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Enquiries to	Santiago Manzanero	My reference	PRE-Scottish and Southern Energy
Direct Line	01962 846730	Your reference	-
Date	12 March 2020	Email	SWM.consultee@hants.gov.uk

Dear Sir/Madam,

BROWNFIELD ALLOCATED SITE CONSISTING OF RUBBLE LEFT OVER FROM DEMOLITION. LOCATED IN SPZ 1C. PROPOSALS CONSIST OF RESIDENTIAL, CARE HOME AND DRIVE THROUGH. SCOTTISH AND SOUTHERN ENERGY MARTIN ROAD, HAVANT, HAMPSHIRE PO9 5TH.

Hampshire County Council as Lead Local Flood Authority has provided comments in relation to the above pre-application in our role as statutory consultee on surface water drainage for major developments.

In order to assist applicants in providing the correct information to their Local Planning Authority for planning permission, Hampshire County Council has set out the information it requires to provide a substantive response at <https://www.hants.gov.uk/landplanningandenvironment/environment/flooding/planning>

The County Council has reviewed the following documents relating to the above application:

- PRELIMINARY SITE PLAN 9303/100; dated: DECEMBER 2019.

Detailed Advice:

Assessment of Flooding.

The Environment Agency (EA) maps show that the entire site is with the extent of Flood Zone 1. Additionally, the EA updated flood map for surface water shows two overland surface water flowpaths flowing through the site from Bartons Rd to Martins Rd with surface water being stored at the site,

Director of Economy, Transport and Environment
Stuart Jarvis BSc DipTP FCIHT MRTPI

including during rainfall events with a 1 in 100 annual probability of occurrence, before it drains away.

We understand that the old building is demolished and would have influenced the EA modelling. As a result, surface water flowing through the site will most likely be different and will require review.

Bearing in mind that the existing overland flowpaths are for a rainfall event with a 1 in 1000-year annual probability of occurrence, we will require that the exceedance flow routes within the development are appropriately assessed, in accordance with the proposed ground levels, to ensure property and infrastructure would not be adversely affected and. However, blocking these overland flowpaths will increase flood risk at Petersfield Rd which is already at surface water flood risk (including during rainfall events with a 1 in 30 annual probability of occurrence). Therefore, we will require that existing ground levels within the overland flowpaths are retained as much as possible, especially close to Bartons Rd to Martins Rd, to ensure no displacement of flood water.

We will also require that finished ground floor levels of any residential development should be sufficient to ensure that surface water does not pose a flood risk in the 1 in 100-year event plus 40% climate change allowance.

Surface Water Disposals (check with the secured outfall of the checklist).

The British Geological Survey (BGS) data indicates that the application site is underlain by Bognor Sand Member (Sand), London Clay Formation (Clay, Silt and Sand), and Head Superficial Deposits (Clay, Silt Sand and Gravel). The variable geology at the site will most likely present highly variable permeability.

Therefore, any proposals for the use of infiltration at the application site must be supported by infiltration testing in accordance with the BRE365 (2016 publication) methodology and groundwater monitoring between autumn and spring. The infiltration testing should be carried out at a depth and location commensurate with the proposed infiltration features. The groundwater should demonstrate that there will be 1m unsaturated zone between the base (Inver Level) of the proposed infiltration features and the highest groundwater level recorded.

The entire site is within the extent of the Environment Agency (EA) Source Protection Zones (Zone 1) and the EA Groundwater Vulnerability Zones. Therefore, if infiltration is proposed for surface water disposal, we will require that the EA is consulted regarding the potential contamination associated with infiltration. Unless the EA raises no objection, we would not consider infiltration acceptable at the site.

The Detailed River Network data that we hold does not show any Main Rivers, Ordinary Watercourses, Ditches or Drains within or adjacent to the application site. Therefore, if proposals include to discharge surface water to any of the

aforementioned watercourses, we will require additional information on the watercourse location, flow direction route, evidence of gravity connection to another watercourses and evidence which demonstrate adequate capacity and condition the proposed discharge rate and connection.

If the infiltration testing/groundwater monitoring show that infiltration is not feasible at the application site, and in the absence of any available/suitable watercourse, the applicant could consider discharging surface water to a surface water/combined sewer. Any connection to existing surface water assets should have the principle of the connection agreed with the asset owner (public/private sewer network, highways...) before the planning application is submitted.

Surface water to any watercourse or existing surface water sewer should be limited to existing greenfield runoff rates for all rainfall events including the 1 in 1, 1 in 30 and 1 in 100 (plus an allowance for Climate Change) rainfall events.

SuDS Design and Selection of Drainage Features.

SuDS encompassing the multiple benefits in accordance with the SuDS Manual should be provided unless it can be proven that these are not appropriate. This should include an element of biodiversity, amenity as well as water quality / quantity. We will therefore request that above ground SuDS features are consider for the drainage strategy and added to the proposed masterplan.

Surface Water Checklist:

Bearing in mind the different information and level of details required by the different stages within the planning process (outline, reserved matters and full planning applications), please see attached our Surface Water Checklist with the different levels of information requested for each stage, that we ask developer to follow and submit with all major planning applications.

<https://www.hants.gov.uk/landplanningandenvironment/environment/flooding/planning>

SURFACE WATER CHECKLIST GUIDANCE

Hampshire County Council as Lead Local Flood Authority (LLFA) is a statutory consultee on all major planning applications in Hampshire in relation to Surface Water Drainage.

This guidance is designed to provide advice to developers and applicants and define the information we require to assess planning applications in relation to Surface Water Drainage and has been developed based on the National Planning Policy Guidance as well as utilising best practice information as set out in the Non Statutory Technical Guidance and Ciria SuDS Manual (C753). If guidance or best practice information is required to be used other than the SuDS Manual or NPPF then it will be identified within this document.

An accompanying checklist is provided on our website which must be completed and included in any drainage submissions to ensure all the relevant information is provided and to signpost us to the correct documents. This is also intended to ensure that the applicant is aware of the legal responsibilities and will certify that the information provided is correct.

THESE PROFORMAS MUST BE SUBMITTED WITH ALL MAJOR APPLICATIONS

Given that a different level of information and detail is required depending on the different stage within the planning process (outline, reserved matters and full planning applications), we have identified the information required for all applications and then provided tables, for ease of reference, depending on whether an outline planning application with some matters reserved including layout, or full planning application is submitted.

INFORMATION ON THE PRE-DEVELOPMENT SITE	
Description:	Format:
Topographical Survey.	Drawing(s)
Existing Drainage Confirm what the existing drainage arrangements on site are including Drainage Features and Catchment Areas.	Drawing(s)
Discharge rates and Volumes Calculations will be required demonstrating the pre-runoff rates and volumes. (1)	Calculations
Existing Overland Flow Paths Evidence of and information on the existing surface water flow paths for undeveloped (greenfield) sites.	Drawing(s)
Site Investigations i.e.Site Geology, Infiltration Testing and Groundwater Monitoring. (2) (3)	Test Results & Interpretive Reports.

Guidance notes:

- (1) To be completed using a suitable method such as IH124 or FEH. Information is available from UK Sustainable Drainage: Guidance and Tools. Calculations must show that the proposed run off rates do not exceed the existing run-off rates. This must be shown for the 1 in 1, 1 in 30, 1 in 100 year (plus climate change allowance) annual probability of occurrence.
- (2) Infiltration testing should be carried out in accordance with the BRE365 (2016 methodology) at a depth and location commensurate with the proposed drainage features. If infiltration is thought to be feasible, groundwater monitoring should be undertaken between autumn and spring and demonstrate that there will be at least 1m unsaturated zone between the base of the infiltration features and the highest groundwater recorded.
- (3) If infiltration is not proposed, during the detailed design (Full Planning/Reserved Matters application), the impacts of high groundwater on the drainage system and development proposals should also be assessed by groundwater monitoring. This is particularly important if there is potential for groundwater to enter storage features such as basins or permeable paving such that tanking may be required.

OUTLINE PLANNING PERMISSION.

Applications for outline planning permission seek to establish whether the scale and nature of a proposed development would be acceptable to the local planning authority (LPA), before a fully detailed proposal is put forward.

This type of planning application allows fewer details about the proposal, including drainage, to be submitted. Once outline permission has been granted, a Reserved Matters Application will be required before any construction commences on site.

Outline design requirements are set out in The SuDS Manual (CIRIA C697), this guide is the recognised industry guidance document to the non-statutory technical standards for the design, maintenance and operation of SuDS.

Key tasks: Confirm outline design standards, flow routes, approximate storage requirements and adoption arrangements. Carry out ground investigations and surveys where applicable.

Output: Outline Surface Water Drainage Strategy to support an outline planning application.

*Please note that if the layout approval is also being sought within the Outline Planning Application, we therefore would consider it as a Full Planning Application. This is because since the layout will be fixed, changes to the drainage strategy should be addressed before permission is given to avoid unnecessarily restricting potential drainage design solutions.

Therefore, Hampshire County Council as the Lead Local Flood Authority (LLFA) will require the following information for planning applications for Outline Planning Permission:

OUTLINE DRAINAGE STRATEGY	
Description:	Format:
Confirmation of a discharge location This must be in accordance with the drainage hierarchy of infiltration, discharge to watercourse, discharge to surface water sewer. (1), (2)	Drawing(s)
Surface Water Calculations This must include post development runoff rates for the 1:1, 1:30 and 1:100 + climate change together with the proposed storage requirements and attenuation features.	Calculations
Flood Risk Assessment and / or Drainage Strategy Evidence must be provided demonstrating compliance with the relevant standards i.e. restrictions on discharge rates, demonstration of no increased risk on or off site. This is covered under the standard Flood Risk Assessment guidance produced by the Environment Agency.	Report Statement /
Potential Flood Risk This must include an assessment of existing flood risk and the impact of the development on flow routes, flood plain, surface water flood risk areas (high / medium). If there are areas of flood risk within the site, evidence will be required to demonstrate how they have been managed. (3)	Drawing(s), Report Statement /
Drainage Layout Plan	Drawing(s)

This must be an engineering plan showing the location of SuDS features, conveyance paths, discharge points, storage and treatment areas.	
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Guidance notes:

- (1) This should include agreement in principle within the relevant organisation/third party landowner if the discharge point is outside of the site extent together with a good understanding of discharge point sensitivity relating to the receiving water body (including groundwater sensitivity if appropriate).
- (2) Although considered as infiltration, deep bore soakaways are considered to be an option of last resort in terms of the drainage hierarchy due to the potential pollution risk to the aquifer as well as issues with siltation and maintenance. If this is to be considered as an option then discussions must be held with the LLFA as soon as feasible to avoid delays to the application and to confirm the additional requirements that will apply if this is to be progressed.
- (3) It is the LLFA's preference that existing surface water flow routes are retained within green spaces with ground levels being maintained along them to ensure no changes in flood risk as a result of the development. If this is not considered, we will require that finished ground floor levels of any residential development are sufficient to ensure that surface water does not pose a flood risk in the 1 in 100-year event plus climate change allowance. Proposals should make room for existing overland flow routes flowing through the application site and demonstrate no displacement of flood water to adjacent sites. This may require 2D surface water hydraulic modelling.

FULL PLANNING PERMISSION INCLUDING RESERVED MATTERS APPLICATIONS.

Applications for Full Planning Permission should provide certainty on a suitable drainage design that works within the proposed layout and to the standard required by legislation and best practice guidance documentation.

Conditions can be applied to a full application however only those that will not have an impact on the fundamentals of the drainage design will be considered for conditions. The provision of hydraulic calculations or geotechnical testing is not considered suitable for a condition.

Full Planning Applications should be considered to be a detailed design stage with the requirements listed in the table below as well as key elements from the outline design (if not already submitted as part of an outline application. Detailed design requirements are set out in this guide and the industry guidance document to the non-statutory technical standards for the design, maintenance and operation of SuDS.

Key tasks: Confirm detailed drainage design including drawings and calculations, maintenance roles and responsibilities and water quality provision.

Output: Drainage statement and / or Flood Risk Assessment to include the detailed design layout and assessment to support a detailed planning application.

DETAILED DRAINAGE STRATEGY	
Description:	Format:
Detailed Drainage Assessment A technical summary detailing any changes and key criteria agreed under an outline application must be provided	Report / Statement
Detailed Drainage Layout Drawings These must be at an appropriate scale (minimum 1/500), indicating catchment areas, referenced drainage features, manhole cover and invert levels and pipe diameters, lengths and gradients. (1)	Drawing(s)
Detailed Hydraulic Calculations Full network calculations are required for all rainfall events including the 1 in 1, 1 in 30, 1 in 100 year (plus climate change allowance) annual probability of occurrence. (2)	Calculations
Water Treatment Evidence that sufficient water treatment has been provided in accordance with the methodology in the Ciria SuDS Manual. (3)	Report / Statement
Exceedance Flows This should highlight the overland flow routes post development if the drainage system blocked to ensure that properties and key access / egress points are kept clear. If flooding is shown at the 1:100 + climate change storm, this should be highlighted on the plan with accurate extents and depths of any ponding shown.	Drawing(s)
Urban Creep Evidence that Urban Creep has been considered in the application and that a 10% increase in impermeable area has been used in calculations. (4)	Report / Statement.

**Maintenance**

Maintenance schedules must be provided for each drainage feature type regardless of ownership. Confirmation of maintenance responsibilities / adoption will also be required. If features are to be adopted by third parties i.e. Highways Authority, Water Company etc, evidence will be required that they will accept the adoption. If adoption is still to be progressed, a fall back position needs to be identified in case the adoption of the drainage can not be agreed. (5)

**Report /
Statement****Guidance notes:**

- (1) The drainage features should have the same reference as those used in the hydraulic calculations.
- (2) Calculations should consider the hydraulic connectivity of the between the entire proposed drainage system, including the discharge allowance. The results should include the half-drain time for the 1 in 10year event and the 1 in 100year event (plus climate change allowance).
- (3) In accordance with the Ciria SuDS Manual C753 and using the Simple index Criteria (Box 26.2). If the methodology in the Design Manual for Roads and Bridges is used then the Simple Index Approach should also be assessed and the most onerous treatment requirements followed.
- (4) Urban Creep is only applicable for residential developments and excludes flats or apartments.
- (5) For larger/phased sites, we need to see evidence of measures taken to protect and ensure continued operation of drainage features during construction.

We would also recommend that the applicant directs to our website <http://www3.hants.gov.uk/flooding/hampshireflooding/drainagesystems.htm> for further information on recommended surface water drainage techniques.

Please note that Hampshire County Council as Lead Local Flood Authority will not comment on the fluvial systems as these are outside our remit.

As a statutory consultee, the County Council has a duty to respond to consultations within **21 days**. The 21-day period will not begin until we have received sufficient information to enable us to provide a meaningful response.

Please ensure all data is sent to us via the relevant Local Planning Authority.

This response has been provided using the best knowledge and information submitted as part of the planning application at the time of responding and is reliant on the accuracy of that information.

Yours faithfully,



Flood and Water Management Team
Economy, Transport & Environment Department,
Hampshire County Council, 1st Floor, Ell Court West,
The Castle, Winchester, Hampshire SO23 8UD
Web: <http://www3.hants.gov.uk/flooding/watercourses.htm>

General guidance for the application

It is important to ensure that the long-term maintenance and responsibility for Sustainable Drainage Systems is agreed between the Local Planning Authority and the applicant before planning permission is granted. This should involve discussions with those adopting and/or maintaining the proposed systems, which could include the Highway Authority, Planning Authority, Parish Councils, Water Companies and private management companies.

For SuDS systems to be adopted by Hampshire Highways it is recommended that you visit the website at:

<https://www.hants.gov.uk/transport/developers/constructionstandards> for guidance on which drainage features would be suitable for adoption.

Where the proposals are connecting to an existing drainage system it is likely that the authorities responsible for maintaining those systems will have their own design requirements. These requirements will need to be reviewed and agreed as part of any surface water drainage scheme.

Works in relation to ordinary watercourses

PLEASE NOTE: *If the proposals include works to an ordinary watercourse, under the Land Drainage Act 1991, as amended by the Flood and Water Management Act 2010, prior consent from the Lead Local Flood Authority is required. **This consent is required as a separate permission to planning.***

Information on ordinary watercourse consenting can be found at the following link <http://www3.hants.gov.uk/flooding/hampshireflooding/watercourses.htm>

It is strongly recommended that this information is reviewed before Land Drainage consent application is made.

*For guidance on providing the correct information, we recommend you use our **Ordinary Watercourse Consents Pre-application service** and help avoid delays occurring at the formal application stage. A Pre-application service for Ordinary Watercourse Consents is available, allowing consents to go through in a smoother, often more timely manner. For full information please visit:*

<https://www.hants.gov.uk/landplanningandenvironment/environment/flooding/WatercoursePreApplication>



Legend

- Site Buffer
- Site
- EA Recorded Flood Outlines
- Recorded Highway Flooding in Hampshire

Historic Flood Information Request

Historic Flooding Records

Vectos

SCOTTISH AND
SOUTHERN ENERGY

Notes:

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Kilometers

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Hampshire
County Council



Legend

Site Buffer

Site

Historic Flood Information Request

Detailed River Network

Vectos

SCOTTISH AND
SOUTHERN ENERGY

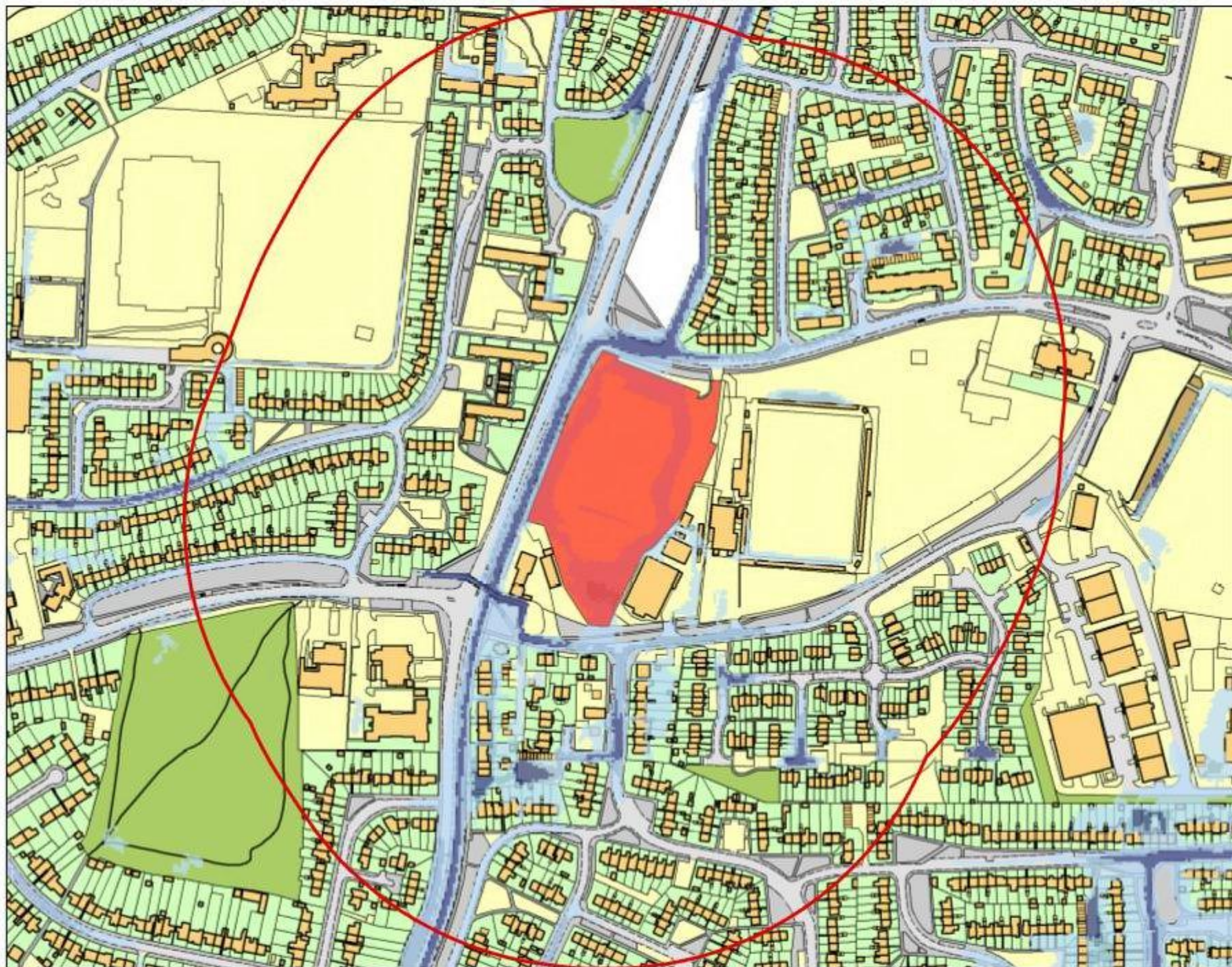
Notes:

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Date:	12/03/2020	Sheet:	1 of 1
Revision:	1	Initials:	SML



Legend

- Site Buffer
- Site
- Flood Map for Surface Water
- Flood Map for Surface Water (Medium)
- Flood Map for Surface Water

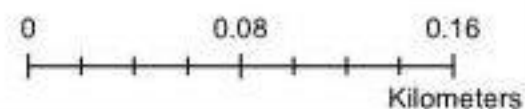
Historic Flood Information Request

Flood Map for Surface Water (FMfSW)

Vectos

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Notes:



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Hampshire
County Council



Legend

- Site
- Site
- SINC

Historic Flood Information Request

Environmental Designations

Vectors

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Notes:

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Kilometers

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Date:	12/03/2020	Sheet:	1 of 1
Revision:	1	Initials:	SML



Hampshire
County Council

Nick Bosanko

From: FWM Statutory SWM Consultee mailbox <SWM.Consultee@hants.gov.uk>
Sent: 26 March 2020 15:06
To: Nick Bosanko
Cc: FWM Statutory SWM Consultee mailbox; Lizzie Todd-Davies
Subject: RE: Surface Water Management Pre-Application Advice/Historic Flood Information Request

Follow Up Flag: Follow up
Flag Status: Flagged

Hello Nick,

Thank you for your email.

I confirm that keeping site levels on the boundaries where the 1 in 1000 flow path enters the site as close to existing site levels as possible, and then allowing a route through the site safely (proposed arrows), will be sufficient to demonstrate that the existing overland flow route will not be blocked, and to establish that exceedance flow routes within site will be managed safely.

Bearing in mind the existing site characteristics, I also confirm that the 150mm elevation of residential development ground levels will be adequate.

Considering that the infiltration test showed that infiltration is not feasible at the site, and in the absence of any nearby watercourse, we will consider acceptable to discharge surface water runoff to the surface water public sewer network. Bearing in mind that this is a brownfield site, we would also accept a 30% betterment of existing discharge rates. However, since an alternative point of discharge from the application site is not available, we will request agreement from Southern Water for the connection(s) and proposed discharge rate(s) when the application is submitted, as they will have implication in the design detailed drainage system.

I hope this helps but contact me on the details below if you want to discuss it.

Kind regards,
Santi

Santiago Manzanero
Flood and Water Management Engineer
01962 846777
07784 261707
Santi.Manzanero@hants.gov.uk

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www.hants.gov.uk/sharedexpertise

The HCC Flood and Water Management team offer a Flood and Water Management information service for Local Authorities and developers offering both historic site information and a full Pre-Application assessment of a proposed development's Surface Water Drainage features. For specific information please visit the ['Reducing flood risk in planning'](#) webpage or for general information see [HCC Flood & Water Management](#)

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From: Nick Bosanko <Nick.Bosanko@vectos.co.uk>
Sent: 19 March 2020 22:17
To: FWM Statutory SWM Consultee mailbox <SWM.Consultee@hants.gov.uk>
Cc: Lizzie Todd-Davies <Lizzie.Todd-Davies@vectos.co.uk>
Subject: RE: Surface Water Management Pre-Application Advice/Historic Flood Information Request

Hi Santi

Thank you for the information provided. I have provided an extract of this below.

We understand that the old building is demolished and would have influenced the EA modelling. As a result, surface water flowing through the site will most likely be different and will require review.

Bearing in mind that the existing overland flowpaths are for a rainfall event with a 1 in 1000-year annual probability of occurrence, we will require that the exceedance flow routes within the development are appropriately assessed, in accordance with the proposed ground levels, to ensure property and infrastructure would not be adversely affected and. However, blocking these overland flowpaths will increase flood risk at Petersfield Rd which is already at surface water flood risk (including during rainfall events with a 1 in 30 annual probability of occurrence). Therefore, we will require that existing ground levels within the overland flowpaths are retained as much as possible, especially close to Bartons Rd to Martins Rd, to ensure no displacement of flood water.

We will also require that finished ground floor levels of any residential development should be sufficient to ensure that surface water does not pose a flood risk in the 1 in 100-year event plus 40% climate change allowance.

I have also provided an extract of the 1 in 100 year surface water floodplain below. As you can see, there is only a small part of the site impacted by this. Are your comments above suggesting that we need to make an allowance for the 1 in 1000 year flow paths through the site?

As you know, the former building has been demolished and levels/flow paths on site are likely to change. We can try to ensure that the levels on the boundaries where the 1 in 1000 flow path enters the site are kept as close to existing as possible and then allow a route through the site. The ground levels fall in a southerly direction, so therefore the flows paths will do the same, similar to existing conditions. Will you be satisfied if we show these by some arrows on the site layout plan informed by the proposed site levels?

We don't have any flood levels for the 1 in 100 plus 40% climate change surface water flood event to inform finished ground floor levels. We would normally recommend that these floor levels are elevated by 150mm above surrounding ground level. Please can you confirm if that is adequate?

Medium risk: depth



Surface water flood risk: water depth in a medium risk scenario

Flood depth (millimetres)

Over 900mm 300 to 900mm Below 300mm

Please note that we have undertaken infiltration testing and this was not successful. Therefore, water will need to be disposed to the surface ware sewer that passes alongside the site. It is understood that the former site also disposed surface water to the public sewer and given its brownfield nature, it would seem more reasonable to discharge at a brownfield rate with a betterment imposed – we would normally adopt a 30% betterment. Please can you comment on this? We'd obviously need to agree this with Southern Water subsequently.

Regards, Nick

Nick Bosanko

Associate Director

0117 203 5240 (T) 07947 220 321

5th Floor, 4 Colston Avenue, Bristol, BS1 4ST

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From: Lizzie Todd-Davies <Lizzie.Todd-Davies@vectos.co.uk>

Sent: 12 March 2020 15:08

To: Nick Bosanko <Nick.Bosanko@vectos.co.uk>

Subject: FW: Surface Water Management Pre-Application Advice/Historic Flood Information Request

Lizzie Todd-Davies

Assistant Flood Risk Consultant

0117 203 5240 (T) 0117 905 8888

5th Floor, 4 Colston Avenue, Bristol, BS1 4ST

From: FWM Statutory SWM Consultee mailbox <SWM.Consultee@hants.gov.uk>
Sent: 12 March 2020 09:25
To: Lizzie Todd-Davies <Lizzie.Todd-Davies@vectos.co.uk>
Cc: FWM Statutory SWM Consultee mailbox <SWM.Consultee@hants.gov.uk>
Subject: RE: Surface Water Management Pre-Application Advice/Historic Flood Information Request

Good morning Lizzie,

Please find attached our Pre-app advice.

If you have any questions, please do not hesitate to contact me on the details below.

Kind regards,
Santi

Santiago Manzanero
Flood and Water Management Engineer
01962 846777
Santi.Manzanero@hants.gov.uk

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From: Lizzie Todd-Davies <Lizzie.Todd-Davies@vectos.co.uk>
Sent: 11 March 2020 16:41
To: FWM Statutory SWM Consultee mailbox <SWM.Consultee@hants.gov.uk>
Subject: FW: Surface Water Management Pre-Application Advice/Historic Flood Information Request

Good afternoon,

Following our discussions over the phone, please find attached a site layout plan (9303-100.pdf) in relation to our pre-application and historic flood information request.

Pre-application reference number is **102656934**.

If you need any further information, then please do not hesitate to get back in touch.

We look forward to your reply.

Best wishes,
Lizzie.

Lizzie Todd-Davies
Assistant Flood Risk Consultant



0117 203 5240 (T) 0117 905 8888
Lizzie.Todd-Davies@vectos.co.uk

5th Floor, 4 Colston Avenue, Bristol, BS1 4ST



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From: C4C Technical Team (DO NOT REPLY) <donotreply@hants.gov.uk>

Sent: 03 March 2020 11:42

To: Lizzie Todd-Davies <Lizzie.Todd-Davies@vectos.co.uk>

Subject: Surface Water Management Pre-Application Advice/Historic Flood Information Request



Dear Sir or Madam,

Thank you for completing a Surface Water Management Pre-Application Advice/Historic Flood Information Request, a copy of which is attached.

Your reference number is: **102656934**

We endeavour to process these applications within 2 calendar months of receiving a complete application and payment.

If you have any queries please contact us:

General enquiries: 01962 846730

Email: owc@hants.gov.uk

Website: <https://www.hants.gov.uk/landplanningandenvironment/environment/flooding/floodriskarea>

www.hants.gov.uk

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APPENDIX H RAINFALL INTENSITY CALCULATION

Unit 704
The Paintworks
Bristol BS4 3EH

Date 06/07/2020 10:14

Designed by Lizzie.Todd-Davies

File 195104 Havant Brownfiel...

Checked by

XP Solutions

Source Control 2019.1



Rainfall profile

Storm duration (mins) 60

FSR Data

Region England and Wales

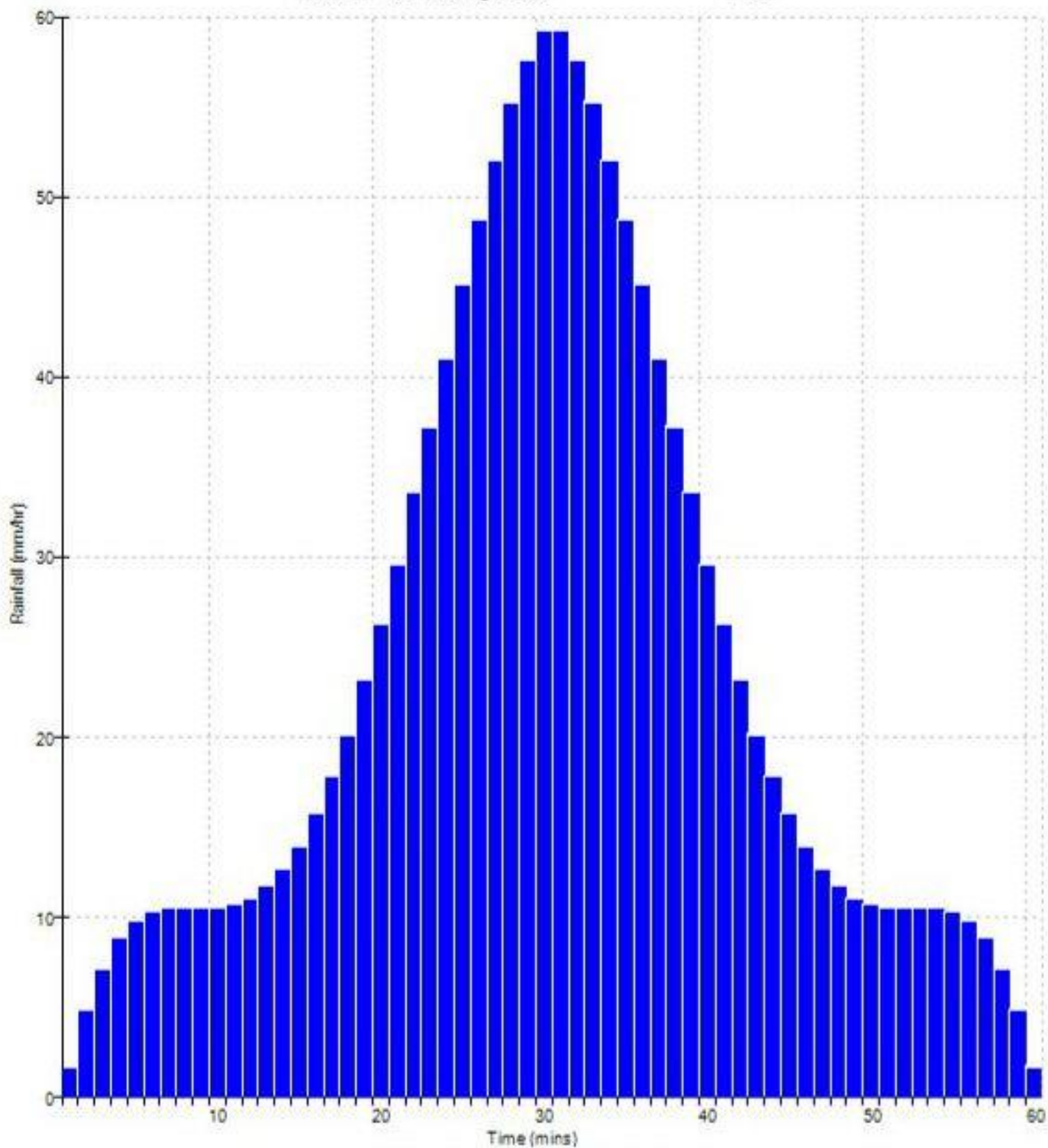
M5-60 (mm) 19.600

Ratio R 0.346

Peak Intensity (mm/hr) 59.156

Ave. Intensity (mm/hr) 23.519

Return Period (years) 10.0



APPENDIX I PRELIMINARY SURFACE WATER DRAINAGE STRATEGY



ATTENUATION TANK
CL: 20.6M AOD
IL: 18.8M AOD
DIMENSIONS: (W) 7.5M (L) 14M (D) 1.2M
POROSITY: 95%
VOLUME: 120M³

CONNECTION INTO EXISTING
SURFACE WATER SEWER
IL (INTERPOLATED): 18.7M AOD

Garage

Subway

CONNECTION INTO EXISTING
SURFACE WATER SEWER
IL (INTERPOLATED): 17.7M AOD

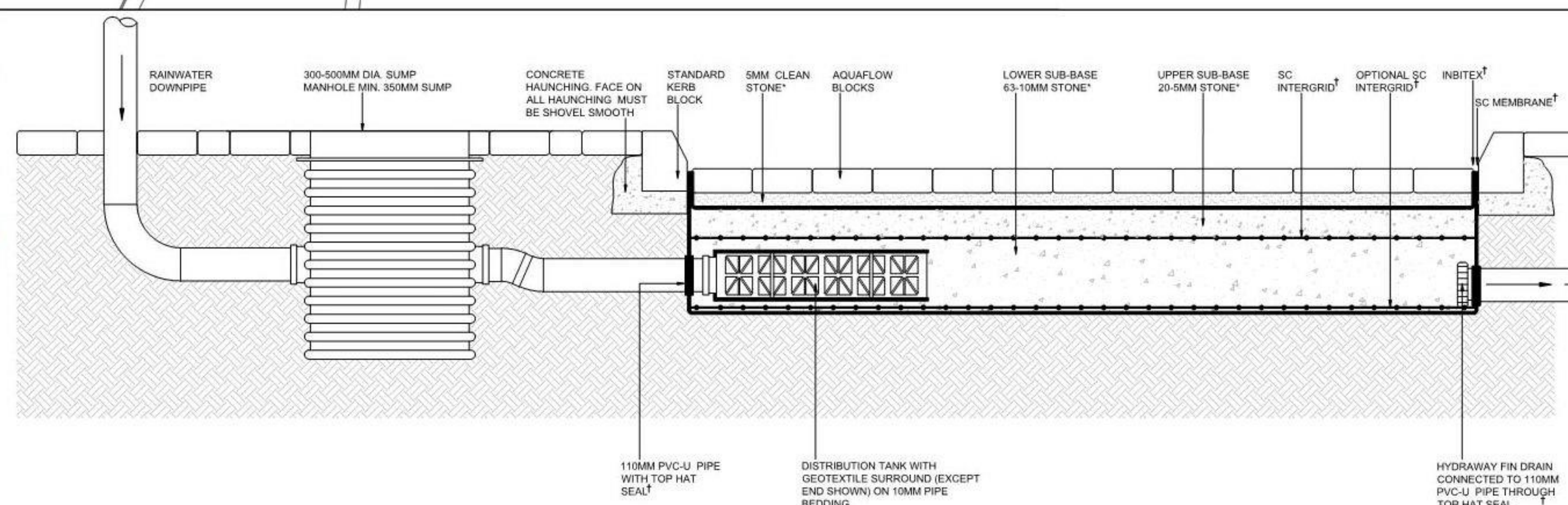
18.3m

PERMEABLE PAVING 1
AREA: 700M²
ATTENUATION DEPTH: 0.5M
PAVING DEPTH: 0.13M
TOTAL CONSTRUCTION DEPTH: 0.63M
POROSITY: 30%
VOLUME: 105M³

PERMEABLE PAVING 2
AREA: 990M²
ATTENUATION DEPTH: 0.77M
PAVING DEPTH: 0.13M
TOTAL CONSTRUCTION DEPTH: 0.90M
POROSITY: 30%
VOLUME: 229M³

SURFACE WATER MANHOLE SCHEDULE

NETWORK	MH NAME	MH COVER LEVEL	MH INVERT LEVEL
1	SW1.1	21.600	20.300
1	SW1.2	20.900	19.600
1	SW1.3	20.700	19.275
1	SW1.4	20.400	18.900
1	SW1.5	19.800	18.300
1	SW1.6	19.400	18.175
1	SW1.7	19.200	18.075
1	SW1.8	19.600	18.000
1	SW1.9	18.700	17.800
2	SW2.1	20.600	19.175
2	SW2.2	20.800	19.099
2	SW2.3	20.820	19.024



TYPICAL FORMPAVE STORMWATER SOURCE CONTROL SYSTEM

DOWNPIPE DRAINAGE INTO TANKED SYSTEM - SECTION
SCALE 1:10

NOTES:

1. DRAINAGE IS NOT SUITABLE FOR CONSTRUCTION AND IS SUBJECT TO DETAILED DESIGN AND PROPOSED SITE LEVELS.
2. ALL PRIVATE DRAINAGE WORKS TO BE CARRIED OUT IN ACCORDANCE WITH BUILDING REGULATIONS PART H TO COMPLY WITH BS EN-752 DRAIN AND SEWER SYSTEMS OUTSIDE BUILDINGS AND OTHER RELEVANT BRITISH STANDARDS AND CODES OF PRACTICES.
3. INTERNAL DRAINAGE TO BE DESIGNED BY OTHERS.
4. ALL PRIVATE DRAINAGE WORKS DRAINAGE DESIGNED TO THE 100 YEAR PLUS 40% CLIMATE CHANGE ALLOWANCE.
5. COVER LEVELS ASSUMED USING EXISTING TOPOGRAPHIC SURVEY. EXTERNAL LEVELS SHOWN ARE EXISTING.
6. EXISTING SERVICES ARE FROM THIRD PARTY SOURCES AND ARE SUBJECT TO CONFIRMATION ON SITE.
7. LOCAL LAND RAISING MAY BE REQUIRED TO OBTAIN MINIMUM COVER DEPTHS.
8. ALL LEVELS ARE TO OS DATUM.
9. PETROL INTERCEPTORS NOT REQUIRED DUE TO THE PRESENCE OF PERVIOUS PAVING AND FILTER DRAIN (IN ACCORDANCE WITH INTERPAVE GUIDANCE).
10. TO BE READ IN CONJUNCTION WITH VECTOS FLOOD RISK ASSESSMENT (JULY 2020) AND OTHER SUPPORTING DOCUMENTATION.

KEY:-

- SITE BOUNDARY
- EXISTING FOUL WATER SEWER
- EXISTING SURFACE WATER SEWER
- FORMPAVE PERMEABLE PAVING
- ATTENUATION TANK
- FILTER DRAIN
- PROPOSED SURFACE WATER DRAIN
- CONTROL CHAMBER
- HYDROWAY FIN DRAIN
- SEDIMENT TRAP
- EXCEEDANCE FLOW PATH

REV. DETAILS. DRAWN. CHECKED. DATE.

STATUS:

INFORMATION ONLY

CLIENT:

FORTITUDO LIMITED

PROJECT:

BARTONS ROAD, HAVANT

DRAWING TITLE:

PRELIMINARY SURFACE WATER
DRAINAGE STRATEGY

SCALES:

1:500 @ A1

DRAWN: JE. CHECKED: NB. DATE: JULY 2020



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DRAWING NUMBER:

195104_PDL_01

REVISION: