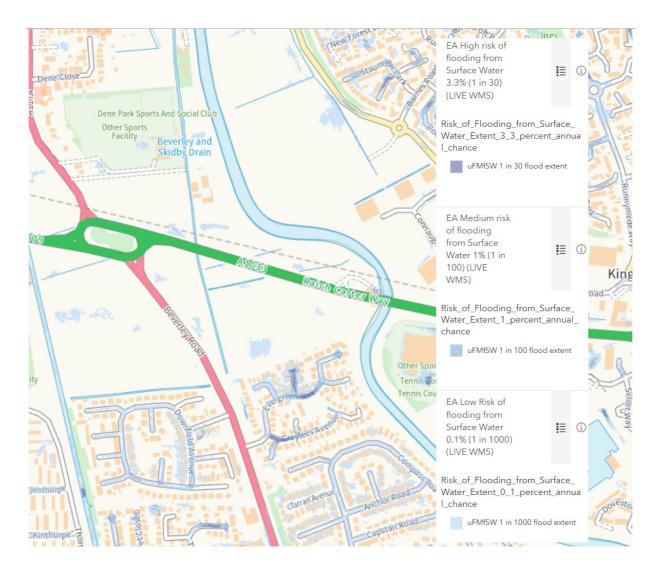


Figure 7:- High Risk Surface Water

The available Flood Data map from East Riding of Yorkshire Council indicates that the site does not lie within an area that has a susceptibility to groundwater flooding as can be seen at Figure 8 below.

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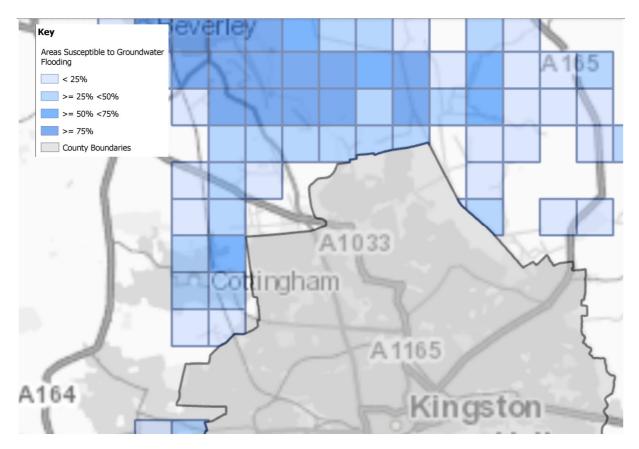


Figure 8:- Ground Water Risk

Flooding from Sewers

There's no existing sewers at the site that would form a flood risk.

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Sequential Test

As highlighted in the Technical Guidance to NPPF, the purpose of the sequential test should be to steer new development to Flood Zone 1. Where there are no reasonably available sites in Flood Zone 1, local planning authorities allocating land in local plans or determining planning applications for development at any particular location should take into account the flood risk vulnerability of land uses,.. and consider reasonably available sites in Flood Zone 2 applying the Exception Test if required.

The development is however an allocated site as shown on the adopted policies map at Figure 9 below:-

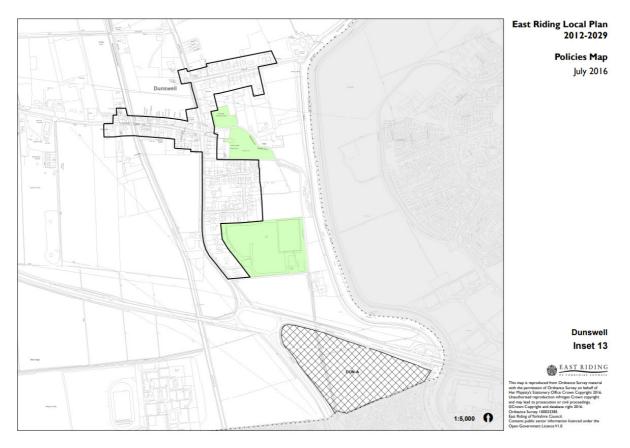


Figure 9:- Site Allocation

It is highlighted within the East Riding Local Plan that DUN-A has been allocated for use as a Park and Ride facility including ancillary uses. As such, and as highlighted at page 92 of the East Riding Strategic Flood Risk Assessment (November 2019), the sequential test is not deemed to be necessary due to the site being an allocated site.

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Exception Test

Table 3 (Flood Zones, compatibility) in the Technical Guidance to NPPF states that more vulnerable uses of land in Flood Zone 3a requires the Exception test.

Table 1 (Flood Zones) in the Technical Guidance to NPPF states that the *more vulnerable* uses of land in Flood Zone 3a should only be permitted if the Exception Test is passed.

For the Exception Test to be passed Paragraph 102 of the NPPF states, "*it must be demonstrated that the development provides wider sustainability benefits to the community that outweigh flood risk, informed by a Strategic Flood Risk Assessment, where one has been prepared: and,*

a site specific flood risk assessment must demonstrate that the development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.

Both elements of the test will have to be passed to be allocated or permitted."

Part 1: Evidence of wider sustainability benefits

The proposed development and generation of the park and ride and ancillary uses in our opinion provides wider sustainability benefits to the local community that outweigh flood risk for various reasons which are considered below:-

- The development provides satisfaction of Policy DUN-A within the East Riding Allocations Document adopted July 2016.
- The introduction of the park and ride system will improve traffic flow from this area of the East Riding towards Hull, cutting down the number of cars on the road and increasing the use of public transport.
- The introduction of the development will bring various employment opportunities to the area.
- The amenity value of the area will increase with the addition of amenities and public transport opportunities for local residents

Part 2: Ensuring development is safe for its lifetime

In terms of the second element of the exception test, it is to be demonstrated that the development will be safe for its lifetime without increasing flood risk elsewhere.

Part 2a: Safety of a development

The dwelling will be developed with flood risk alleviation and safety in mind. As shown in the recommendation's, avoidance, resistance and resilience measures are being incorporated.

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Part 2b: Lifetime of a development

The assessed flood risk at the site has been based upon 1 in 200 year tidal/fluvial events with allowance made for climate change. Flooding due to surface water from rainfall has been assessed using up to a 1 in 1,000 year event. The flood mitigation measures proposed for the development are to mitigate the effects of these events and as such should provide sufficient measures of flood protection for the lifetime of the development based on existing data.

In consideration of the above, the development is safe from flooding, and flood risk for its lifetime and will not increase flood risk elsewhere. Both elements of the Exception Test have therefore been passed.

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Recommendations

The proposed development is sited within Flood Zone 3 within the ERYC SFRA Flood Maps.

Table 8-3 of the Spatial Planning & Development Control Recommendations of the ERYC SFRA provides differing recommendations based on the flood zone they lie within. For the purposes of flood mitigation, it is appropriate to consider the recommendations set out for development within Flood Zone 3.

	FLOOD ZONE						
Recommendation	Development within Goole and Hedon should refer to the latest Level 2 SFRAs for these two areas. The Level 2 SFRAs provides additional guidance and recommendations for these areas and these must be considered over and above the recommendations provided for the flood zones in this table.						
	Zone 3b (Functional Floodplain)	Zone 3a (High Probability)	Zone 2 (Medium Probability)	Zone 1 Low Probability			
DEVELOPMENT MANAGEMENT RECOMMENDATIONS							
Sequential Test	Required.	Required (unless the site falls under one of the circumstances below).	Required (unless the site falls under one of the circumstances below).	Not required unless information shows there may be flooding issues now or in the tubure from any source. The Level 1 SFRA climate change maps should be used as a starting point to identify areas that may be at risk from fluvial or tidal flooding in the future. If information shows the ailer may be at risk in the future, the Sequential Test should be undertaken to determine if there are more appropriate sites for the development.			
	Need not apply if the site is allocated in the Local Plan unless the proposal is for a use for which the site was not allocated for or if evidence suggests the level of flood risk has increased since the site was allocated. Minor developments (as defined by the Planning Practice (aidance) need not undertake the Sequential Test Sequential Test does not need to be applied to minor developments and changes of use, except for a change of use to a caravan, camping or chalet site, or to a mobile home or park home site. Replacement developments (increase in the number of develips) or foloptint of develips with no increase in the number of develips or topint of develips and not number of develips with no number of develips with no number of develips or topint of develips need not number of develips with no number of develips or topint of develips with no number of develips or topint of develips need not number of develips with no number of develips with no number of develips or topint of develips with not number of develips with not number of develips or topint of develips with not number of develips or topint of develips with not number of develips or topint of develips with not number of develips with not number of develips with not number of develips need not number of develips with not number of develips with not not number of develips with not number of develips need not number of develips with not number of develips need not number need need need need need need need ne						
	Required, including minor development and change of use.	Required – including minor development and change of use.	Required – including minor development and change of use	Required for sites greater than 1 ha in area. Required for sites where they could be affected by other sources of flooding other than rivers and sea.			
Detailed FRA		Consider it Environment Agency National Flood Ris	k Standing Advice applies.				
	An assessment of the residual risk of flooding will be required for FRAs where sites are protected by flood defences						
	Applicants are encouraged to demonstrate their proposal will deliver a positive reduction in flood risk overall. If this is not possible then consideration needs to be given to whether a contribution to flood risk management infrastructure may be appropriate.						
	The FRA should specify whether the site is in an area of surface water or groundwater risk and, if so, provide an explanation of how the risk will be addressed.						
Finished Floor Level	To be agreed on a site by site basis.	Finished floor levels to be set at 600mm above average site level or adjacent road frontage level, 'design flood' level or maximum historic flood level (if available), whichever is higher. An additional 300mm flood proofing should also be provided. (Road frontage level defined as the average between the gutter and the crown of the road).	Finished floor levels to be set at 300mm above average site level or adjacent road frontage level, design flood level or maximum historic flood level (if available), whichever is higher. An additional 300mm flood proofing should also be provided. (Road frontage level defined as the average between the gutter and the crown of the road).	No minimum level sigulated however this should be informed by the site specific Flood Risk Assessment, considering the predicted impacts of climate change and other sources of flooding. Where not specified, Finished Floor Levels should be raised 150mm above average ground levels or adjacent road frontage (whichever is highest), providing a nominal level of protection.			

Figure 9:- Table 8-3 Recommedations

Therefore, and in accordance with Table 8-3 it is recommended that finished floor levels be finished to a level no lower than 600mm above average site level. Finished floor levels, however, have to be taken on a development by development basis within the site. The overall development is over such a wide area that it can be looked upon as being four separate developments in terms of flood risk. These areas being the Retail Unit and Drive Thru to the southeast of the site, the E.Y.M.S Depot, the Drive Thru to the east of the site, and the Kiosk and Retail Outlet to the north west of the site. The recommendations are applied to each of these developments in turn in terms of floor level recommendations.

Park and Ride Car Park

The average site level in this area of the site is approximately 1.40m AOD. As such the floor level of the waterconvenience unit and plant unit at the parking site should be 2.00m AOD

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E.Y.M.S Depot

The E.Y.M.S Depot is sited in an area where the average site level is approximately 1.30m AOD. As such the floor level of the depot should be 1.90m AOD.

Drive Throughs to the east of the site

The average site level in this area of the site is approximately 1.14m AOD. As such the floor level of the units should be 1.20m AOD.

Coffee Shop Drive Through and Retail Outlet

The average site level in this area of the site is approximately 1.02m AOD. As such the floor level of the units should be 1.62m AOD.

In accordance with Table 8-3 above, a further 300mm of flood resilience measures on top of the resistance measures shall be provided.

It is recommended that the following additional flood proofing measures be incorporated (where possible) into the design of the converted properties in accordance with the Communities & Local Government Document, *Improving the Flood Performance of New Buildings:*

- To provide a suitable waterproof membrane to any foundations if there is any new parts of the building developed on site
- To ensure any new service entries to any proposed buildings is a minimum 900mm above average site level
- To ensure that all new electrical sockets to any proposed buildings are installed a minimum 900mm above average site level
- To install external doors with a good fit and seal
- Closed cell insulation on pipes that are below finished floor level.
- Boiler units and ancillary devices should be installed at least 900mm above average site level and preferably on the first floor. Underfloor heating should be avoided on ground floors and controls such as thermostats should be placed above flood level.
- Communications wiring should be protected by suitable insulation in the distribution ducts to prevent damage.
- Use of non-return airbricks or periscope air vents with an opening above finished floor level.

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Appendices



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