

Project:	Former Merseyside Dogs Home, Halewood	Scheme No:	14506
Subject:	Technical Note - Repsonse to EA Comments	Revision:	02
Client:	BBE Developments Ltd	Date:	29/07/2024
Author:	Aled Williams BSc (Hons) MCIWEM C.WEM		

This Technical Note has been prepared in response to an Environment Agency (EA) objection to a proposed residential development at the Former Merseyside Dogs Home, Greensbridge Lane, Halewood, L35 1QH (planning reference 23/02710/FUL). This Technical Note should be read in conjunction with the Waterco Flood Risk Assessment (reference 14506-FRA-04) and the Waterco Hydraulic Modelling Report (reference 14506-25072-HMR-3).

The EA's correspondence is included in Appendix A. The comments raised by the EA, together with the Waterco response is provided below:

EA Comment:

Finished floor levels should be designed a minimum of 600mm above the 1 in 100-year design flood level, plus 44% climate change to ensure that a sufficient factor of safety has been employed to ensure that the proposed dwellings are considered safe from flooding over the lifetime of the development.

Waterco Response:

In order to mitigate the identified flood risk, site levels (across all developable areas) will be raised to a minimum of 8.74m AOD and therefore above the 1% annual probability plus 44% climate change and 0.1% annual probability flood levels.

Finished floor levels will be set at or above 8.89m AOD. This level provides 320mm freeboard above the 1% annual probability plus 44% climate change flood level.

In accordance with the EA guidance 'Preparing a flood risk assessment: standing advice' (July 2024):

'We recommend floor levels are set at least 600 millimetres (mm) above the estimated flood level. You will also need to use flood resistant materials up to at least 600mm above the estimated flood level.

You may be able to reduce this to 300mm if there is a high level of certainty about your estimated flood level. If there is a particularly high level of uncertainty it may need to be increased.'

Flood levels have been derived from detailed hydraulic modelling and as such there is a high certainty about the estimated flood levels. A freeboard of 320mm is therefore considered acceptable and in line with the EA flood risk assessment standing advice. A higher finished floor level is not considered to be achievable due to the access reasons (a higher floor level would entail stepped access to properties).

EA Comment:

Development in Flood Zone 3, including raising ground levels, is likely to displace flood water from the site and transfer this risk elsewhere. The submitted FRA (ref: Waterco/14506-FRA-04/June 2024) states 'impact on flood risk

elsewhere as a result of the development is negligible'. However, while there are pre- & post-development modelled outputs provided that do not show significant increases in flood levels in the proximity of the site, we would highlight that without suitable flood storage volume compensation being provided any displaced floodwater from the site has to be diverted elsewhere. It is therefore this volumetric loss that we are seeking the FRA to address. Additionally, where hydraulic modelling outputs alone do not detect a significant increase in flood risk

elsewhere from small-scale development sites, we would highlight the issue of a cumulative impact of flood storage not being provided and having a potential impact of exacerbating flood risk elsewhere without detection. Any loss of flood storage from Flood Zone 3, must be compensated for like-for-like so as to not increase flood risk elsewhere and contribute to a negative cumulative effect, incorporating fully the impact of climate change over the lifetime of the development.

Waterco Response

In relation to flood compensation storage, the site does not play a specific flood storage function and is not situated within the functional floodplain. During extreme flood events (1% annual probability plus 44% climate change and the 0.1% annual probability events) flood flows enter the site from the north (flowing over the road to the north of the site) and travel south through the site. Flood water on site is contained within the site by a low-level flood defence / earth bund on the western edge of the site. The earth bund prevents flood water in the northern extent of the site from returning back into Netherley Brook. Flows eventually re-enter Netherley Brook in the south-western extent of the site where the bund height is lower.

Water levels on site are approximately 300mm higher than those in Netherley Brook adjacent to the site, indicating that the earth bund plays a negative role in flood risk to the site.

Raising ground levels enables flood water to enter Netherley Brook immediately north-west of the site, rather than travelling through the site and becoming impounded by the earth bund.

Detailed hydraulic modelling has been undertaken by Waterco to determine the impact of the development (ground raising) on the flood flow route on site and the resulting impact on flood risk elsewhere. As detailed in the FRA and Hydraulic Modelling Report, the proposed development does not increase flood risk elsewhere and as such flood compensation storage is not considered to be necessary.

Tables 1 and 2, extracted from the Waterco Hydraulic Modelling Report show that there are no changes in the in-channel water levels in Netherley Brook as a result of the development. The corresponding in-channel node locations are shown in Figure 1.

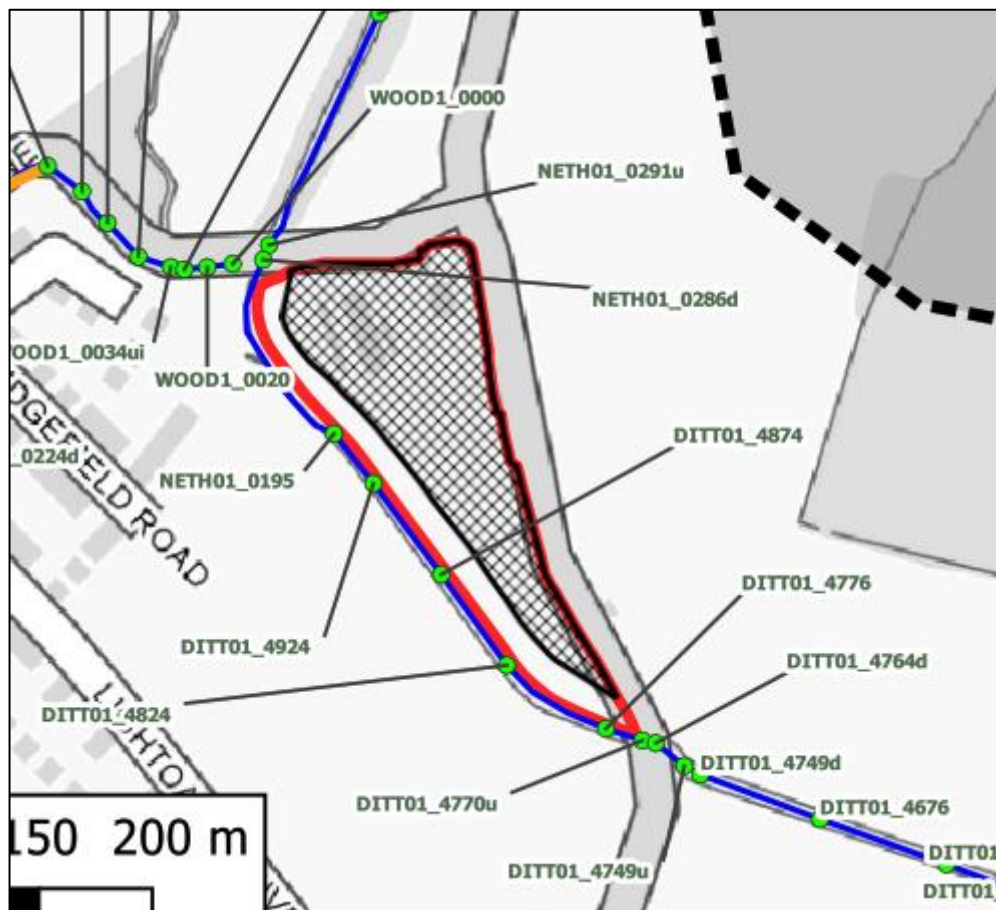
Table 1: Existing Maximum In-channel Water Levels

FMP Node	Maximum In Channel Water Level (m AOD)			
	5% AEP	1% AEP	1% AEP +44% CC	0.1% AEP
NETH01_0286d	7.74	7.99	8.32	8.49
NETH01_0195	7.63	7.86	8.17	8.35
DITT01_4924	7.62	7.84	8.14	8.31
DITT01_4874	7.59	7.81	8.10	8.26
DITT01_4824	7.56	7.77	8.08	8.25
DITT01_4776	7.50	7.69	8.00	8.21
DITT01_4770u	7.52	7.72	8.00	8.20

Table 2: Proposed Development Maximum In Channel Water Levels

FMP Node	Maximum In Channel Water Level (m AOD)			
	5% AEP	1% AEP	1% AEP +44% CC	0.1% AEP
NETH01_0286d	7.74	7.99	8.32	8.50
NETH01_0195	7.63	7.86	8.17	8.35
DITT01_4924	7.62	7.84	8.14	8.31
DITT01_4874	7.59	7.81	8.10	8.26
DITT01_4824	7.56	7.77	8.08	8.25
DITT01_4776	7.50	7.69	8.00	8.21
DITT01_4770u	7.52	7.72	8.00	8.20

Figure 1 – In Channel Node Locations



Appendix A – EA Correspondence

Knowsley Metropolitan Borough Council
Development Control
PO Box 26
Huyton
Liverpool
L36 9FB

Our ref: SO/2024/123861/02-L01
Your ref: 23/02710/FUL
Date: 16 July 2024

Dear Mark Quinn,

ERECTION OF 39NO. DWELLINGS (CONSISTING OF 33NO. HOUSES AND 6NO. APARTMENTS) TOGETHER WITH ASSOCIATED INFRASTRUCTURE AND ACCESS FROM GREENSBIDGE LANE.

LAND AT FORMER MERSEYSIDE DOGS HOME, GREENSBIDGE LANE, HALEWOOD, KNOWSLEY, L35 1QH.

Thank you for re-consulting us on the above application, on 27th June 2024.

Environment Agency position

We have reviewed the updated Masterplan Layout (dated 7th June 2024) and consider that it satisfactorily addresses our earlier concerns relating to biodiversity. We therefore withdraw our previous objection on biodiversity grounds only.

The revised flood risk assessment (dated June 2024, ref 14506-FRA-04) does not satisfactorily address our earlier concerns. We therefore maintain our flood risk objection set out in our response dated 19 January 2024.

Flood Risk

Reason

We maintain our position in objecting to this proposal on the grounds that the development will not be resilient to the flood levels for the 1 in 100-year event plus 44% Climate Change allowance and on the basis that flood risk elsewhere is not increased as a consequence of the proposed development.

The submitted FRA does not comply with the requirements for site-specific flood risk assessments, as set out in paragraphs 30 to 32 of the Flood Risk and Coastal Change section of the planning practice guidance. The FRA does not therefore adequately assess the flood risks posed by the development.

- Finished floor levels should be designed a minimum of 600mm above the 1 in 100-year design flood level, plus 44% climate change to ensure that a sufficient factor of safety has been employed to ensure that the proposed dwellings are considered safe from flooding over the lifetime of the development.
- Development in Flood Zone 3, including raising ground levels, is likely to displace

Environment Agency
Richard Fairclough House Knutsford Road, Warrington, WA4 1HT.
Customer services line: 03708 506 506
www.gov.uk/environment-agency

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flood water from the site and transfer this risk elsewhere. The submitted FRA (ref: Waterco/14506-FRA-04/June 2024) states 'impact on flood risk elsewhere as a result of the development is negligible'. However, while there are pre- & post-development modelled outputs provided that do not show significant increases in flood levels in the proximity of the site, we would highlight that without suitable flood storage volume compensation being provided any displaced floodwater from the site has to be diverted elsewhere. It is therefore this volumetric loss that we are seeking the FRA to address. Additionally, where hydraulic modelling outputs alone do not detect a significant increase in flood risk elsewhere from small-scale development sites, we would highlight the issue of a cumulative impact of flood storage not being provided and having a potential impact of exacerbating flood risk elsewhere without detection. Any loss of flood storage from Flood Zone 3, must be compensated for like-for-like so as to not increase flood risk elsewhere and contribute to a negative cumulative effect, incorporating fully the impact of climate change over the lifetime of the development.

- While the FRA includes reference to the requirement for an Exception Test to be produced and submitted in support of a proposed residential development within Flood Zone 3, we do not consider that one has been completed as part of the FRA itself.

Informative

The development suggests an outfall structure into Netherley Brook will be required as part of the development, a Flood Risk Activity Permit under Environmental Permitting Regulations 2016 will be required. Please reconsult us with further in-depth details including:

- A robust reasoning and justification for the design and layout of the outfall.
- In-depth method statements outlining method of work for the construction of the outfall.
- Timings of work.
- Materials used to create the outfall.

The Environment Agency has a preference for structures set back from the channel that utilise SUDs features wherever practicable. The outfall pipe shall be aligned to an angle of between 30° and 60° to the direction of flow in the watercourse and be sited at a geomorphologically stable section of water course.

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Should you have any queries regarding this response, please do not hesitate to contact me.

Yours sincerely,

Miss India Blythin

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Planning Advisor

spplanning.rfh@environment-agency.gov.uk