



Technical Note

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**Land West of the Havant Crematorium, Barton Road, Havant
18-055-008 Rev -**

Technical Note: Surface Water Drainage

May 2019

Rev	Issue Purpose	Author	Checked	Reviewed	Approved	Date
-	Clarification to LLFA	SPS	SC	SPS	GAC	01/05/2019

1 Background

- 1.1.1 A flood risk assessment (FRA) was submitted to Havant Borough Council (HBC) in December 2018 in support of an outline planning application (ref. APP/19/00007) for a development at the above location.
- 1.1.2 Following the submission of information in December 2018, comments were received from the Hampshire County Council's (HCC) Sustainable Drainage team requesting further information. For clarity, HCC letter is included within **Annex A** of this report.
- 1.1.3 C & A contacted HCC's SuDS officer on 1st May 2019 to discuss the content of the HCC response. Subsequently, C & A sent an email response confirming the matters agreed (please see **Annex B** for C & A email response).
- 1.1.4 This technical note seeks to address the queries raised by HCC on the Drainage Assessment.

2 HCC's concerns

- 2.1.1 In their response, HCC requested further information on the following.
- A. 1) Evidence that the applicant understands the sensitivity of discharge points relating to the receiving water body. The drawings indicate outfall into existing ditch/watercourse. An Ordinary Watercourse Consent may be required for this connection. Applicant to provide evidence of*



correspondence with the relevant parties regarding this. 2) Confirmation of the condition of the existing watercourse, is any maintenance required downstream of connection point to ensure flows are achievable as set out in the report and calculations.

- B. Exceedance Flow flows are considered in the event of the pipe being non-operational. Evidence that exceedance flows and runoff in excess of design criteria have been considered- calculations and plans should be provided to shows where above ground flooding might occur and where this would pool and flow.*
- C. Evidence that Urban Creep has been considered in the application and 10% increase in impermeable area has been used in calculations to account for this.*

3 C & A Clarification

Point A: 1) sensitivity of discharge points

- 3.1.2 As indicated within the surface water drainage strategy plan included within the submitted FRA, surface water outfall from the developed site will be connected into the existing ditch located at the western boundary of the site.
- 3.1.3 We have discussed the importance of '**Ordinary Watercourse Consent**' with HCC. It is agreed that it is not necessary to apply for a 'Ordinary Watercourse Consent' at this stage, however a request for a Consent' will be made once the planning is granted.

Point A: 2) Confirmation of the condition of the existing watercourse.

- 3.1.4 It should be noted that the runoff from the proposed development will be attenuated within the proposed SuDS system ensuring that the surface water runoff is discharged into the ditch at a rate similar to the existing Greenfield runoff rate (i.e. Qbar).
- 3.1.5 The use of Qbar as the discharge restriction for higher order storm events will provide significant betterment to the existing situation. For a 1 in 100-year return period, the run-off rate from the developed area of the site will be approximately 40% of the pre-development. This equates to an approximate 60% betterment.
- 3.1.6 Considering above, it can be concluded that the proposed site discharge has a positive impact on the capacity of the receiving watercourse (i.e. ditch), in fact the reduction in site discharges will provide betterment to the downstream river system.

Point B: Exceedance Flow Plan

- 3.1.7 A residual risk remains that an event exceeding the design parameters used for the drainage system may occur, or part of the drainage system may fail due to a blockage. The finished site levels will be designed to ensure that there is no risk of floodwaters ponding to a significant depth and the overland flow path for any such exceedance storm event will be designed to take overland flow to open space areas.
- 3.1.8 The sensitivity test for a 40% allowance for climate change shows that attenuated run off is still contained within the storage features. There is however some minor flooding (totalling less than 5m³) from the piped system during these extreme conditions. This generally occurs adjacent to manholes on the road and adjacent to main attenuation features, which in the unlikely event of this occurring, any above ground flood water would flow along the road and eventually enter the gully downstream and to attenuation features (i.e. swale, basin).
- 3.1.9 If the drainage system is overwhelmed, either by a storm event with a magnitude greater than what it is designed for or due to a blockage, the designed finished site levels will ensure that there is no risk of surface waters ponding to a significant depth. Any exceedance flow would flow along the road and enter the gully downstream and eventually drain to the attenuation basin and to the swale located to the west and south of the development respectively. An indicative Exceedance Flow Route Plan is included in **Annex C** of this report.

Point C: Evidence for Urban Creep

- 3.1.10 The calculation provided within the FRA included a 10% allowance for urban creep. However, it was not mentioned within the main body of the FRA. For clarity, we have included a copy of the preliminary calculation worksheet as an Annex to this technical note (refer to **Annex D**).

4 Conclusion

- 4.1.1 This technical note has been prepared to provide the additional information requested by HCC and also to provide clarification on existing/proposed drainage condition.
- 4.1.2 It is anticipated that the provision of additional information would satisfy HCC's requirement and more importantly support the decision-making process to make a recommendation for the grant of planning permission with regards to flood risk and surface water drainage.

Annex A:
HCC correspondence



Hampshire County Council

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Enquiries to	Vicki Westall	My reference	SWM/2019/0086
Direct Line	01962 846730	Your reference	19/00007/OUT
Date	19 February 2019	Email	swm.consultee@hants.gov.uk

Dear Sir/Madam,

Re: Response 1 - Outline Application for access with all other matters reserved, for up to 72 new homes plus associated green infrastructure including community orchard at Camp Field (land to the west of Havant Crematorium), Bartons Road, Havant

Hampshire County Council as Lead Local Flood Authority has provided comments in relation to the above 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:

- Flood Risk Assessment and Surface Water Drainage Strategy by C&A Consulting Engineers Ltd dated Dec 2018
- Site Investigation Report by Ground & Water Geotechnical and Environmental consultants dated June 2018
- Environmental Agency Flood Zone Mapping
- Indicative Surface Water Drainage Strategy dwg no. 17-055-031 Rev A by C&A Consulting Engineers Ltd dated Nov 2018
- Micro Drainage calculations (Source control and Network output data sheets) C&A Consulting Engineers Ltd dated Nov 2018

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

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

- Evidence that the applicant understands the **sensitivity of discharge points** relating to the receiving water body. The drawings indicate outfall into existing ditch/watercourse. An Ordinary Water Course consent maybe required for this connection. Applicant to provide evidence of correspondence with the relevant parties regarding this. Please see section at bottom of letter for works in relation to Ordinary Watercourses. Confirmation of the condition of existing watercourse, is any maintenance required downstream of connection point to ensure flows are achievable as set out in the report and calculations.
- Exceedance flows are considered in the event of the pipe being non-operational. Evidence that Exceedance flows and runoff in excess of design criteria have been considered - calculations and plans should be provided to show where above ground flooding might occur and where this would pool and flow.
- Evidence that **Urban Creep** has been considered in the application and that a **10% increase** in impermeable area has been used in calculations to account for this.

We require this further information before we can make a decision on whether to recommend to the Local Planning Authority that planning permission is granted.

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.

This is our **first response** to this consultation. If the above listed material is not supplied in full, a second response will be issued requesting the outstanding information. If the relevant documentation is not supplied following the second request we will recommend that the planning application be refused on the grounds of insufficient information.

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

For guidance on providing the correct information, we recommend you use our **Surface Water Management Pre-application service** which provides clear guidance on what is required for us to recommend that planning permission is granted and consider the works as best practise. For full details, please visit: <https://www.hants.gov.uk/landplanningandenvironment/environment/flooding/planning> and click on [pre-application advice request form](#).

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,

[Redacted Signature]

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 manor. For full information please visit:*
<https://www.hants.gov.uk/landplanningandenvironment/environment/flooding/WatercoursePreApplication>

Annex B:

C & A email Response

RE: consultee response -Ref: SWM/2019/0086

Saman Seekkubadu

Wed 01/05/2019 22:27

To: FWM Statutory SWM Consultee mailbox <SWM.Consultee@hants.gov.uk>;

Cc: Glenn Charles <gcharles@c-a.uk.com>; Sam Carson <scarson@c-a.uk.com>;

 1 attachments (575 KB)

APP_19_00007-CONSULTEE_COMMENT_-_HCC_FLOOD___WATER_MANAGEMENT-1159547.pdf;

FAO Vicki Westall

Dear Vicki,

I've had a telephone conversation with your colleague Sarah Today and discussed the content of your consultee response, **Ref: SWM/2019/0086** (attached for your reference). Main points discussed were;

1. Sensitivity of discharge points and Ordinary Watercourse Consent
2. Exceedance flows plan
3. Evidence for the inclusion of 'Urban Creep' within calculations

As agreed during the telephone conversation, we will submit the following additional information to the LPA and LLFA in due course.

- we have agreed to provide some clarification on the existing and proposed site discharge conditions (i.e. greenfield site with no change of proposed runoff rates) and it is agreed that this will be sufficient to address point 1 above. We also agreed that the 'Ordinary Watercourse Consent' is not required at this stage, however it is agreed that a request for 'Ordinary Watercourse Consent' to be made once the planning is granted.
- It is agreed to provide a plan to show the 'Exceedance flow routes'
- It is agreed to provide evidence for the inclusion of 'Urban Creep'

We will be aiming to submit this information COP Friday.

Kind regards

Saman Seekkubadu

BSc (Chem Eng), MSc Contam Land, FGS
Senior Engineer

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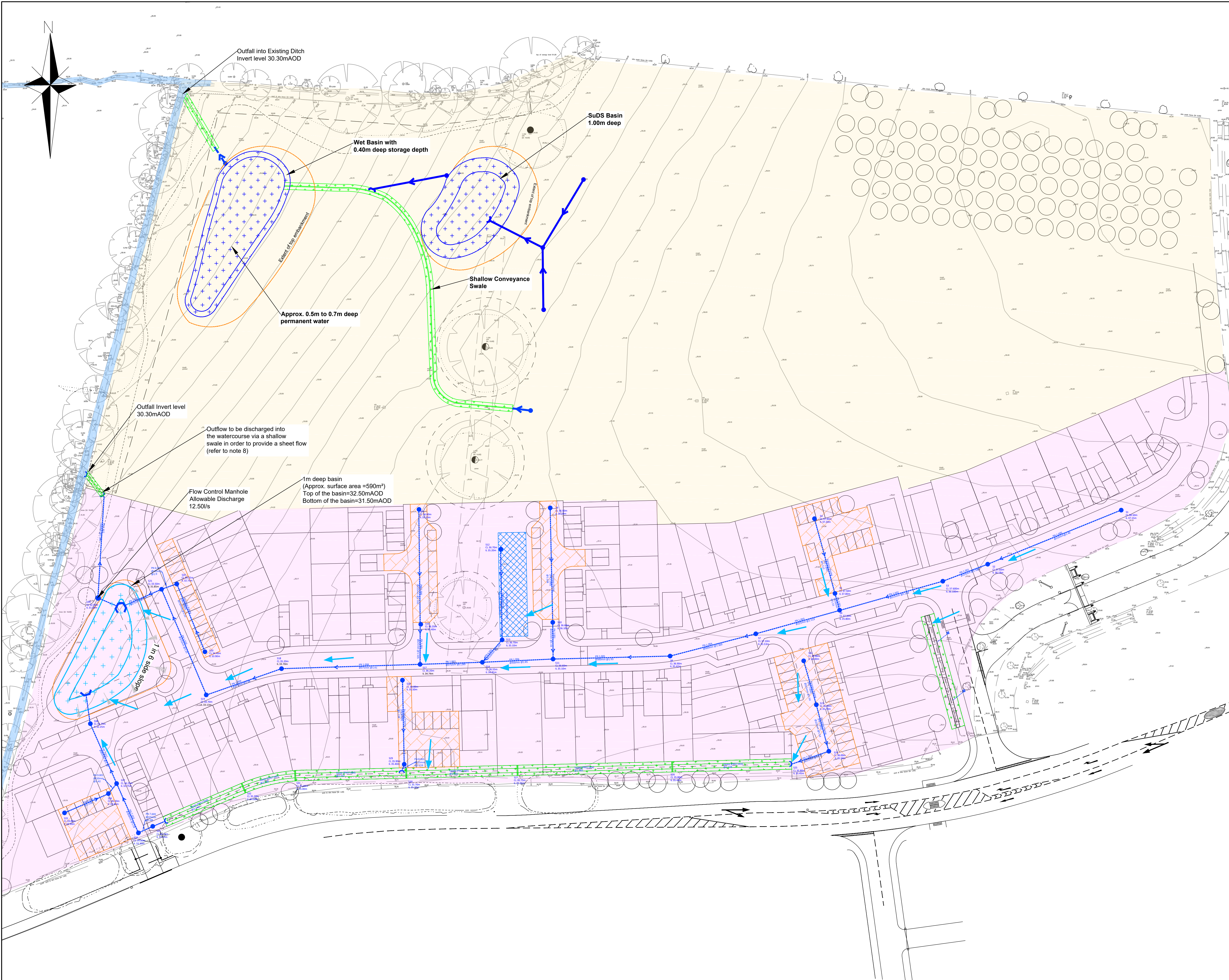
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Annex C:
Exceedance Flow Route Plan



NOTES

1. Do not scale from this drawing.
2. All dimensions are in meters unless stated otherwise.
3. Preliminary surface water drainage strategy based on topographical survey provided by others. C&A Consulting cannot accept responsibility for any inaccuracies.
4. The surface water drainage strategy depicted on this drawing is preliminary only and indicates design intent.
5. Refer to Drawing 17-055-031 for the 'Indicative Surface Water Drainage Strategy'.

LEGEND

- Proposed Development Area
- Future Development Area
- Surface Water Pipe/Manhole
- Attenuation Basin
- Extent of Top/Bottom embankment
- Proposed Attenuation Tank
- Proposed Pervious Paving
- Existing Ditch
- Swale
- Highway Infiltration Trench
- Concept SuDS Pond for future Development Area
- Concept SuDS Swale for future Development Area
- Exceedance Flow Route

Rev	Amendments	Dwn	Chk	App	Date

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Job Title

Land west of the Havant crematorium
Bartons Road, Havant

Drawing Title

Exceedance Flow
Route Plan

Client

White Farming Limited

Scale	1:500@A1	Date	May 2019	Designed	-
Drawn	SPS	Checked	SC	Approved	SC
Job No	17-055	Drawing No	17-055-044	Rev	-

Annex D:
Urban Creep support calculation
(preliminary calculation worksheet)

Preliminary Calculations including URBAN CREEP

Pipe Number	Roof (m²)	Road (m²)	Porous paving/road (ha)	Total Impermeable Area (ha)	Total Impermeable Area plus 10% for future development allowance (ha)
1.000	220.000	375.000	0.000	0.060	0.062
1.001	110.000	400.000	0.000	0.051	0.052
1.002	0.000	138.000	0.000	0.014	0.014
2.000	270.000	0.000	342.000	0.061	0.064
2.001	0.000	0.000	0.000	0.000	0.000
1.003	111.000	283.000	0.000	0.039	0.041
1.004	111.000	283.000	0.000	0.039	0.041
1.005	282.000	471.000	0.000	0.075	0.078
3.000	278.000	0.000	543.000	0.082	0.085
3.001	0.000	0.000	0.000	0.000	0.000
1.006	57.000	405.000	220.000	0.068	0.069
4.000	0.000	0.000	0.000	0.000	0.000
4.001	0.000	0.000	0.000	0.000	0.000
1.007	0.000	171.000	0.000	0.017	0.017
5.000	278.000	0.000	530.000	0.081	0.084
5.001	0.000	0.000	0.000	0.000	0.000
1.008	278.000	184.000	0.000	0.046	0.049
1.009	111.000	478.000	0.000	0.059	0.060
1.010	111.000	302.000	248.000	0.066	0.067
6.000	273.000	0.000	176.000	0.045	0.048
1.011	0.000	500.000	0.000	0.050	0.050
1.012	0.000	0.000	0.000	0.000	0.000
7.000	566.000	0.000	626.000	0.119	0.125
7.001	0.000	0.000	0.000	0.000	0.000
7.002	0.000	0.000	0.000	0.000	0.000
7.003	0.000	0.000	0.000	0.000	0.000
7.004	0.000	0.000	0.000	0.000	0.000
8.000	270.000	0.000	365.000	0.064	0.066
8.001	0.000	0.000	0.000	0.000	0.000
7.005	0.000	0.000	0.000	0.000	0.000
7.006	0.000	0.000	0.000	0.000	0.000
7.007	0.000	0.000	0.000	0.000	0.000
7.008	0.000	0.000	0.000	0.000	0.000
7.009	0.000	0.000	0.000	0.000	0.000
9.000	270.000	0.000	256.000	0.053	0.055
9.001	0.000	0.000	0.000	0.000	0.000
7.010	111.000	219.000	0.000	0.033	0.034
7.011	0.000	697.000	0.000	0.070	0.070
7.012	0.000	0.000	0.000	0.000	0.000
1.013	0.000	0.000	0.000	0.000	0.000