

## Bartons Road, Havant

### Reply to LLFA Consultation Response

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195104/N01

#### Introduction

1. Vectos prepared a Flood Risk Assessment (FRA) dated July 2020 to support the mixed-use redevelopment at Bartons Road, Havant (APP/20/00658).
2. The Hampshire County Council Lead Local Flood Authority (LLFA) prepared a consultation response dated 26 October 2020. An extract from this response is provided below.

In order for us to provide a substantive response, the following information is required:

- Please provide existing run-off rates for the 1:1 year, 1:30 year and 1:100-year, proposed rates are based on the 10-year rainfall profile.
3. It is the purpose of this note to provide this information so that the LLFA can respond in full.

#### Runoff Rates

4. The proposed runoff rates were based on the assumption that the surface water drainage from the brownfield site was designed to accommodate the 1 in 10 year event (with no climate change).
5. Once this rate was estimated, a 30% reduction was proposed, and this was adopted for all storms up to and including the 1 in 100 plus 40% climate change event.
6. Whilst it was assumed that the drainage was designed to accommodate the 1 in 10 year storm, in reality, the brownfield site would generate a much greater runoff rate in more extreme conditions. This would run off the site as overland flow. We have ignored this additional contribution, given that this would have no direct connection to the public sewer. The approach adopted is therefore considered to be conservative and will offer further betterment.
7. The LLFA has requested existing runoff rates for the site. These have been estimated using the Wallingford Procedure and the assumptions outlined in the FRA.
8. Therefore, the existing runoff rate has been estimated using the following:  
$$Q = C \times I \times A$$
9. Further details are enclosed with the FRA. However, the average rainfall intensity has been calculated using MicroDrainage (see enclosed). The impermeable area was estimated to be 1.14 ha. The

following table presents the runoff rates requested by the LLFA. It also presents the proposed discharge rate.

| Return Period  | Average Rainfall<br>(mm/hr) | Existing Runoff Rate<br>(l/s) | Proposed Discharge Rate<br>(l/s) |
|----------------|-----------------------------|-------------------------------|----------------------------------|
| 1 in 1         | 12.5                        | 38.7                          | 50.9                             |
| 1 in 10        | 23.5                        | 72.7                          | 50.9                             |
| 1 in 30        | 30.2                        | 93.3                          | 50.9                             |
| 1 in 100       | 39.7                        | 122.6                         | 50.9                             |
| 1 in 100+40%CC | -                           | -                             | 50.9                             |

## Conclusion

10. We assume that the information provided will be sufficient to allow the LLFA to respond in full.

Unit 704  
The Paintworks  
Bristol BS4 3EH

Date 30/10/2020 12:39  
File

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XP Solutions

Network 2019.1

### Rainfall profile

Storm duration (mins) 60

FSR Data

Region England and Wales

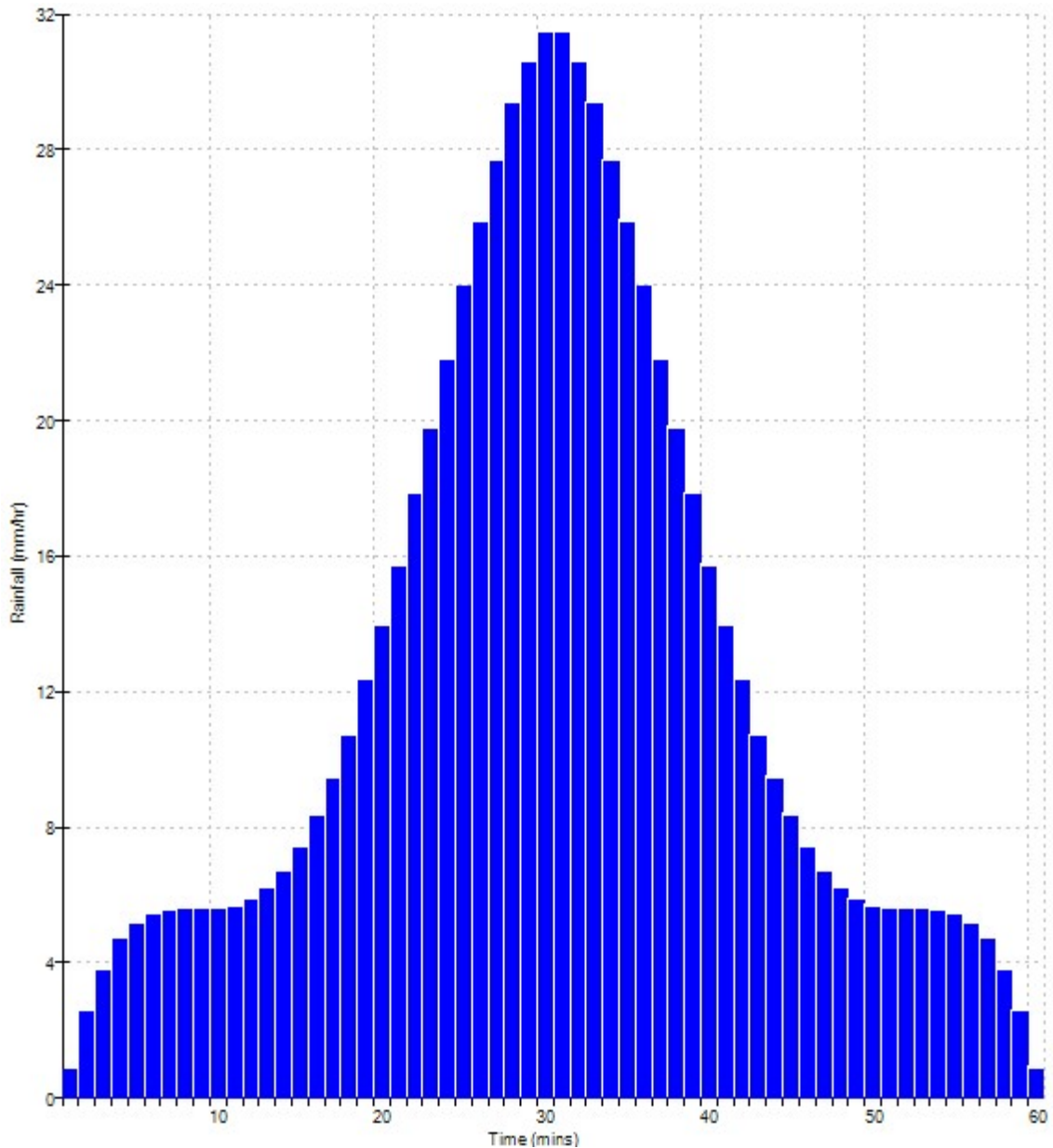
M5-60 (mm) 19.600

Ratio R 0.346

Peak Intensity (mm/hr) 31.473

Ave. Intensity (mm/hr) 12.513

Return Period (years) 1.0



Unit 704  
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### Rainfall profile

Storm duration (mins) 60

FSR Data

Region England and Wales

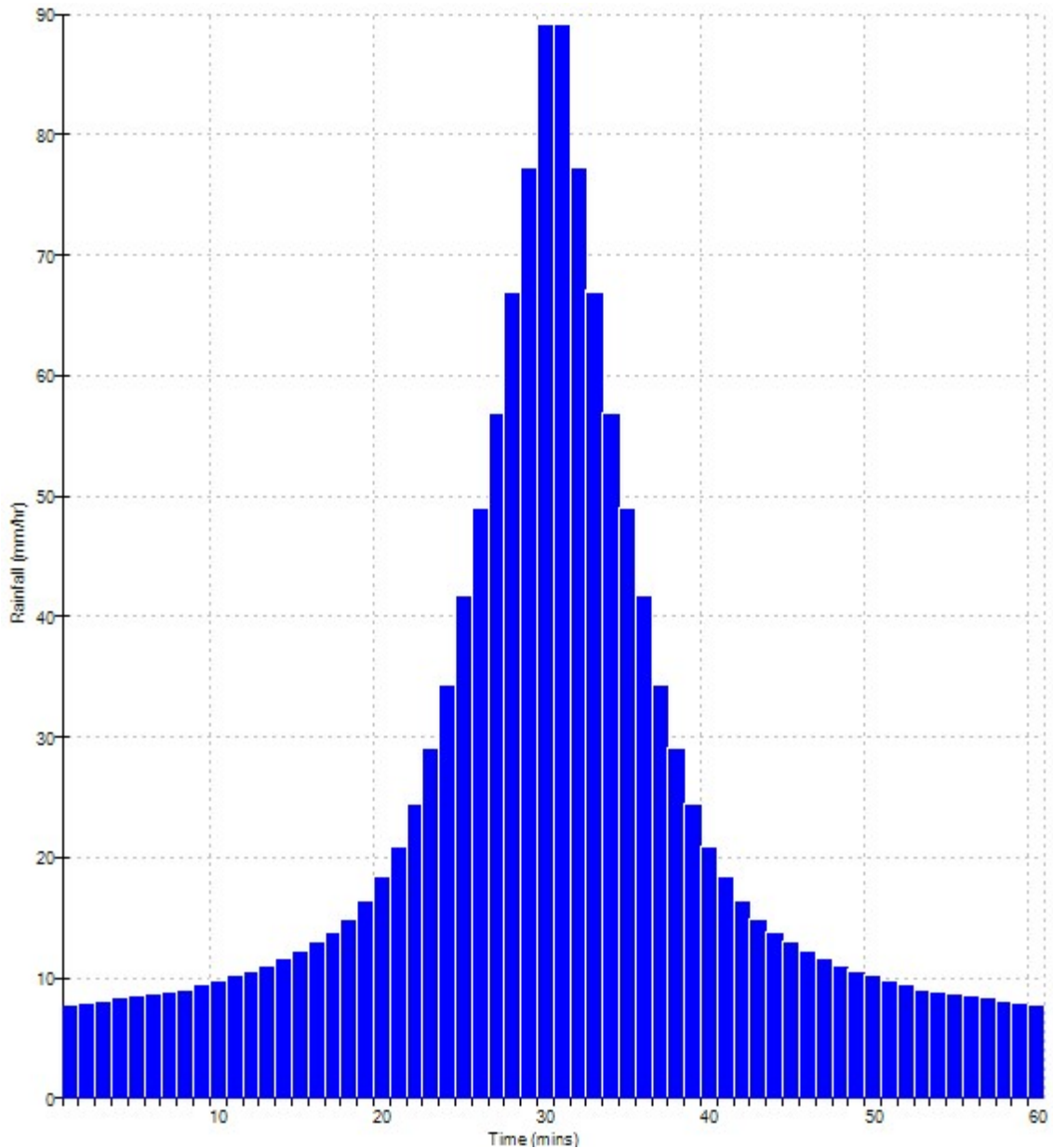
M5-60 (mm) 19.600

Ratio R 0.346

Peak Intensity (mm/hr) 88.994

Ave. Intensity (mm/hr) 23.519

Return Period (years) 10.0



Unit 704  
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### Rainfall profile

Storm duration (mins) 60

FSR Data

Region England and Wales

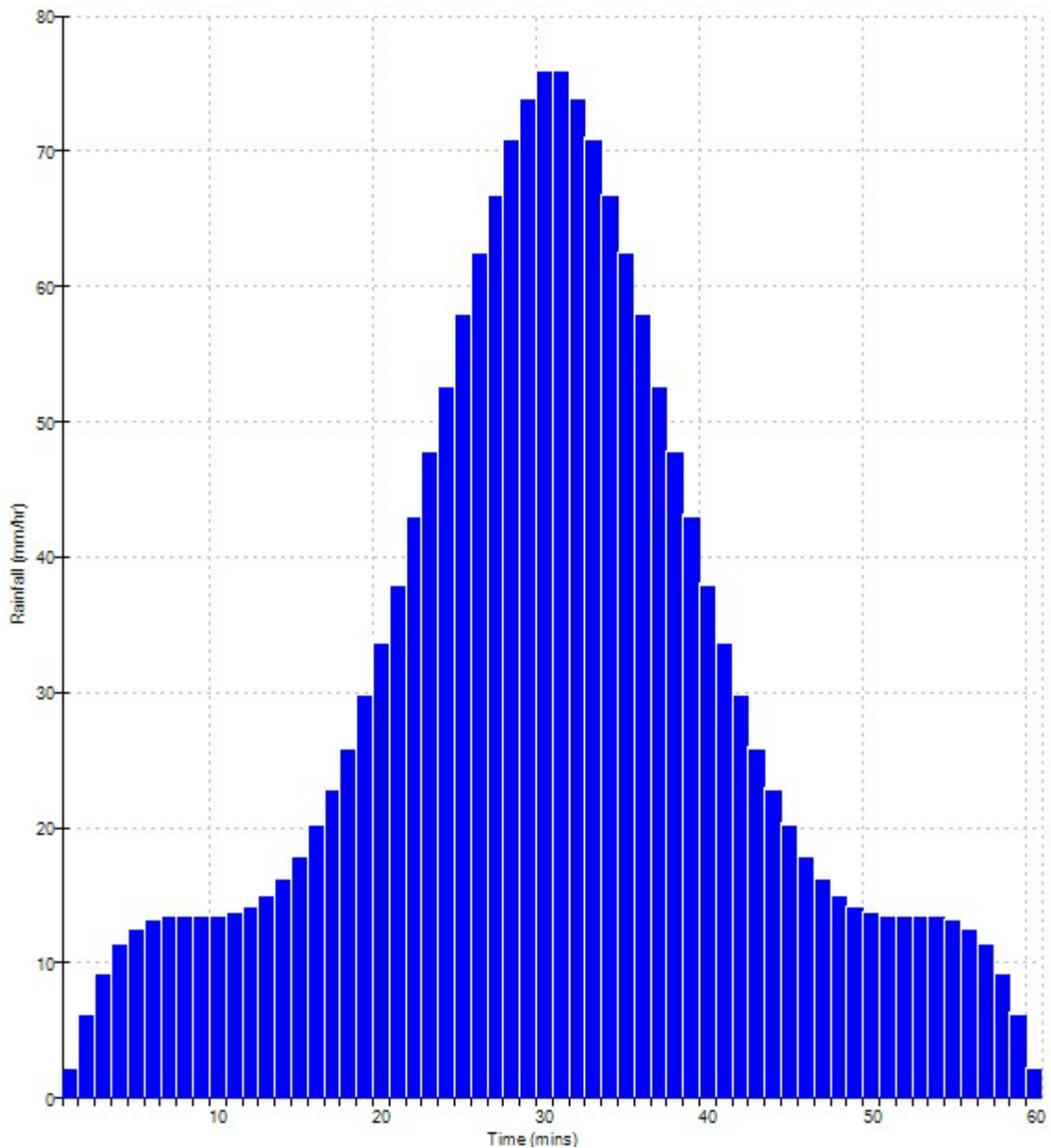
M5-60 (mm) 19.600

Ratio R 0.346

Peak Intensity (mm/hr) 75.920

Ave. Intensity (mm/hr) 30.183

Return Period (years) 30.0



|                                               |                          |                                                                                     |
|-----------------------------------------------|--------------------------|-------------------------------------------------------------------------------------|
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| Unit 704<br>The Paintworks<br>Bristol BS4 3EH |                          |  |
| Date 30/10/2020 12:43                         | Designed by Nick.Bosanko |                                                                                     |
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| XP Solutions                                  |                          | Network 2019.1                                                                      |

### Rainfall profile

Storm duration (mins) 60

FSR Data

Region England and Wales

M5-60 (mm) 19.600

Ratio R 0.346

Peak Intensity (mm/hr) 150.127

Ave. Intensity (mm/hr) 39.674

Return Period (years) 100.0

