

PROJECT : Havant
PROJECT NO : 9591
CLIENT : Marbank

PLANNING CONDITION APPROVAL

Planning Application No : App/18/00287

Planning Conditions No. 7 & 8

Condition 7:

Notwithstanding details provided in the amended Drainage Impact Assessment and Drainage Strategy V2, no above ground construction shall commence until plans and particulars specifying the layout, depth and capacity of all foul and surface water drains and sewers proposed to serve the same, details of any other proposed ancillary drainage works/ plant (e.g. pumping stations) and measures which will be undertaken to protect the public sewers have been submitted to and approved in writing by the Local Planning Authority. Unless agreed otherwise in writing by the Local Planning Authority, the development hereby permitted shall not be brought into use prior to the completion of the implementation of all such drainage provision in full accordance with such plans and particulars as are thus approved by the Authority.

Reason:

To safeguard the amenities of the locality and ensure that all such drainage provision is constructed to an appropriate standard and quality and having due regard to policies and proposals CS16 and DM10 of the Havant Borough Local Plan (Core Strategy) 2011 and the National Planning Policy Framework.

Condition 7:

No above ground development shall commence until details relating to the following have been submitted to and agreed by the Local Planning Authority:

- evidence that the correct level of water treatment has been provided in accordance with the Ciria Suds manual C753.
- More detailed calculations to demonstrate that the proposals are sufficient.
- Further information relating to exceedance routing which should demonstrate how water flows around the site if storms exceeding design criteria or blockages occur.

Reason:

To safeguard the amenities of the locality and ensure that all such drainage provision is constructed to an appropriate standard and quality and having due regard to policies and proposals CS16 and DM10 of the Havant Borough Local Plan (Core Strategy) 2011 and the National Planning Policy Framework.

Submission	Date	Author	Details
01	20.08.18	SN	First Submission
02	12.09.18	SN	Drainage Drawing amended to suit revised site layout

Response:

SURFACE WATER

In response to planning condition 7& 8 please refer to drainage general arrangement drawing which provides detailed design for the surface and foul water network.

The surface water drainage network is a gravity system prior to discharging into the attenuation then will be pumped into watercourse. The surface water has been designed in accordance with the requirements of BS EN 752:2008 namely no surcharging during a critical storm event of 1 in 2 years return period and no exceedance flooding during a critical storm event of 1 in 30 years return period. In addition, in accordance with the Environment Agency's requirements, the flows and volumes produced from critical storm events in excess of 1 in 30 years up to 1 in 100 years return period, plus a 20% allowance for climate change, have been assessed.

In accordance with the requirements of NPPF (National Planning Policy Framework), and accompanying Planning Practice Guidance, a review of the development site was undertaken for the use of suitable SUD's techniques. As a result, a below ground modular geo-void tank is proposed to balance the flow.

A by-pass oil separator has been provided for pollution control prior to surface water discharging into existing ditch. All separators to be in accordance with BS EN 858-1.

FOUL WATER

The foul water system has been designed to drain by gravity and then will have a pump system to discharge into an existing lateral public sewer.

Supporting Information Submitted:

- HF-PTA-ZA-XX-DR-C-9100-Drainage General Arrangement.
- HF-PTA-ZA-XX-DR-C-9015-Surface Water Exceedance Layout
- Micro-Drainage Simulation Calculation
- Pump Details

Submission Issued to:

Marbank Construction Limited
Jerry Chinn
Gill Lawton

Jerrychinn@marbank.co.uk
gillawton@marbank.co.uk

Notes:

1. Do not make use of this drawing.
2. Do not scale from this drawing.
3. Do not refer to this drawing in drawings, studies or bills, or refer to engineers for conditions unrelated decisions by the Architect.
4. This drawing is to be used in conjunction with all related Architects, Consultants & Sub-Contractors drawings and specifications.
5. The Contractor is to read and understand all drawings and conditions to be met and to be aware of any discrepancies or omissions reported directly to PFA Client Department.
6. The Contractor must obtain the written approval of the Architect prior to alteration of any drawings, unless otherwise agreed, to ensure the project is completed to PFA Client Department.
7. All drawings are to be submitted to the Architect for approval.
8. All external building dimension prior to be checked against the Architects drawing dimension to all construction commencing.
9. Approved on 10/10/2019 by PFA Client Department
10. Background Topographical survey is based on Topographic Survey, & BM data dated 12.00.2018.
11. Representation of Existing plant and soil is based on information received dated 15.04.2018 and 26.04.2018 information from PFA Client Department.
12. For drawing information refer to drawing 0501-09-10-25 & 10-31
13. For Machine Schedule refer to drawing

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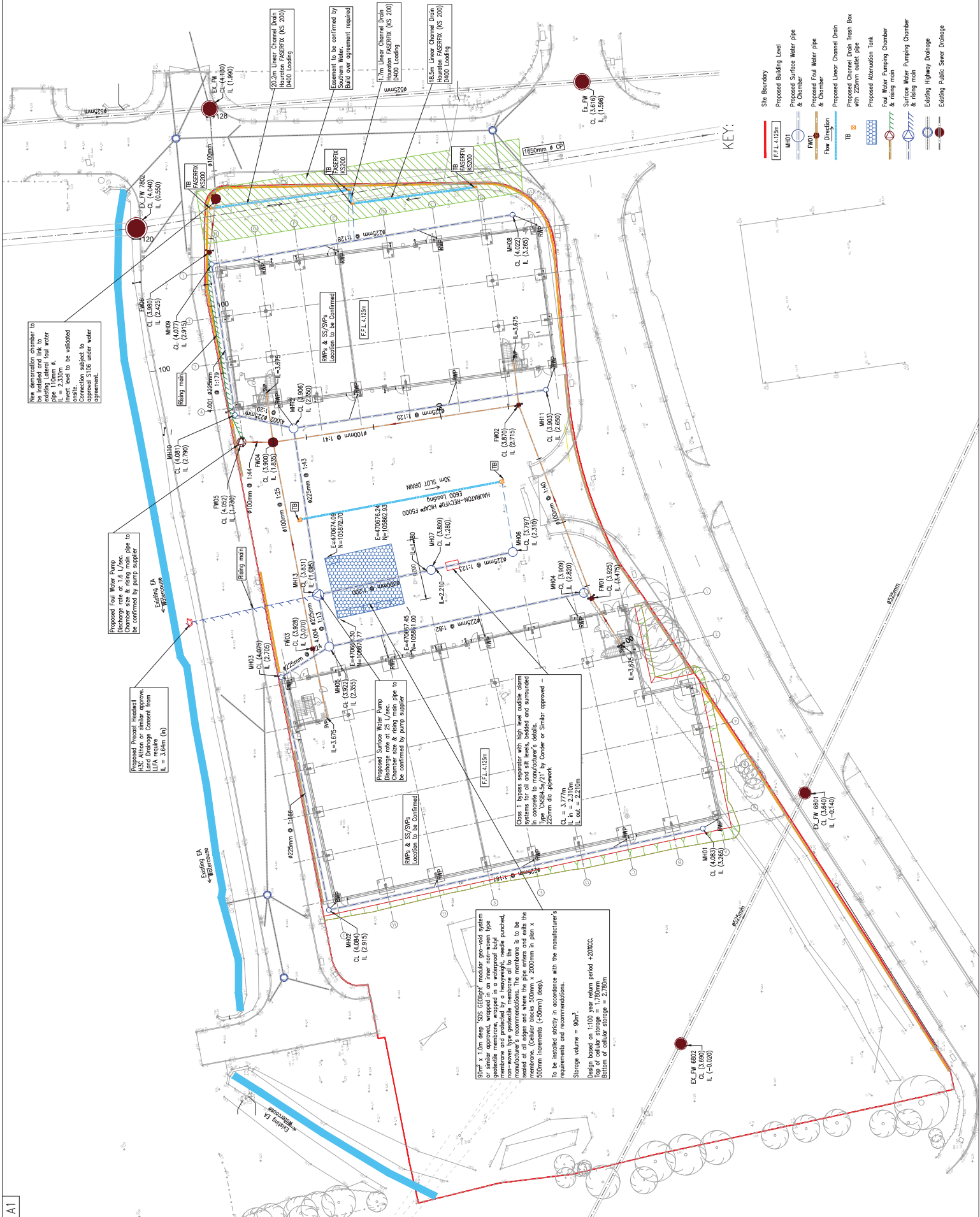
Growing Status
FOR CONSTRUCTION
SUBJECT TO THE FOLLOWING:-

	B	Drainage layout amended to suit Architect Plan	S/N	12.09.18SL
	A	Issue for Construction	S/N	30.08.18SL
	-	First Issue	S/N	25.05.18SL
	Rev.	Description	By	Date CHK

Project title
Harts Farm Way
Havant

Drawing Title
Drainage General Arrangement
Layout

Date	May 2018	Checked DO	Checked ENG
Drawn	SN	SN	SLW
Scale	1 : 250		
Project No.		Drawing No.	Rev.
9591		9100	B

[illegible]

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Manhole Schedules for Storm											
MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
S1	4.083	0.818	Open Manhole	600	S1.000	3.265	225				
S2	4.084	1.169	Open Manhole	600	S1.001	2.915	225	S1.000	2.915	225	
S3	4.075	1.370	Open Manhole	600	S1.002	2.705	225	S1.001	2.705	225	
S4	3.925	1.105	Open Manhole	1200	S2.000	2.820	225				
S5	3.922	1.567	Open Manhole	1200	S1.003	2.355	225	S1.002	2.355	225	
S6	3.797	1.487	Open Manhole	1200	S3.000	2.310	225	S2.000	2.355	225	
S7	3.809	2.029	Open Manhole	1500	S3.001	1.780	300	S3.000	2.210	225	355
S8	4.022	0.757	Open Manhole	600	S4.000	3.265	225				
S9	4.077	1.162	Open Manhole	600	S4.001	2.915	225	S4.000	2.915	225	
S10	4.081	1.291	Open Manhole	600	S4.002	2.790	225	S4.001	2.790	225	
S11	3.903	1.253	Open Manhole	600	S5.000	2.650	225				
S12	3.906	1.556	Open Manhole	1200	S4.003	2.350	225	S4.002	2.350	225	
S13	3.831	2.136	Open Manhole	1500	S1.004	1.695	300	S5.000	2.350	225	
S	4.040	2.415	Open Manhole	0		OUTFALL		S1.003	1.770	225	
								S3.001	1.695	300	
								S4.003	1.770	225	
								S1.004	1.625	300	

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PIPELINE SCHEDULES for Storm								
Upstream Manhole								
PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S1.000	o	225	S1	4.083	3.265	0.593	Open Manhole	600
S1.001	o	225	S2	4.084	2.915	0.944	Open Manhole	600
S1.002	o	225	S3	4.075	2.705	1.145	Open Manhole	600
S2.000	o	225	S4	3.925	2.820	0.880	Open Manhole	1200
S1.003	o	225	S5	3.922	2.355	1.342	Open Manhole	1200
Downstream Manhole								
PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S1.000	58.769	167.9	S2	4.084	2.915	0.944	Open Manhole	600
S1.001	34.910	166.2	S3	4.075	2.705	1.145	Open Manhole	600
S1.002	8.384	24.0	S5	3.922	2.355	1.342	Open Manhole	1200
S2.000	38.938	83.7	S5	3.922	2.355	1.342	Open Manhole	1200
S1.003	7.805	13.3	S13	3.831	1.770	1.836	Open Manhole	1500
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PIPELINE SCHEDULES for Storm								
Upstream Manhole								
PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S3.000	o	225	S6	3.797	2.310	1.262	Open Manhole	1200
S3.001	o	300	S7	3.809	1.780	1.729	Open Manhole	1500
S4.000	o	225	S8	4.022	3.265	0.532	Open Manhole	600
S4.001	o	225	S9	4.077	2.915	0.937	Open Manhole	600
S4.002	o	225	S10	4.081	2.790	1.066	Open Manhole	600
S5.000	o	225	S11	3.903	2.650	1.028	Open Manhole	600
Downstream Manhole								
PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S3.000	12.275	122.8	S7	3.809	2.210	1.374	Open Manhole	1500
S3.001	17.010	200.1	S13	3.831	1.695	1.836	Open Manhole	1500
S4.000	47.840	136.7	S9	4.077	2.915	0.937	Open Manhole	600
S4.001	22.307	178.5	S10	4.081	2.790	1.066	Open Manhole	600
S4.002	8.948	20.3	S12	3.906	2.350	1.331	Open Manhole	1200
S5.000	38.458	128.2	S12	3.906	2.350	1.331	Open Manhole	1200
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PIPELINE SCHEDULES for Storm							
Upstream Manhole							
PN	Hyd Sect	Diam (mm)	MH C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S4.003	o	225	3.906	2.350	1.331	Open Manhole	1200
S1.004	o	300	3.831	1.695	1.836	Open Manhole	1500
Downstream Manhole							
PN	Length (m)	Slope (1:X)	MH C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S4.003	24.700	42.6	S13	3.831	1.770	1.836 Open Manhole	1500
S1.004	19.082	272.6	S	4.040	1.625	2.115 Open Manhole	0
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Area Summary for Storm						
Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	Classification	Building Roof Areas	100	0.049	0.049	0.049
1.001	Classification	Building Roof Areas	100	0.049	0.049	0.049
1.002	Classification	Building Roof Areas	100	0.048	0.048	0.048
2.000	Classification	Building Roof Areas	100	0.040	0.040	0.040
1.003	-	-	100	0.000	0.000	0.000
3.000	Classification	Road	100	0.186	0.186	0.186
3.001	-	-	100	0.000	0.000	0.000
4.000	Classification	Building Roof Areas	100	0.025	0.025	0.025
4.001	Classification	Road	100	0.014	0.014	0.039
	Classification	Building Roof Areas	100	0.025	0.025	0.025
	Classification	Road	100	0.020	0.020	0.045
4.002	Classification	Building Roof Areas	100	0.025	0.025	0.025
5.000	Classification	Building Roof Areas	100	0.025	0.025	0.025
4.003	-	-	100	0.000	0.000	0.000
1.004	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				0.504	0.504	0.504

Micro Drainage

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Simulation Criteria for Storm Volumetric Runoff Coeff 0.750 Manhole Headloss Coeff (Global) 0.500 Inlet Coeffiecient 0.800 Areal Reduction Factor 1.000 Foul Sewage per hectare (l/s) 0.000 Flow per Person per Day (l/per/day) 0.000 Hot Start (mins) 0 Additional Flow - % of Total Flow 0.000 Run Time (mins) 60 Hot Start Level (mm) 0 MADD Factor * 10m³/ha Storage 2.000 Output Interval (mins) 1 Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0 Number of Online Controls 1 Number of Storage Structures 1 Number of Real Time Controls 0 Synthetic Rainfall Details Rainfall Model FSR M5-60 (mm) 19.600 Cv (Summer) 0.750 Return Period (years) 2 Ratio R 0.350 Cv (Winter) 0.840 Region England and Wales Profile Type Summer Storm Duration (mins) 30			

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Online Controls for Storm Pump Manhole: S13, DS/PN: S1.004, Volume (m³): 6.1 Invert Level (m) 1.695 <table><thead><tr><th>Depth (m)</th><th>Flow (l/s)</th><th>Depth (m)</th><th>Flow (l/s)</th><th>Depth (m)</th><th>Flow (l/s)</th><th>Depth (m)</th><th>Flow (l/s)</th><th>Depth (m)</th><th>Flow (l/s)</th></tr></thead><tbody><tr><td>0.200</td><td>25.0000</td><td>1.200</td><td>25.0000</td><td>2.200</td><td>25.0000</td><td>3.200</td><td>25.0000</td><td>4.200</td><td>25.0000</td></tr><tr><td>0.400</td><td>25.0000</td><td>1.400</td><td>25.0000</td><td>2.400</td><td>25.0000</td><td>3.400</td><td>25.0000</td><td>4.400</td><td>25.0000</td></tr><tr><td>0.600</td><td>25.0000</td><td>1.600</td><td>25.0000</td><td>2.600</td><td>25.0000</td><td>3.600</td><td>25.0000</td><td>4.600</td><td>25.0000</td></tr><tr><td>0.800</td><td>25.0000</td><td>1.800</td><td>25.0000</td><td>2.800</td><td>25.0000</td><td>3.800</td><td>25.0000</td><td>4.800</td><td>25.0000</td></tr><tr><td>1.000</td><td>25.0000</td><td>2.000</td><td>25.0000</td><td>3.000</td><td>25.0000</td><td>4.000</td><td>25.0000</td><td>5.000</td><td>25.0000</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>5.200</td><td>25.0000</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>5.400</td><td>25.0000</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>5.600</td><td>25.0000</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>5.800</td><td>25.0000</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>6.000</td><td>25.0000</td></tr></tbody></table>				Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	0.200	25.0000	1.200	25.0000	2.200	25.0000	3.200	25.0000	4.200	25.0000	0.400	25.0000	1.400	25.0000	2.400	25.0000	3.400	25.0000	4.400	25.0000	0.600	25.0000	1.600	25.0000	2.600	25.0000	3.600	25.0000	4.600	25.0000	0.800	25.0000	1.800	25.0000	2.800	25.0000	3.800	25.0000	4.800	25.0000	1.000	25.0000	2.000	25.0000	3.000	25.0000	4.000	25.0000	5.000	25.0000									5.200	25.0000									5.400	25.0000									5.600	25.0000									5.800	25.0000									6.000	25.0000
Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)																																																																																																								
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Storage Structures for Storm							
Tank or Pond Manhole: S13, DS/PN: S1.004							
Invert Level (m) 1.695							
Depth (m)	Area (m²)	Depth (m)	Area (m²)	Depth (m)	Area (m²)		
0.000	90.0	0.500	90.0	1.000	90.0	1.001	0.0
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1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm			
Simulation Criteria			
Areal Reduction Factor 1.000 Manhole Headloss Coeff (Global) 0.500 MADD Factor * 10m³/ha Storage 2.000			
Hot Start (mins) 0 Foul Sewage per hectare (l/s) 0.000 Inlet Coefficient 0.800			
Hot Start Level (mm) 0 Additional Flow - % of Total Flow 0.000 Flow per Person per Day (l/per/day) 0.000			
Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0			
Number of Online Controls 1 Number of Storage Structures 1 Number of Real Time Controls 0			
Synthetic Rainfall Details			
Rainfall Model FSR M5-60 (mm) 19.300 Cv (Summer) 0.750			
Region England and Wales Ratio R 0.345 Cv (Winter) 0.840			
Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF			
Analysis Timestep 2.5 Second Increment (Extended) Inertia Status OFF			
DTS Status ON			
Profile(s)			
Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880,			
Return Period(s) (years) 4320, 5760, 7200, 8640, 10080			
Climate Change (%) 1, 30, 100			
0, 0, 20			
US/MH	Return Climate First (X) First (Y) First (Z)	Water Surcharged Flooded	Pipe
PN Name	Storm Period Change Surge Flood Overflow Act.	Level (m) Depth (m) Volume (m³) Flow / Overflow (l/s) Cap. (l/s) Status Exceeded	Level
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<table><tr><th colspan="2"></th><th>US/MH</th><th>Level</th></tr><tr><th>PN</th><th>Name</th><th>Exceeded</th><th></th></tr><tr><td>S3.000</td><td>S6</td><td></td><td></td></tr><tr><td>S3.001</td><td>S7</td><td></td><td></td></tr><tr><td>S4.000</td><td>S8</td><td></td><td></td></tr><tr><td>S4.001</td><td>S9</td><td></td><td></td></tr><tr><td>S4.002</td><td>S10</td><td></td><td></td></tr><tr><td>S5.000</td><td>S11</td><td></td><td></td></tr><tr><td>S4.003</td><td>S12</td><td></td><td></td></tr><tr><td>S1.004</td><td>S13</td><td></td><td></td></tr></table>						US/MH	Level	PN	Name	Exceeded		S3.000	S6			S3.001	S7			S4.000	S8			S4.001	S9			S4.002	S10			S5.000	S11			S4.003	S12			S1.004	S13		
		US/MH	Level																																								
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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm			
Simulation Criteria			
Areal Reduction Factor 1.000 Manhole Headloss Coeff (Global) 0.500 MADD Factor * 10m³/ha Storage 2.000			
Hot Start (mins) 0 Foul Sewage per hectare (l/s) 0.000 Inlet Coefficient 0.800			
Hot Start Level (mm) 0 Additional Flow - % of Total Flow 0.000 Flow per Person per Day (l/per/day) 0.000			
Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0			
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Synthetic Rainfall Details			
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Region England and Wales Ratio R 0.345 Cv (Winter) 0.840			
Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF			
Analysis Timestep 2.5 Second Increment (Extended) Inertia Status OFF			
DTS Status ON			
Profile(s)			
Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880,			
Return Period(s) (years) 4320, 5760, 7200, 8640, 10080			
Climate Change (%) 1, 30, 100			
0, 0, 20			
US/MH	Return Climate First (X) First (Y) First (Z)	Water Surcharged Flooded	Pipe
PN Name Storm Period Change Surge	Flood Overflow Act.	Level (m) Depth (m) Volume (m³) Flow / Overflow (l/s) Cap. (l/s) Status Exceeded	Flow Level
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29 Red Lion Street Chesham Bucks HP5 1EJ		Havant	
Date 12/09/2018 11:56 File SW00.MDX		Designed by SN Checked by	
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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm			
Simulation Criteria			
Areal Reduction Factor 1.000		Manhole Headloss Coeff (Global) 0.500	MADD Factor * 10m ³ /ha Storage 2.000
Hot Start (mins) 0		Foul Sewage per hectare (l/s) 0.000	Inlet Coefficient 0.800
Hot Start Level (mm) 0		Additional Flow - % of Total Flow 0.000	Flow per Person per Day (l/per/day) 0.000
Number of Input Hydrographs 0		Number of Offline Controls 0	Number of Time/Area Diagrams 0
Number of Online Controls 1		Number of Storage Structures 1	Number of Real Time Controls 0
Synthetic Rainfall Details			
Rainfall Model		FSR M5-60 (mm) 19.300	Cv (Summer) 0.750
Region England and Wales		Ratio R 0.345	Cv (Winter) 0.840
Margin for Flood Risk Warning (mm)		300.0	DVD Status OFF
Analysis Timestep 2.5 Second Increment (Extended)		Inertia Status OFF	
DTS Status		ON	
Profile(s)			Summer and Winter
Duration(s) (mins)		15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880,	
Return Period(s) (years)		4320, 5760, 7200, 8640, 10080	
Climate Change (%)		1, 30, 100	
		0, 0, 20	
US/MH	Return Climate First (X) First (Y) First (Z) Overflow Act.	Water Surcharged Flooded Level (m)	Pipe Level
PN Name Storm Period Change Surge	Flood Overflow	Volume Flow / Overflow Cap. (m ³) (l/s)	Status Exceeded
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Site Location : Havant

Project Number: 9591

1. Performance Specification for Surface Water Pump

Location: External Yard

Status: Private

Usage: Surface Water

24hr Storage: None required

Chamber: RC Chamber (please confirm minimum size and sump depth)

Inlet: 1x300mm $\varnothing$ at invert level of 1.695m

(+Vent pipe / Power & sensors ducts) – Refer to Drawing: HF-PTA-ZA-XX-DR-C-9100

Sump Invert : TBC

Discharge Invert Level: 3.64m

Pumping Horizontal Distance: 18.3m

Rising Main: MDPE SDR17 to BSEN 12201 (Black) size subject to pump design

Pumping Rate: Max rate 25 l/s

Number of Pumps: 2 (duty and standby)

Power Supply: TBC

Control Panel: TBC

Alarm System: Audible/ Visible alarm – TBC

Cover Type: E600 to BS EN 124

2. Performance Specification for Foul Water Pump

Location: Basement Plant Room

Status: Private

Usage: Grey Water

24hr Storage: None required

Chamber: RC Chamber (please confirm minimum size and sump depth)

Inlet: 1x150mmø at invert level of 1.730m

(+Vent pipe / Power & sensors ducts) – Refer to Drawing: HF-PTA-ZA-XX-DR-C-9100

Sump Invert: TBC

Discharge Invert Level: approx. 2.54m

Pumping Horizontal Distance: 24.1m

Rising Main: MDPE SDR17 to BSEN 12201 (Black) size subject to pump design

Pumping Rate: Max rate 1.6 l/s

Number of Pumps: 1 (duty)

Power Supply: TBC

Control Panel: TBC

Alarm System: Audible/ Visible alarm – TBC

Cover Type: E600 to BS EN 124

Pump and rising main to be able to withstand temperature up to 90°C