

Notes:  
 1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

**LEGEND**

- Site Boundary
- Surface Water Flood Risk
  - High
  - Medium
  - Low

NYMNPA

02/02/2023



CLIENT:  
 Ladycross Plantation Holiday Park



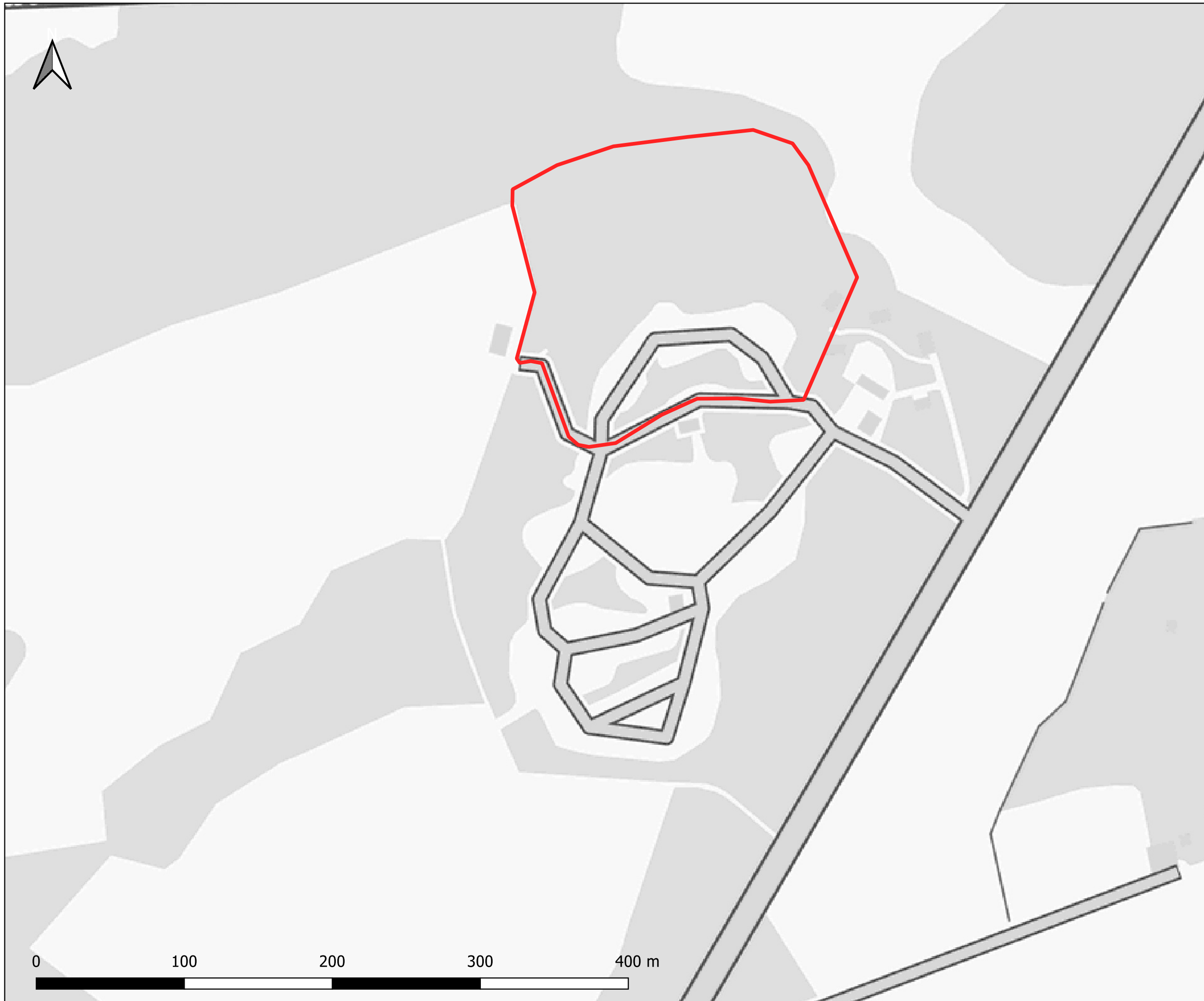
SCHEME:  
 Ladycross Plantation Holiday Park, Egton

PLOT TITLE:  
 EA Flood Risk from Surface Water  
 Data accessed October 2022

PLOT STATUS: FINAL	DATE: 19-10-2022
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DRAWN: MW	CHECKED: AW	APPROVED: NJ	PLOT SCALE AT A3: 1:2500
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PLOT NAME: 491_EA_Flood_Risk_from_Surface_Wa	REVISION: -
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Notes:  
 1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

**LEGEND**

- Site Boundary
- Reservoir
- When river levels are normal
- When there is also flooding from rivers



CLIENT:  
 Ladycross Plantation Holiday Park



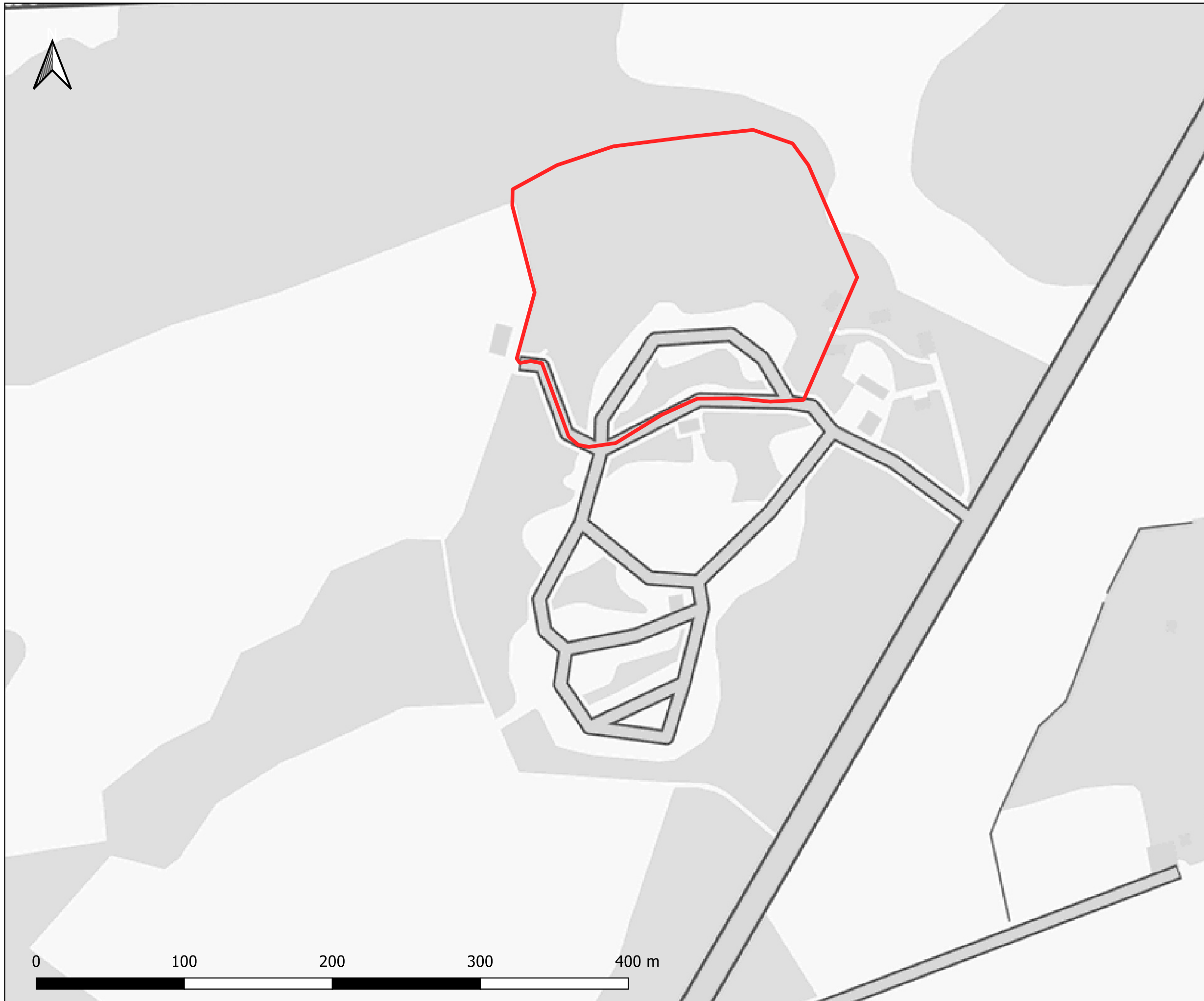
SCHEME:  
 Ladycross Plantation Holiday Park, Egton

PLOT TITLE:  
 EA Flood Risk from Reservoirs  
 Data accessed October 2022

PLOT STATUS: FINAL	DATE: 19-10-2022
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DRAWN: MW	CHECKED: AW	APPROVED: NJ	PLOT SCALE AT A3: 1:2500
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PLOT NAME: 14491_EA_Flood_Risk_from_Reservoirs	REVISION: -
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Notes:

- 1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise
- 2) The Historic Flood Map is a GIS layer showing the maximum extent of individual Recorded Flood Outlines from river, the sea and groundwater springs that meet a set criteria. It shows areas of land that have previously been subject to flooding in England. This excludes flooding from surface water, except in areas where it is impossible to determine whether the source is fluvial or surface water but the dominant source is fluvial.
- 3) If an area is not covered by the Historic Flood Map it does not mean that the area has never flooded, only that the EA do not currently have records of flooding in this area that meet the criteria for inclusion.
- 4) The Historic Flood Map takes into account the presence of defences, structures, and other infrastructure where they existed at the time of flooding. It will include flood extents that may have been affected by overtopping, breaches or blockages.

**LEGEND**

- Site Boundary
- Historic Flood Map



CLIENT:  
Ladycross Plantation Holiday Park



SCHEME:  
Ladycross Plantation Holiday Park, Egton

PLOT TITLE:  
EA Historic Flood Risk  
Data accessed October 2022

PLOT STATUS:	FINAL	DATE:	19-10-2022
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DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MW	AW	NJ	1:2500

PLOT NAME:	REVISION:
14491_EA_Historic_Flood_Risk	-

## Appendix G LLFA Correspondence

**From:** Marie Brown  
**Sent:** 01 March 2022 09:58  
**To:** Megan Williams  
**Subject:** RE: 14491 - LLFA email

Good Morning Megan

Thanks for your email.

Should site investigation and testing deem that infiltration is not viable, discharging at greenfield rate is acceptable, however land drainage consent may be required to discharge to the drain, this is a separate matter outside of the planning process.

If the site is in a critical drainage area or source control zone, further restrictions may be required.

Discharge of foul flows is not a matter for the LLFA to comment on, we suggest you contact Yorkshire water for advice.

Also, please find below the design parameters that NYCC require for any drainage network modelling.

Design Consideration	Design Parameter
Minimum Slope	1:500
Roughness Value (K) – manning “n” should only be used for open channels.	0.6mm
Minimum System Velocity	1.0 m/s
Climate change	30%
Additional Flows - Urban Creep (Where Applicable)	10%
Maximum Drained Area for Gullies	150m <sup>2</sup>
Highway Drains Minimum Cover	1.2m
Minimum Pipe Diameter	150mm
Volumetric Runoff Coefficient Cv (Summer/Winter)	1.0 For both summer and winter rainfall profiles (In accordance with HR Wallingford recommendations and Sewers for Adoption)
Percentage Impermeable Area (PIMP)	100% for compliance with SfA
Margin for Flood Risk Warning	300mm
Area Reduction Factor	1
Time of Entry	3-8 minutes
Return Period	1, 30, 100 as a minimum

Any further questions, please get in touch

Kind regards

Marie

Marie Brown  
 Development Management Engineer  
 Highways and Transportation

OFFICIAL

**From:** Megan Williams  
**Sent:** 04 February 2022 14:53  
**To:** llfa <|  
**Subject:** 14491 - LLFA email

**Ladycross Plantation Holiday Park, Egton, Whitby, YO21 1UA. NGR: 481890, 508062**

Dear Sir/Madam,

We are currently preparing a Flood Risk Assessment and Drainage Strategy for a proposed holiday park extension and restructure at the site at the above address. Development proposals are for a 7 additional holiday lodges (in addition to the 41 lodges that have already been consented) and an additional 12 static units in the undeveloped woodland (to accompany the 15 pitches that have already been consented). Please see attached location/ site plan for reference.

Where infiltration is not feasible, it is proposed to discharge surface water to a ditch in the south-east extent of the site, which flows south beyond the site. It is proposed to restrict discharge rates to the 1 in 1 greenfield runoff rate. We propose to discharge the foul flows to the public sewerage network , by using the existing sites current pumping station.

Please could you advise if this would be acceptable and if you have any discharge rate requirements.

Furthermore, please could you advise on the required climate change allowance to be applied to attenuation storage (i.e 20%/30%/40%) and if you have any further surface water drainage requirements.

If you have any questions or require any further information to process my request, please do not hesitate to contact me.

Kind regards,

**Megan Williams** BSc (Hons)  
Environmental Consultant



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**NORTH YORKSHIRE COUNTY COUNCIL**  
**BUSINESS and ENVIRONMENTAL SERVICES**  
**LEAD LOCAL FLOOD AUTHORITY**  
**CONSIDERATIONS and RECOMMENDATION**



<b>Application No:</b>	<b>FL/NYM/2022/0568</b>		
<b>Proposed Development:</b>	Application for reorganisation of northern section of the existing caravan site to allow for 48 lodges (increase of seven) and associated access arrangement together with south western extension to site to allow for the siting of 27 static caravans in lieu of ten static caravans and five camping pods		
<b>Location:</b>	Lady Cross Plantation Caravan Park, Egton		
<b>Applicant:</b>			
<b>District/Borough:</b>	North York Moors National Park Authority		
<b>FRM Engineer:</b>	Heather Lagan	<b>LPA Case Officer:</b>	Hilary Saunders

Note to the Planning Officer:

Thank you for consulting the Lead Local Flood Authority on the planning application referenced above.

The following documents are noted:


- Flood Risk Assessment & Drainage Strategy, Waterco, 14491, Revision 01, Dated March 2022.

In assessing the submitted proposals and reaching its recommendation the Authority would like to make the following comments:

1. Runoff Destinations

Options to drain development runoff via soakaways has not been confirmed, percolation tests are required. We would expect testing to be carried out in accordance with BRE 365 at the depth and location of the proposed drainage features. Three percolation tests are to be performed at each trial pit location to determine the infiltration rate, where

<b>Date:</b>	6 September 2022	<b>Approved by:</b>	Emily Mellalieu Flood Risk Management Team Leader
<b>FAO:</b>	Hilary Saunders		
<b>Issued by:</b>	Heather Lagan		

<b>LEAD LOCAL FLOOD AUTHORITY CONSIDERATIONS and RECOMMENDATION</b>		
Continuation sheet:	Page 2 of 2	
Application No:	<b>FL/NYM/2022/0568</b>	

possible. Where slower infiltration rates are experienced, testing must be carried out over a minimum period of 24 hours (longer if 25% effective depth is not reached). 25% effective depth must be reached. Extrapolated and averaged test data will not be accepted and the lowest value should be used. **Further information is required.**

If this is not achievable, discharge to the local ditch, connected to the River Esk, using agreed greenfield rate is viable. Additional consents may be required to discharge to the drain, this is a separate matter outside of the planning process. It is the applicants responsibility to obtain these consents prior to commencement of work.

## 2. Peak Flow Control

It is noted that the ReFH2 method has been used to establish greenfield runoff rates. This is an acceptable form of calculation, however catchment descriptors have not been provided. The LLFA require the catchment descriptors to validate the calculations. **Further information is required.**

## 3. Volume Control and proposed minimum operational standards

Source control calculations provided an indicative volume, however as a full application the applicant must demonstrate that the proposal can be drained in accordance with minimum operational standards. To demonstrate this drainage network calculations should be provided following the following minimum operational standards:

- Surface water flows are contained within the proposed drainage pipes without surcharge for up to the one in two year flood event.
- Flooding does not occur on any part of the site for a one in 30 year rainfall event, with all development surface water flows remaining within the proposed drainage system.
- Flooding does not occur during a one in 100 year rainfall event in any part of a building (including a basement) or in any utility plant susceptible to water (for example, pumping station or electricity substation) within the development.
- Volumetric Runoff Coefficient should be 1.0 for both summer and winter rainfall profiles. We note 0.750 and 0.840 have been used within this application.

**Further information is required.**

## 4. Designing for Exceedance


An exceedance flow plan should be provided based on proposed site layout and levels. The existing flow path should also be identified to show that new flow paths described in paragraph 7 page 10 of the Flood Risk and Drainage Assessment, do not extend flood risk elsewhere. **Further information is required.**

## 5. Climate Change and Urban Creep

As part of the design of the SuDs we would expect a local climate change allowance (see

<https://environment.data.gov.uk/hydrology/climate-change-allowances/rainfall?mgmtcatid=3027>) to be applied for peak rainfall intensity within the calculations). Surface water generated from a development should be held within the development site boundary for



<b>LEAD LOCAL FLOOD AUTHORITY CONSIDERATIONS and RECOMMENDATION</b>		
Continuation sheet:	Page 3 of 2	
Application No:	<b>FL/NYM/2022/0568</b>	

the 1% AEP rainfall event plus the climate change allowance (e.g. 40%). It is noted that 1 in 100 year calculations have been provided, however, the LLFA require an additional 1 in 30 +climate change calculation as part of the application. **Further information is required.**

6. Maintenance

It is anticipated that the site owner will be responsible for maintaining the drainage system. A maintenance schedule has been submitted and seems reasonable. Further information is required to confirm who will be maintaining the drainage system and how maintenance will be funded. See section 6 of the NYCC Sustainable drainage systems guidance – 2022 update. **Further information is required.**

**Recommendation to the Local Planning Authority:**

The submitted documents are limited and the LLFA recommends that the applicant provides further information in accordance with the above before any planning permission is granted by the LPA.

## **Appendix H SFRA 'Areas susceptible to surface water flooding' map**



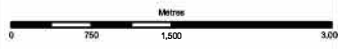
- Legend**
- More Vulnerable
  - Intermediate Vulnerability
  - Less Vulnerable

**NYMNPA**

02/02/2023

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F1	2010-01-13	HB	AM	GF
Issue	Date	By	Chkd	Appd



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Leeds LS9 8EE  
Tel +44 (0)113 242 8498 Fax +44 (0)113 242 8573  
www.arup.com

**Client**  
**Ryedale District Council, Scarborough Borough Council and North York Moors**

**Job Title**  
**Northeast Yorkshire Strategic Flood Risk Assessment Update**

**Drawing Title**  
**Areas Susceptible to Surface Water Flooding: Whitby, Sleights, Ruswarp and Sandsend**

**Scale as A3**  
**1:50,000**

**Drawing Status**  
**For Issue**

Job No <b>209466-00</b>	Drawing No <b>6.3.9</b>	Issue <b>F1</b>
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## **Appendix I    REFH2 Greenfield Runoff Rates**

## 14491 ReFH2 Input Parameters

Name:

Your Reference:  Area (km<sup>2</sup>):   Use plot scale equations

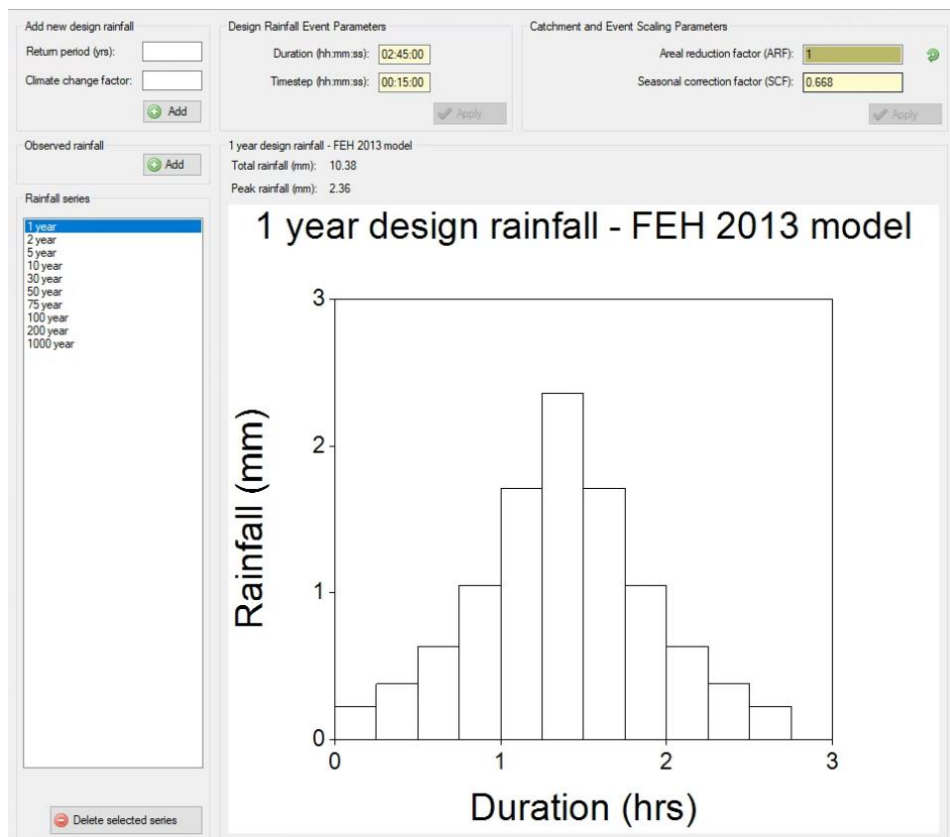
Easting:  Northing:

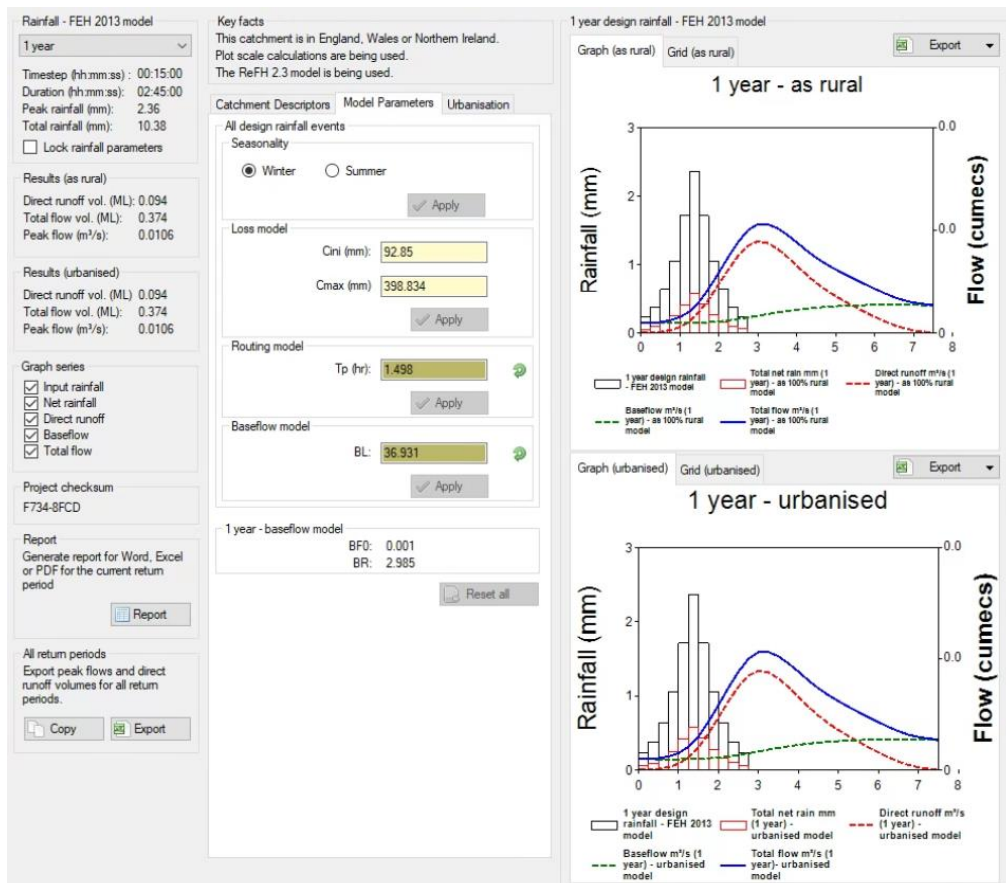
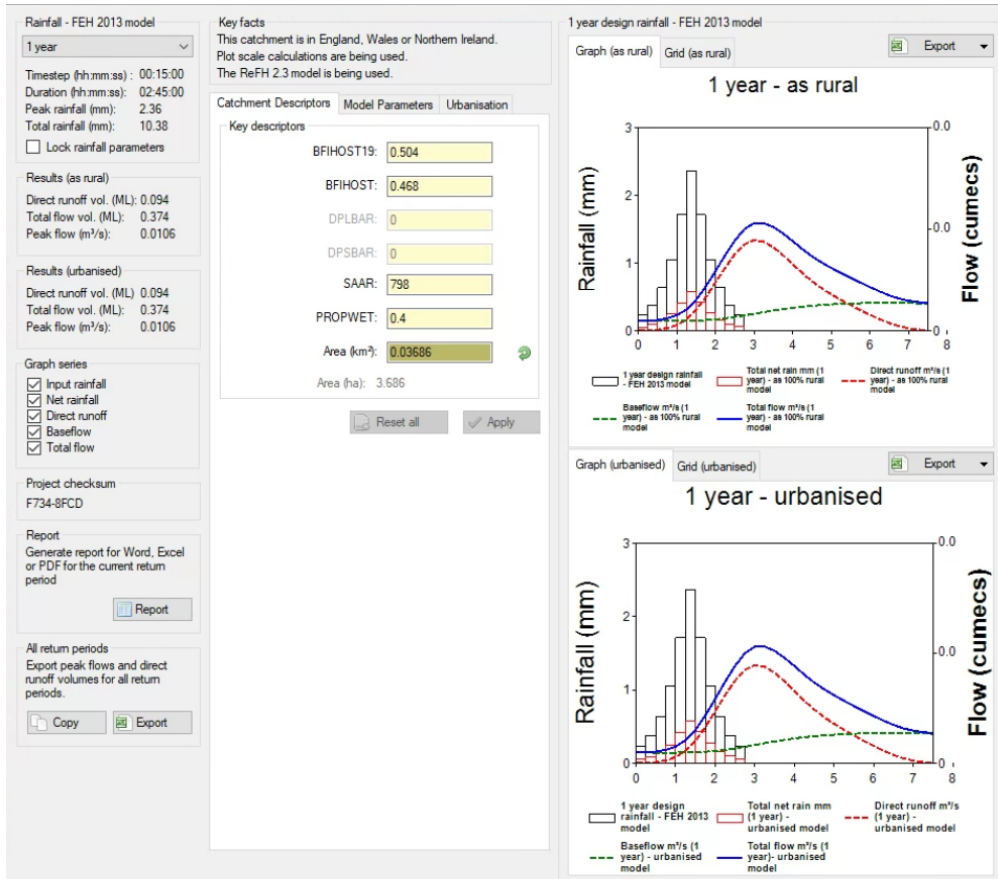
Country:  England/Wales/Northern Ireland  Scotland

Point Descriptors | Comments | Advanced

Key modelling descriptors

<b>SAAR 61-90 (mm):</b>	798
<b>PROPWET:</b>	0.4
<b>BFIHOST:</b>	0.468
<b>BFIHOST19:</b>	0.504





DOCUMENT VERIFICATION RECORD	
<b>Project:</b>	14491 – Ladycross Plantation Holiday Park (Woodland Lodges)
<b>Client:</b>	Lambe Planning & Design Ltd
<b>Report Title:</b>	Flood Risk Assessment and Drainage Strategy
<b>Date:</b>	02/03/2022

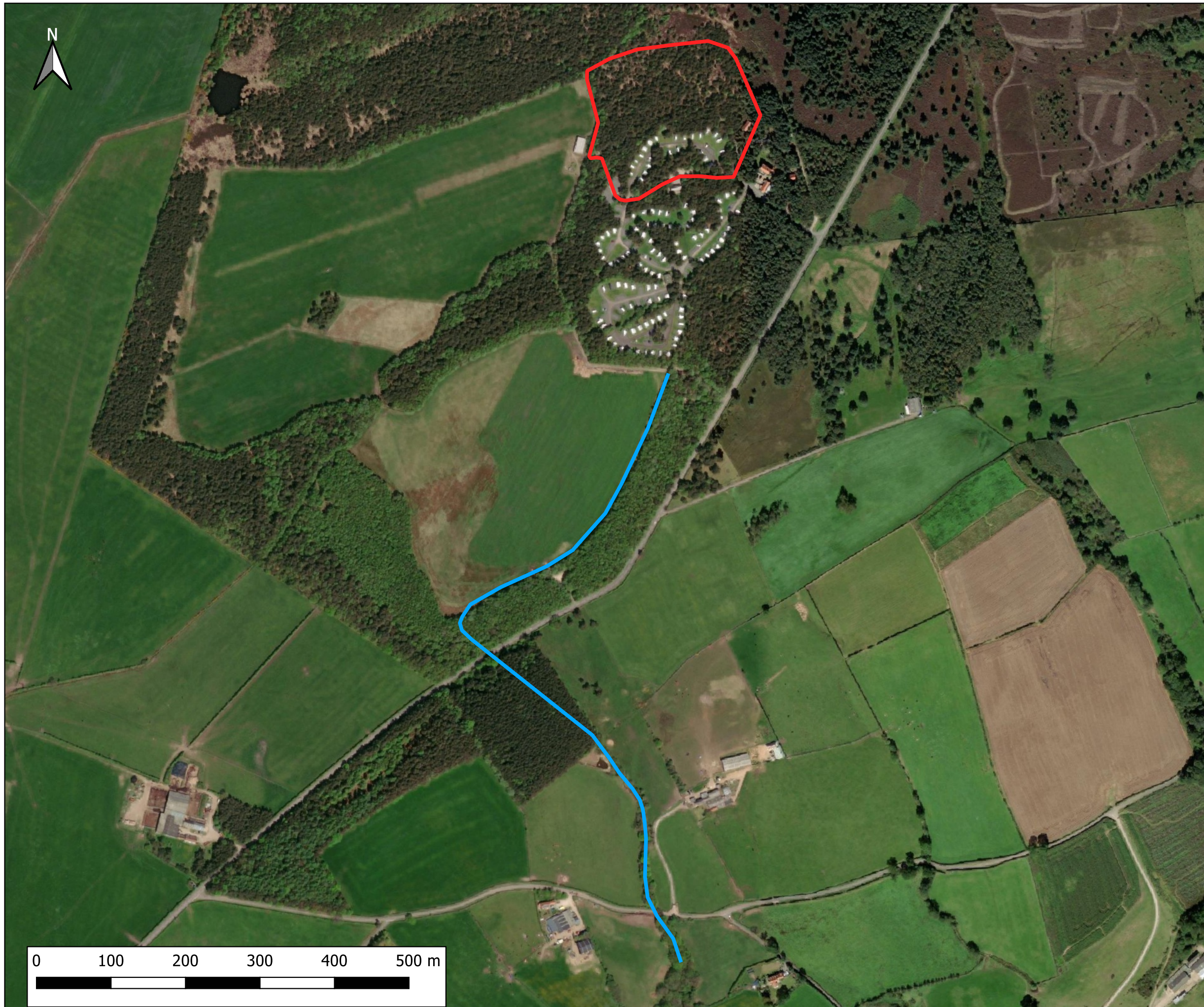
DOCUMENT REVIEW & APPROVAL	
<b>Author:</b>	Megan Williams BSc (Hons)
<b>Checker:</b>	Aled Williams BSc (Hons) MCIWEM
<b>Approver:</b>	Nigel Jones BEng (Hons) CEng

ReFH2 RUNOFF RATES*	
Return Period (Years)	Peak Flow (l/s) – Greenfield Runoff Rates
1	10.52
2	12.04
5	17.28
10	21.21
30	28.04
50	31.64
75	34.79
100	37.22
200	43.98
1000	64.66

\*Runoff Rates printed from the ReFH Flood Modelling software package

## Appendix J Ditch Route Plan



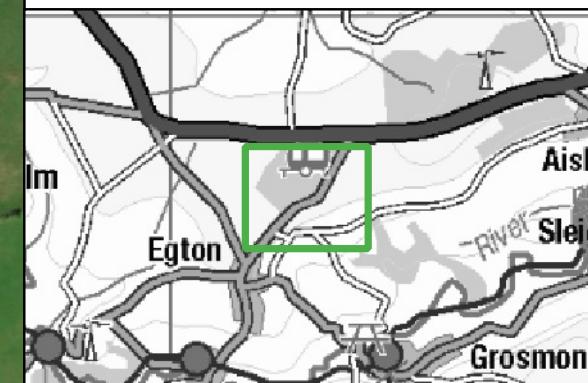


Notes:  
 1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

**LEGEND**

- Site Boundary
- Surface Water Ditch

NYMNPA  
 02/02/2023



CLIENT:  
 Ladycross Plantation Holiday Park



SCHEME:  
 Ladycross Plantation Holiday Park, Egton

PLOT TITLE:  
 Surface Water Ditch Plan

PLOT STATUS: FINAL	DATE: 02-03-2022
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DRAWN: IH	CHECKED: AW	APPROVED: NJ	PLOT SCALE AT A3: 1:5000
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PLOT NAME: 14491_Ditch_Plan	REVISION: -
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## **Appendix K Causeway Flow network simulations**

**Nodes**

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
1		5.00	219.949	600	481946.745	508152.576	1.239
2	0.028	5.00	219.463	600	481937.970	508182.637	0.963
3	0.028	5.00	219.193	600	481913.535	508199.809	1.050
4	0.070	5.00	218.674	600	481836.657	508192.821	1.125
5	0.022	5.00	218.514	600	481804.222	508179.059	1.125
6	0.047	5.00	218.162	600	481803.711	508141.811	0.944
7	0.027	5.00	218.367	600	481806.890	508113.194	1.277
13	0.026	5.00	219.988	600	481947.152	508150.618	1.324
14	0.011	5.00	220.471	600	481958.872	508131.671	1.958
20	0.002	5.00	220.963	600	481973.862	508092.349	2.488
21	0.007	5.00	220.910	600	481961.342	508092.587	2.519
15	0.005	5.00	220.582	600	481951.925	508102.140	2.280
16	0.016	5.00	220.115	600	481917.960	508120.470	2.079
17	0.021	5.00	219.418	600	481892.558	508139.829	1.598
18	0.051	5.00	218.349	600	481844.052	508134.244	0.860
19	0.020	5.00	218.471	600	481837.704	508110.154	1.166
8	0.019	5.00	218.102	600	481801.383	508088.919	1.255
9	0.014	5.00	217.947	600	481792.838	508078.918	1.192
22		5.00	219.516	600	481902.589	508089.395	0.900
23	0.024	5.00	218.866	600	481871.281	508086.265	0.898
24	0.032	5.00	218.374	600	481846.764	508068.448	1.061
25	0.044	5.00	217.704	600	481824.629	508025.461	1.458
28			216.726	1200	481814.627	507981.736	1.125
26	0.021	5.00	217.700	1200	481825.887	508013.327	1.622
27	0.004	5.00	217.600	600	481789.046	508057.999	1.106
10	0.008	5.00	217.613	1200	481784.669	508070.091	0.947
11			217.356	600	481783.466	508061.986	0.745
OUTFALL1			217.000	600	481782.795	508057.460	0.420
12		5.00	217.613	600	481785.092	508069.044	1.050
OUTFALL2			216.700	600	481808.764	507979.174	1.129

**Links**

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.000	1	2	31.488	0.600	218.710	218.500	0.210	149.9	150	5.64	50.0
1.001	2	3	30.204	0.600	218.500	218.143	0.357	84.6	150	6.10	50.0
1.002	3	4	77.844	0.600	218.143	217.624	0.519	150.0	150	7.69	50.0
1.003	4	5	36.090	0.600	217.549	217.389	0.160	225.6	225	8.38	50.0
1.004	5	6	38.528	0.600	217.389	217.218	0.171	225.3	225	9.12	50.0
1.005	6	7	28.837	0.600	217.218	217.090	0.128	225.3	225	9.68	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)
1.000	0.818	14.5	0.0	1.089	0.813	0.000	0.0
1.001	1.093	19.3	3.8	0.813	0.900	0.028	0.0
1.002	0.818	14.5	7.6	0.900	0.900	0.056	0.0
1.003	0.866	34.4	17.1	0.900	0.900	0.126	0.0
1.004	0.867	34.5	20.1	0.900	0.719	0.148	0.0
1.005	0.867	34.5	26.4	0.719	1.052	0.195	0.0

**Links**

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.006	7	8	25.219	0.600	217.090	216.847	0.243	103.8	225	10.01	50.0
2.000	13	14	22.612	0.600	218.664	218.513	0.151	149.7	150	5.46	50.0
2.001	14	15	31.657	0.600	218.513	218.302	0.211	150.0	150	6.11	50.0
3.000	20	21	12.561	0.600	218.475	218.391	0.084	149.5	150	5.26	50.0
3.001	21	15	13.423	0.600	218.391	218.302	0.089	150.8	150	5.53	50.0
2.002	15	16	39.919	0.600	218.302	218.036	0.266	150.1	150	6.92	50.0
2.003	16	17	32.474	0.600	218.036	217.820	0.216	150.3	150	7.58	50.0
2.004	17	18	49.691	0.600	217.820	217.489	0.331	150.1	225	8.36	50.0
2.005	18	19	27.582	0.600	217.489	217.305	0.184	149.9	225	8.79	50.0
2.006	19	8	46.117	0.600	217.305	216.847	0.458	100.7	225	9.38	50.0
1.007	8	9	13.809	0.600	216.847	216.755	0.092	150.1	300	10.18	50.0
1.008	9	10	13.309	0.600	216.755	216.666	0.089	149.5	225	10.39	50.0
4.000	22	23	31.840	0.600	218.616	217.968	0.648	49.1	150	5.37	50.0
4.001	23	24	32.040	0.600	217.968	217.313	0.655	48.9	150	5.74	50.0
4.002	24	25	48.541	0.600	217.313	216.323	0.990	49.0	150	6.30	50.0
4.003	25	26	12.198	0.600	216.246	216.078	0.168	72.6	225	6.43	50.0
1.009	10	11	8.194	0.600	216.666	216.611	0.055	149.0	150	10.56	50.0
1.010	11	OUTFALL1	4.575	0.600	216.611	216.580	0.031	147.6	150	10.65	50.0
5.000	12	27	11.737	0.600	216.563	216.494	0.069	170.0	150	5.25	50.0
5.001	27	26	57.904	0.600	216.494	216.153	0.341	170.0	150	6.51	50.0
4.004	26	28	33.709	0.600	216.078	215.917	0.161	210.0	225	7.14	50.0
4.005	28	OUTFALL2	6.398	0.600	215.601	215.571	0.030	210.0	225	7.26	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)
1.006	1.283	51.0	30.1	1.052	1.030	0.222	0.0
2.000	0.819	14.5	3.5	1.174	1.808	0.026	0.0
2.001	0.818	14.5	5.0	1.808	2.130	0.037	0.0
3.000	0.819	14.5	0.3	2.338	2.369	0.002	0.0
3.001	0.816	14.4	1.2	2.369	2.130	0.009	0.0
2.002	0.818	14.5	6.9	2.130	1.929	0.051	0.0
2.003	0.817	14.4	9.1	1.929	1.448	0.067	0.0
2.004	1.065	42.3	11.9	1.373	0.635	0.088	0.0
2.005	1.065	42.4	18.8	0.635	0.941	0.139	0.0
2.006	1.303	51.8	21.5	0.941	1.030	0.159	0.0
1.007	1.281	90.5	54.2	0.955	0.892	0.400	0.0
1.008	1.067	42.4	56.1	0.967	0.722	0.414	0.0
4.000	1.439	25.4	0.0	0.750	0.748	0.000	0.0
4.001	1.442	25.5	3.3	0.748	0.911	0.024	0.0
4.002	1.440	25.4	7.6	0.911	1.231	0.056	0.0
4.003	1.536	61.1	13.6	1.233	1.397	0.100	0.0
1.009	0.821	14.5	57.2	0.797	0.595	0.422	0.0
1.010	0.825	14.6	57.2	0.595	0.270	0.422	0.0
5.000	0.768	13.6	0.0	0.900	0.956	0.000	0.0
5.001	0.768	13.6	0.5	0.956	1.397	0.004	0.0
4.004	0.898	35.7	16.9	1.397	0.584	0.125	0.0
4.005	0.898	35.7	16.9	0.900	0.904	0.125	0.0

**Pipeline Schedule**

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	31.488	149.9	150	Circular_Default Sewer Type	219.949	218.710	1.089	219.463	218.500	0.813
1.001	30.204	84.6	150	Circular_Default Sewer Type	219.463	218.500	0.813	219.193	218.143	0.900
1.002	77.844	150.0	150	Circular_Default Sewer Type	219.193	218.143	0.900	218.674	217.624	0.900
1.003	36.090	225.6	225	Circular_Default Sewer Type	218.674	217.549	0.900	218.514	217.389	0.900
1.004	38.528	225.3	225	Circular_Default Sewer Type	218.514	217.389	0.900	218.162	217.218	0.719
1.005	28.837	225.3	225	Circular_Default Sewer Type	218.162	217.218	0.719	218.367	217.090	1.052
1.006	25.219	103.8	225	Circular_Default Sewer Type	218.367	217.090	1.052	218.102	216.847	1.030
2.000	22.612	149.7	150	Circular_Default Sewer Type	219.988	218.664	1.174	220.471	218.513	1.808
2.001	31.657	150.0	150	Circular_Default Sewer Type	220.471	218.513	1.808	220.582	218.302	2.130
3.000	12.561	149.5	150	Circular_Default Sewer Type	220.963	218.475	2.338	220.910	218.391	2.369
3.001	13.423	150.8	150	Circular_Default Sewer Type	220.910	218.391	2.369	220.582	218.302	2.130
2.002	39.919	150.1	150	Circular_Default Sewer Type	220.582	218.302	2.130	220.115	218.036	1.929
2.003	32.474	150.3	150	Circular_Default Sewer Type	220.115	218.036	1.929	219.418	217.820	1.448
2.004	49.691	150.1	225	Circular_Default Sewer Type	219.418	217.820	1.373	218.349	217.489	0.635
2.005	27.582	149.9	225	Circular_Default Sewer Type	218.349	217.489	0.635	218.471	217.305	0.941
2.006	46.117	100.7	225	Circular_Default Sewer Type	218.471	217.305	0.941	218.102	216.847	1.030
1.007	13.809	150.1	300	Circular_Default Sewer Type	218.102	216.847	0.955	217.947	216.755	0.892
1.008	13.309	149.5	225	Circular_Default Sewer Type	217.947	216.755	0.967	217.613	216.666	0.722
4.000	31.840	49.1	150	Circular_Default Sewer Type	219.516	218.616	0.750	218.866	217.968	0.748
4.001	32.040	48.9	150	Circular_Default Sewer Type	218.866	217.968	0.748	218.374	217.313	0.911
4.002	48.541	49.0	150	Circular_Default Sewer Type	218.374	217.313	0.911	217.704	216.323	1.231
4.003	12.198	72.6	225	Circular_Default Sewer Type	217.704	216.246	1.233	217.700	216.078	1.397
1.009	8.194	149.0	150	Circular_Default Sewer Type	217.613	216.666	0.797	217.356	216.611	0.595
1.010	4.575	147.6	150	Circular_Default Sewer Type	217.356	216.611	0.595	217.000	216.580	0.270
5.000	11.737	170.0	150	Circular_Default Sewer Type	217.613	216.563	0.900	217.600	216.494	0.956


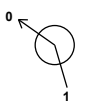







Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	1	600	Manhole	Adoptable	2	600	Manhole	Adoptable
1.001	2	600	Manhole	Adoptable	3	600	Manhole	Adoptable
1.002	3	600	Manhole	Adoptable	4	600	Manhole	Adoptable
1.003	4	600	Manhole	Adoptable	5	600	Manhole	Adoptable
1.004	5	600	Manhole	Adoptable	6	600	Manhole	Adoptable
1.005	6	600	Manhole	Adoptable	7	600	Manhole	Adoptable
1.006	7	600	Manhole	Adoptable	8	600	Manhole	Adoptable
2.000	13	600	Manhole	Adoptable	14	600	Manhole	Adoptable
2.001	14	600	Manhole	Adoptable	15	600	Manhole	Adoptable
3.000	20	600	Manhole	Adoptable	21	600	Manhole	Adoptable
3.001	21	600	Manhole	Adoptable	15	600	Manhole	Adoptable
2.002	15	600	Manhole	Adoptable	16	600	Manhole	Adoptable
2.003	16	600	Manhole	Adoptable	17	600	Manhole	Adoptable
2.004	17	600	Manhole	Adoptable	18	600	Manhole	Adoptable
2.005	18	600	Manhole	Adoptable	19	600	Manhole	Adoptable
2.006	19	600	Manhole	Adoptable	8	600	Manhole	Adoptable
1.007	8	600	Manhole	Adoptable	9	600	Manhole	Adoptable
1.008	9	600	Manhole	Adoptable	10	1200	Manhole	Adoptable
4.000	22	600	Manhole	Adoptable	23	600	Manhole	Adoptable
4.001	23	600	Manhole	Adoptable	24	600	Manhole	Adoptable
4.002	24	600	Manhole	Adoptable	25	600	Manhole	Adoptable
4.003	25	600	Manhole	Adoptable	26	1200	Manhole	Adoptable
1.009	10	1200	Manhole	Adoptable	11	600	Manhole	Adoptable
1.010	11	600	Manhole	Adoptable	OUTFALL1	600	Manhole	Adoptable
5.000	12	600	Manhole	Adoptable	27	600	Manhole	Adoptable

**Pipeline Schedule**

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
5.001	57.904	170.0	150	Circular_Default Sewer Type	217.600	216.494	0.956	217.700	216.153	1.397
4.004	33.709	210.0	225	Circular_Default Sewer Type	217.700	216.078	1.397	216.726	215.917	0.584
4.005	6.398	210.0	225	Circular_Default Sewer Type	216.726	215.601	0.900	216.700	215.571	0.904

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
5.001	27	600	Manhole	Adoptable	26	1200	Manhole	Adoptable
4.004	26	1200	Manhole	Adoptable	28	1200	Manhole	Adoptable
4.005	28	1200	Manhole	Adoptable	OUTFALL2	600	Manhole	Adoptable

**Manhole Schedule**

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
1	481946.745	508152.576	219.949	1.239	600				
						0	1.000	218.710	150
2	481937.970	508182.637	219.463	0.963	600				
						0	1.001	218.500	150
						1	1.001	218.143	150
3	481913.535	508199.809	219.193	1.050	600				
						0	1.002	218.143	150
						1	1.002	217.624	150
4	481836.657	508192.821	218.674	1.125	600				
						0	1.003	217.549	225
						1	1.003	217.389	225
5	481804.222	508179.059	218.514	1.125	600				
						0	1.004	217.389	225
						1	1.004	217.218	225
6	481803.711	508141.811	218.162	0.944	600				
						0	1.005	217.218	225
						1	1.005	217.090	225
7	481806.890	508113.194	218.367	1.277	600				
						0	1.006	217.090	225
13	481947.152	508150.618	219.988	1.324	600				
						0	2.000	218.664	150
14	481958.872	508131.671	220.471	1.958	600				
						0	2.001	218.513	150
						1	2.000	218.513	150

**Manhole Schedule**

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
20	481973.862	508092.349	220.963	2.488	600		0			
							0	3.000	218.475	150
21	481961.342	508092.587	220.910	2.519	600		1	3.000	218.391	150
							0	3.001	218.391	150
15	481951.925	508102.140	220.582	2.280	600		1	3.001	218.302	150
							2	2.001	218.302	150
							0	2.002	218.302	150
16	481917.960	508120.470	220.115	2.079	600		1	2.002	218.036	150
							0	2.003	218.036	150
17	481892.558	508139.829	219.418	1.598	600		1	2.003	217.820	150
							0	2.004	217.820	225
18	481844.052	508134.244	218.349	0.860	600		1	2.004	217.489	225
							0	2.005	217.489	225
19	481837.704	508110.154	218.471	1.166	600		1	2.005	217.305	225
							0	2.006	217.305	225
8	481801.383	508088.919	218.102	1.255	600		1	2.006	216.847	225
							2	1.006	216.847	225
							0	1.007	216.847	300
9	481792.838	508078.918	217.947	1.192	600		1	1.007	216.755	300
							0	1.008	216.755	225
22	481902.589	508089.395	219.516	0.900	600		0	4.000	218.616	150
							1	4.000	217.968	150
23	481871.281	508086.265	218.866	0.898	600		0	4.001	217.968	150
							1	4.001	217.313	150
24	481846.764	508068.448	218.374	1.061	600		0	4.002	217.313	150
							1	4.002	216.323	150
25	481824.629	508025.461	217.704	1.458	600		0	4.003	216.246	225

**Manhole Schedule**

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
28	481814.627	507981.736	216.726	1.125	1200		1 4.004	215.917	225
26	481825.887	508013.327	217.700	1.622	1200		1 5.001 2 4.003	216.153 216.078	150 225
27	481789.046	508057.999	217.600	1.106	600		1 5.000	216.494	150
10	481784.669	508070.091	217.613	0.947	1200		1 1.008	216.666	225
11	481783.466	508061.986	217.356	0.745	600		1 1.009	216.611	150
OUTFALL1	481782.795	508057.460	217.000	0.420	600		1 1.010	216.580	150
12	481785.092	508069.044	217.613	1.050	600		0 5.000	216.563	150
OUTFALL2	481808.764	507979.174	216.700	1.129	600		1 4.005	215.571	225

**Simulation Settings**

Rainfall Methodology	FEH-13	Drain Down Time (mins)	240	100 year (l/s)	1.0
Summer CV	0.750	Additional Storage (m <sup>3</sup> /ha)	20.0	Check Discharge Volume	✓
Winter CV	0.840	Check Discharge Rate(s)	✓	100 year 360 minute (m <sup>3</sup> )	
Analysis Speed	Normal	1 year (l/s)	1.0		
Skip Steady State	✓	30 year (l/s)	1.0		

**Storm Durations**

15	60	180	360	600	960	2160	4320
30	120	240	480	720	1440	2880	

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	0	0	0
30	0	0	0
100	30	0	0



**Pre-development Discharge Rate**

Site Makeup	Greenfield	Growth Factor 30 year	1.95
Greenfield Method	IH124	Growth Factor 100 year	2.48
Positively Drained Area (ha)		Betterment (%)	0
SAAR (mm)		QBar	
Soil Index	1	Q 1 year (l/s)	
SPR	0.10	Q 30 year (l/s)	
Region	1	Q 100 year (l/s)	
Growth Factor 1 year	0.85		

**Pre-development Discharge Volume**

Site Makeup	Greenfield	Return Period (years)	100
Greenfield Method	FSR/FEH	Climate Change (%)	0
Positively Drained Area (ha)		Storm Duration (mins)	360
Soil Index	1	Betterment (%)	0
SPR	0.10	PR	
CWI		Runoff Volume (m <sup>3</sup> )	

**Node 10 Online Hydro-Brake® Control**

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	216.666	Product Number	CTL-SHE-0137-8500-0900-8500
Design Depth (m)	0.900	Min Outlet Diameter (m)	0.150
Design Flow (l/s)	8.5	Min Node Diameter (mm)	1200

**Node 26 Online Hydro-Brake® Control**

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	216.078	Product Number	CTL-SHE-0061-2000-1500-2000
Design Depth (m)	1.500	Min Outlet Diameter (m)	0.075
Design Flow (l/s)	2.0	Min Node Diameter (mm)	1200

**Node 17 Online Orifice Control**

Flap Valve	x	Design Depth (m)	1.000	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Design Flow (l/s)	2.0		
Invert Level (m)	217.820	Diameter (m)	0.031		

**Node 3 Online Orifice Control**

Flap Valve	x	Design Depth (m)	0.500	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Design Flow (l/s)	2.0		
Invert Level (m)	218.143	Diameter (m)	0.052		

**Node 8 Online Orifice Control**

Flap Valve	x	Design Depth (m)	1.000	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Design Flow (l/s)	11.0		
Invert Level (m)	216.847	Diameter (m)	0.073		

**Node 5 Online Orifice Control**

Flap Valve	x	Design Depth (m)	1.000	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Design Flow (l/s)	10.0		
Invert Level (m)	217.389	Diameter (m)	0.069		

**Node 25 Online Orifice Control**

Flap Valve	x	Design Depth (m)	0.700	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Design Flow (l/s)	9.0		
Invert Level (m)	216.246	Diameter (m)	0.072		

**Node 23 Online Orifice Control**

Flap Valve	x	Design Depth (m)	0.600	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Design Flow (l/s)	2.0		
Invert Level (m)	217.968	Diameter (m)	0.035		

**Node 2 Carpark Storage Structure**

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	219.163	Slope (1:X)	500.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	
Safety Factor	2.0	Width (m)	3.900	Inf Depth (m)	
Porosity	0.30	Length (m)	31.488		

**Node 2 Link Surround Storage Structure**

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Link	1.000
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	218.500	Surround Shape	(Trench)
Safety Factor	2.0	Time to half empty (mins)	58	Diameter (mm)	450

**Node 3 Carpark Storage Structure**

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	218.893	Slope (1:X)	500.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	42	Depth (m)	
Safety Factor	2.0	Width (m)	3.900	Inf Depth (m)	
Porosity	0.30	Length (m)	30.204		

**Node 3 Link Surround Storage Structure**

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Link	1.001
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	218.143	Surround Shape	(Trench)
Safety Factor	2.0	Time to half empty (mins)	78	Diameter (mm)	450

**Node 4 Carpark Storage Structure**

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	218.374	Slope (1:X)	500.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	64	Depth (m)	
Safety Factor	2.0	Width (m)	3.900	Inf Depth (m)	
Porosity	0.30	Length (m)	77.844		

**Node 4 Link Surround Storage Structure**

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Link	1.002
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	217.624	Surround Shape	(Trench)
Safety Factor	2.0	Time to half empty (mins)		Diameter (mm)	525

**Node 5 Carpark Storage Structure**

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	218.214	Slope (1:X)	500.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	91	Depth (m)	
Safety Factor	2.0	Width (m)	3.900	Inf Depth (m)	
Porosity	0.30	Length (m)	36.090		

**Node 5 Link Surround Storage Structure**

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Link	1.003
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	217.389	Surround Shape	(Trench)
Safety Factor	2.0	Time to half empty (mins)		Diameter (mm)	525

**Node 6 Carpark Storage Structure**

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	217.862	Slope (1:X)	500.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	240	Depth (m)	
Safety Factor	2.0	Width (m)	39.000	Inf Depth (m)	
Porosity	0.30	Length (m)	38.528		

**Node 6 Link Surround Storage Structure**

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Link	1.004
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	217.218	Surround Shape	(Trench)
Safety Factor	2.0	Time to half empty (mins)		Diameter (mm)	525

**Node 7 Carpark Storage Structure**

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	218.067	Slope (1:X)	500.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	
Safety Factor	2.0	Width (m)	3.900	Inf Depth (m)	
Porosity	0.30	Length (m)	28.837		

**Node 7 Link Surround Storage Structure**

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Link	1.005
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	217.090	Surround Shape	(Trench)
Safety Factor	2.0	Time to half empty (mins)		Diameter (mm)	525

**Node 14 Carpark Storage Structure**

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	220.171	Slope (1:X)	500.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	0	Depth (m)	
Safety Factor	2.0	Width (m)	3.900	Inf Depth (m)	
Porosity	0.30	Length (m)	22.612		

**Node 14 Link Surround Storage Structure**

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Link	2.000
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	218.513	Surround Shape	(Trench)
Safety Factor	2.0	Time to half empty (mins)	188	Diameter (mm)	450

**Node 15 Carpark Storage Structure**

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	220.282	Slope (1:X)	500.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	
Safety Factor	2.0	Width (m)	3.900	Inf Depth (m)	
Porosity	0.30	Length (m)	31.657		

**Node 15 Link Surround Storage Structure**

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Link	2.001
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	218.302	Surround Shape	(Trench)
Safety Factor	2.0	Time to half empty (mins)	236	Diameter (mm)	450

**Node 21 Carpark Storage Structure**

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	220.610	Slope (1:X)	500.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	
Safety Factor	2.0	Width (m)	3.500	Inf Depth (m)	
Porosity	0.30	Length (m)	12.561		

**Node 21 Link Surround Storage Structure**

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Link	3.000
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	218.391	Surround Shape	(Trench)
Safety Factor	2.0	Time to half empty (mins)	226	Diameter (mm)	450

**Node 15 Carpark Storage Structure**

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	220.282	Slope (1:X)	500.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	
Safety Factor	2.0	Width (m)	3.500	Inf Depth (m)	
Porosity	0.30	Length (m)	13.423		

**Node 15 Link Surround Storage Structure**

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Link	3.001
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	218.302	Surround Shape	(Trench)
Safety Factor	2.0	Time to half empty (mins)		Diameter (mm)	450

**Node 16 Carpark Storage Structure**

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	219.815	Slope (1:X)	500.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	0	Depth (m)	
Safety Factor	2.0	Width (m)	3.900	Inf Depth (m)	
Porosity	0.30	Length (m)	39.919		

**Node 16 Link Surround Storage Structure**

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Link	2.002
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	218.036	Surround Shape	(Trench)
Safety Factor	2.0	Time to half empty (mins)		Diameter (mm)	450

**Node 17 Carpark Storage Structure**

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	219.118	Slope (1:X)	500.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	82	Depth (m)	
Safety Factor	2.0	Width (m)	3.900	Inf Depth (m)	
Porosity	0.30	Length (m)	32.474		

**Node 17 Link Surround Storage Structure**

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Link	2.003
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	217.820	Surround Shape	(Trench)
Safety Factor	2.0	Time to half empty (mins)		Diameter (mm)	525

**Node 18 Carpark Storage Structure**

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	218.049	Slope (1:X)	500.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	
Safety Factor	2.0	Width (m)	3.900	Inf Depth (m)	
Porosity	0.30	Length (m)	49.691		

**Node 18 Link Surround Storage Structure**

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Link	2.004
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	217.489	Surround Shape	(Trench)
Safety Factor	2.0	Time to half empty (mins)	205	Diameter (mm)	525

**Node 19 Carpark Storage Structure**

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	218.171	Slope (1:X)	500.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	0	Depth (m)	
Safety Factor	2.0	Width (m)	3.900	Inf Depth (m)	
Porosity	0.30	Length (m)	27.582		

**Node 19 Link Surround Storage Structure**

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Link	2.005
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	217.305	Surround Shape	(Trench)
Safety Factor	2.0	Time to half empty (mins)		Diameter (mm)	525

**Node 8 Carpark Storage Structure**

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	217.802	Slope (1:X)	5000.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	
Safety Factor	2.0	Width (m)	3.900	Inf Depth (m)	
Porosity	0.30	Length (m)	46.117		

**Node 8 Link Surround Storage Structure**

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Link	2.006
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	216.847	Surround Shape	(Trench)
Safety Factor	2.0	Time to half empty (mins)		Diameter (mm)	525

**Node 8 Carpark Storage Structure**

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	217.802	Slope (1:X)	500.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	
Safety Factor	2.0	Width (m)	3.900	Inf Depth (m)	
Porosity	0.30	Length (m)	25.219		

**Node 8 Link Surround Storage Structure**

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Link	1.006
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	216.847	Surround Shape	(Trench)
Safety Factor	2.0	Time to half empty (mins)		Diameter (mm)	525

**Node 9 Carpark Storage Structure**

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	217.647	Slope (1:X)	500.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	0	Depth (m)	
Safety Factor	2.0	Width (m)	3.900	Inf Depth (m)	
Porosity	0.30	Length (m)	13.809		

**Node 9 Link Surround Storage Structure**

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Link	1.007
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	216.755	Surround Shape	(Trench)
Safety Factor	2.0	Time to half empty (mins)		Diameter (mm)	525

**Node 10 Carpark Storage Structure**

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	217.313	Slope (1:X)	500.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	
Safety Factor	2.0	Width (m)	2.100	Inf Depth (m)	
Porosity	0.30	Length (m)	13.309		

**Node 10 Link Surround Storage Structure**

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Link	1.008
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	216.666	Surround Shape	(Trench)
Safety Factor	2.0	Time to half empty (mins)		Diameter (mm)	525

**Node 23 Carpark Storage Structure**

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	218.566	Slope (1:X)	500.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	37	Depth (m)	
Safety Factor	2.0	Width (m)	2.400	Inf Depth (m)	
Porosity	0.30	Length (m)	31.840		

**Node 23 Link Surround Storage Structure**

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Link	4.000
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	217.968	Surround Shape	(Trench)
Safety Factor	2.0	Time to half empty (mins)	55	Diameter (mm)	450

**Node 24 Carpark Storage Structure**

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	218.074	Slope (1:X)	500.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	
Safety Factor	2.0	Width (m)	2.400	Inf Depth (m)	
Porosity	0.30	Length (m)	32.040		

**Node 24 Link Surround Storage Structure**

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Link	4.001
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	217.313	Surround Shape	(Trench)
Safety Factor	2.0	Time to half empty (mins)	20	Diameter (mm)	450

**Node 25 Carpark Storage Structure**

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	217.404	Slope (1:X)	500.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	187	Depth (m)	
Safety Factor	2.0	Width (m)	2.400	Inf Depth (m)	
Porosity	0.30	Length (m)	48.541		

**Node 25 Link Surround Storage Structure**

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Link	4.002
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	216.323	Surround Shape	(Trench)
Safety Factor	2.0	Time to half empty (mins)		Diameter (mm)	525

**Node 26 Carpark Storage Structure**

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	217.400	Slope (1:X)	500.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	
Safety Factor	2.0	Width (m)	2.400	Inf Depth (m)	
Porosity	0.30	Length (m)	12.198		

**Node 26 Link Surround Storage Structure**

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Link	4.003
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	216.078	Surround Shape	(Trench)
Safety Factor	2.0	Time to half empty (mins)		Diameter (mm)	525

**Node 27 Carpark Storage Structure**

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	216.981	Slope (1:X)	500.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	
Safety Factor	2.0	Width (m)	2.400	Inf Depth (m)	
Porosity	0.30	Length (m)	11.737		

**Node 27 Link Surround Storage Structure**

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Link	5.000
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	216.494	Surround Shape	(Trench)
Safety Factor	2.0	Time to half empty (mins)		Diameter (mm)	525

**Node 26 Carpark Storage Structure**

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	217.400	Slope (1:X)	500.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	
Safety Factor	2.0	Width (m)	2.800	Inf Depth (m)	
Porosity	0.30	Length (m)	57.904		

**Node 26 Link Surround Storage Structure**

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Link	5.001
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	216.153	Surround Shape	(Trench)
Safety Factor	2.0	Time to half empty (mins)		Diameter (mm)	525

**Node 8 Depth/Area Storage Structure**

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	216.847
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	

Depth (m)	Area (m <sup>2</sup> )	Inf Area (m <sup>2</sup> )	Depth (m)	Area (m <sup>2</sup> )	Inf Area (m <sup>2</sup> )	Depth (m)	Area (m <sup>2</sup> )	Inf Area (m <sup>2</sup> )
0.000	0.0	0.0	0.800	0.0	0.0	0.801	0.0	0.0

**Rainfall**

Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)	Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)
2 year 15 minute summer	89.720	25.388	30 year 15 minute summer	244.435	69.167
2 year 15 minute winter	62.962	25.388	30 year 15 minute winter	171.533	69.167
2 year 30 minute summer	60.195	17.033	30 year 30 minute summer	166.814	47.203
2 year 30 minute winter	42.242	17.033	30 year 30 minute winter	117.063	47.203
2 year 60 minute summer	41.802	11.047	30 year 60 minute summer	116.941	30.904
2 year 60 minute winter	27.772	11.047	30 year 60 minute winter	77.693	30.904
2 year 120 minute summer	29.268	7.735	30 year 120 minute summer	70.552	18.645
2 year 120 minute winter	19.445	7.735	30 year 120 minute winter	46.873	18.645
2 year 180 minute summer	23.957	6.165	30 year 180 minute summer	53.990	13.893
2 year 180 minute winter	15.572	6.165	30 year 180 minute winter	35.095	13.893
2 year 240 minute summer	19.743	5.217	30 year 240 minute summer	42.746	11.296
2 year 240 minute winter	13.117	5.217	30 year 240 minute winter	28.399	11.296
2 year 360 minute summer	15.917	4.096	30 year 360 minute summer	32.936	8.476
2 year 360 minute winter	10.346	4.096	30 year 360 minute winter	21.409	8.476
2 year 480 minute summer	12.974	3.429	30 year 480 minute summer	26.274	6.943
2 year 480 minute winter	8.620	3.429	30 year 480 minute winter	17.456	6.943
2 year 600 minute summer	10.890	2.979	30 year 600 minute summer	21.816	5.967
2 year 600 minute winter	7.440	2.979	30 year 600 minute winter	14.906	5.967
2 year 720 minute summer	9.891	2.651	30 year 720 minute summer	19.719	5.285
2 year 720 minute winter	6.648	2.651	30 year 720 minute winter	13.252	5.285
2 year 960 minute summer	8.360	2.201	30 year 960 minute summer	16.654	4.385
2 year 960 minute winter	5.538	2.201	30 year 960 minute winter	11.032	4.385
2 year 1440 minute summer	6.273	1.681	30 year 1440 minute summer	12.748	3.417
2 year 1440 minute winter	4.216	1.681	30 year 1440 minute winter	8.567	3.417
2 year 2160 minute summer	4.613	1.275	30 year 2160 minute summer	9.769	2.700
2 year 2160 minute winter	3.178	1.275	30 year 2160 minute winter	6.731	2.700
2 year 2880 minute summer	3.901	1.046	30 year 2880 minute summer	8.528	2.285
2 year 2880 minute winter	2.622	1.046	30 year 2880 minute winter	5.731	2.285
2 year 4320 minute summer	3.025	0.791	30 year 4320 minute summer	6.866	1.795
2 year 4320 minute winter	1.992	0.791	30 year 4320 minute winter	4.522	1.795



**Rainfall**

<b>Event</b>	<b>Peak Intensity (mm/hr)</b>	<b>Average Intensity (mm/hr)</b>	<b>Event</b>	<b>Peak Intensity (mm/hr)</b>	<b>Average Intensity (mm/hr)</b>
100 year +30% CC 15 minute summer	411.449	116.426	100 year +30% CC 480 minute winter	29.369	11.682
100 year +30% CC 15 minute winter	288.736	116.426	100 year +30% CC 600 minute summer	36.746	10.051
100 year +30% CC 30 minute summer	283.754	80.293	100 year +30% CC 600 minute winter	25.107	10.051
100 year +30% CC 30 minute winter	199.126	80.293	100 year +30% CC 720 minute summer	33.249	8.911
100 year +30% CC 60 minute summer	201.174	53.164	100 year +30% CC 720 minute winter	22.346	8.911
100 year +30% CC 60 minute winter	133.655	53.164	100 year +30% CC 960 minute summer	28.156	7.414
100 year +30% CC 120 minute summer	119.355	31.542	100 year +30% CC 960 minute winter	18.651	7.414
100 year +30% CC 120 minute winter	79.297	31.542	100 year +30% CC 1440 minute summer	21.533	5.771
100 year +30% CC 180 minute summer	90.801	23.366	100 year +30% CC 1440 minute winter	14.471	5.771
100 year +30% CC 180 minute winter	59.023	23.366	100 year +30% CC 2160 minute summer	16.298	4.504
100 year +30% CC 240 minute summer	71.747	18.961	100 year +30% CC 2160 minute winter	11.230	4.504
100 year +30% CC 240 minute winter	47.667	18.961	100 year +30% CC 2880 minute summer	14.052	3.766
100 year +30% CC 360 minute summer	55.351	14.244	100 year +30% CC 2880 minute winter	9.444	3.766
100 year +30% CC 360 minute winter	35.980	14.244	100 year +30% CC 4320 minute summer	11.110	2.905
100 year +30% CC 480 minute summer	44.205	11.682	100 year +30% CC 4320 minute winter	7.316	2.905

**Results for 2 year Critical Storm Duration. Lowest mass balance: 98.37%**

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	1	1	218.710	0.000	0.0	0.0000	0.0000	OK
15 minute winter	2	11	218.540	0.040	3.2	0.0479	0.0000	OK
15 minute winter	3	14	218.477	0.334	6.2	0.8359	0.0000	SURCHARGED
30 minute winter	4	25	217.784	0.235	9.1	0.5958	0.0000	SURCHARGED
30 minute winter	5	24	217.780	0.391	9.8	1.6029	0.0000	SURCHARGED
120 minute winter	6	88	217.477	0.259	7.0	1.0689	0.0000	SURCHARGED
120 minute winter	7	88	217.474	0.384	7.6	1.3798	0.0000	SURCHARGED
15 minute winter	13	10	218.710	0.046	3.0	0.0308	0.0000	OK
15 minute winter	14	11	218.568	0.055	4.2	0.0449	0.0000	OK
30 minute winter	20	20	218.487	0.012	0.2	0.0037	0.0000	OK
15 minute winter	21	11	218.418	0.027	1.0	0.0149	0.0000	OK
120 minute winter	15	88	218.380	0.078	2.3	0.1170	0.0000	OK
120 minute winter	16	88	218.379	0.343	3.0	1.1218	0.0000	SURCHARGED
120 minute winter	17	88	218.378	0.558	2.6	2.4314	0.0000	SURCHARGED
15 minute winter	18	10	217.550	0.061	6.8	0.1223	0.0000	OK
120 minute winter	19	90	217.472	0.167	4.5	0.3134	0.0000	OK
120 minute winter	8	88	217.471	0.624	10.9	4.4313	0.0000	SURCHARGED
120 minute winter	9	92	216.933	0.178	8.5	0.2528	0.0000	OK
15 minute summer	22	1	218.616	0.000	0.0	0.0000	0.0000	OK
30 minute winter	23	22	218.192	0.224	2.2	0.3214	0.0000	SURCHARGED
15 minute winter	24	11	217.356	0.043	4.6	0.0428	0.0000	OK
30 minute winter	25	23	216.671	0.425	7.9	0.8006	0.0000	SURCHARGED
120 minute winter	28	186	215.634	0.033	1.6	0.0376	0.0000	OK
120 minute winter	26	100	216.646	0.567	4.3	4.2015	0.0000	SURCHARGED
120 minute winter	27	100	216.646	0.152	1.1	0.2214	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	1	1.000	2	0.0	0.000	0.000	0.0586	
15 minute winter	2	1.001	3	3.1	0.240	0.159	0.3234	
15 minute winter	3	Orifice	4	3.1				
30 minute winter	4	1.003	5	7.9	0.359	0.231	1.4353	
30 minute winter	5	Orifice	6	5.9				
120 minute winter	6	1.005	7	6.4	0.644	0.185	1.1469	
120 minute winter	7	1.006	8	6.7	0.303	0.131	1.0030	
15 minute winter	13	2.000	14	2.9	0.571	0.203	0.1162	
15 minute winter	14	2.001	15	4.2	0.654	0.288	0.2042	
30 minute winter	20	3.000	21	0.2	0.171	0.014	0.0156	
15 minute winter	21	3.001	15	1.0	0.240	0.069	0.0616	
120 minute winter	15	2.002	16	2.3	0.478	0.158	0.5368	
120 minute winter	16	2.003	17	1.8	0.161	0.127	0.5717	
120 minute winter	17	Orifice	18	1.5				
15 minute winter	18	2.005	19	6.7	0.761	0.158	0.2440	
120 minute winter	19	2.006	8	4.4	0.274	0.086	1.6436	
120 minute winter	8	Orifice	9	8.2				
120 minute winter	9	1.008	10	8.4	0.400	0.198	0.4883	
15 minute summer	22	4.000	23	0.0	0.000	0.000	0.2803	
30 minute winter	23	Orifice	24	1.2				
15 minute winter	24	4.002	25	4.5	0.757	0.179	0.5281	
30 minute winter	25	Orifice	26	4.8				
120 minute winter	28	4.005	OUTFALL2	1.6	0.446	0.044	0.0224	16.2
120 minute winter	26	Hydro-Brake®	28	1.6				
120 minute winter	27	5.001	26	-0.9	-0.078	-0.067	1.0193	

**Results for 2 year Critical Storm Duration. Lowest mass balance: 98.37%**

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m <sup>3</sup> )	Flood (m <sup>3</sup> )	Status
120 minute winter	10	92	216.929	0.263	8.6	0.6554	0.0000	SURCHARGED
120 minute winter	11	92	216.702	0.091	8.4	0.0256	0.0000	OK
120 minute winter	OUTFALL1	92	216.662	0.082	8.4	0.0000	0.0000	OK
120 minute winter	12	100	216.646	0.083	0.2	0.0234	0.0000	OK
120 minute winter	OUTFALL2	186	215.603	0.031	1.6	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m <sup>3</sup> )	Discharge Vol (m <sup>3</sup> )
120 minute winter	10	Hydro-Brake®	11	8.4				
120 minute winter	11	1.010	OUTFALL1	8.4	0.808	0.579	0.0478	54.9
120 minute winter	12	5.000	27	-0.2	-0.051	-0.015	0.1616	

**Results for 30 year Critical Storm Duration. Lowest mass balance: 98.37%**

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute winter	1	25	218.899	0.189	3.1	0.0535	0.0000	SURCHARGED
30 minute winter	2	25	218.900	0.400	7.1	1.4326	0.0000	SURCHARGED
30 minute winter	3	25	218.894	0.751	10.0	2.7892	0.0000	FLOOD RISK
60 minute winter	4	57	218.338	0.789	16.6	6.3671	0.0000	SURCHARGED
60 minute winter	5	57	218.333	0.944	14.7	8.6177	0.0000	FLOOD RISK
180 minute winter	6	176	217.925	0.707	9.3	15.7612	0.0000	FLOOD RISK
180 minute winter	7	176	217.922	0.832	10.5	3.7325	0.0000	SURCHARGED
60 minute winter	13	59	218.873	0.209	4.6	0.1412	0.0000	SURCHARGED
60 minute winter	14	59	218.873	0.360	6.5	0.8909	0.0000	SURCHARGED
60 minute winter	20	59	218.872	0.397	1.2	0.1188	0.0000	SURCHARGED
60 minute winter	21	59	218.872	0.481	2.6	0.8413	0.0000	SURCHARGED
60 minute winter	15	59	218.872	0.570	7.3	2.8863	0.0000	SURCHARGED
60 minute winter	16	59	218.871	0.835	7.5	3.9339	0.0000	SURCHARGED
60 minute winter	17	59	218.868	1.048	5.7	5.2069	0.0000	SURCHARGED
180 minute winter	18	172	217.922	0.433	5.9	2.3019	0.0000	SURCHARGED
180 minute winter	19	172	217.921	0.616	6.7	2.3351	0.0000	SURCHARGED
180 minute winter	8	172	217.920	1.073	17.6	18.5262	0.0000	FLOOD RISK
120 minute winter	9	114	217.467	0.712	9.9	1.5230	0.0000	SURCHARGED
15 minute summer	22	1	218.616	0.000	0.0	0.0000	0.0000	OK
30 minute winter	23	25	218.589	0.621	6.1	1.8057	0.0000	FLOOD RISK
60 minute winter	24	44	217.464	0.151	7.4	0.1898	0.0000	SURCHARGED
60 minute winter	25	46	217.437	1.191	15.2	5.7370	0.0000	FLOOD RISK
120 minute winter	28	122	215.637	0.036	1.9	0.0411	0.0000	OK
120 minute winter	26	122	217.354	1.276	8.0	13.0099	0.0000	SURCHARGED
120 minute winter	27	122	217.355	0.861	3.0	4.8301	0.0000	FLOOD RISK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
30 minute winter	1	1.000	2	-3.1	-0.238	-0.215	0.5543	
30 minute winter	2	1.001	3	4.6	0.342	0.239	0.5317	
30 minute winter	3	Orifice	4	4.4				
60 minute winter	4	1.003	5	11.4	0.394	0.332	1.4353	
60 minute winter	5	Orifice	6	6.5				
180 minute winter	6	1.005	7	8.4	0.612	0.243	1.1469	
180 minute winter	7	1.006	8	9.9	0.364	0.193	1.0030	
60 minute winter	13	2.000	14	4.6	0.643	0.318	0.3981	
60 minute winter	14	2.001	15	6.4	0.658	0.442	0.5573	
60 minute winter	20	3.000	21	-0.8	0.180	-0.054	0.2211	
60 minute winter	21	3.001	15	-1.4	0.235	-0.097	0.2363	
60 minute winter	15	2.002	16	5.5	0.521	0.379	0.7028	
60 minute winter	16	2.003	17	2.8	0.228	0.197	0.5717	
60 minute winter	17	Orifice	18	2.0				
180 minute winter	18	2.005	19	5.2	0.667	0.123	1.0970	
180 minute winter	19	2.006	8	6.2	0.258	0.120	1.8341	
180 minute winter	8	Orifice	9	8.4				
120 minute winter	9	1.008	10	9.0	0.403	0.213	0.5293	
15 minute summer	22	4.000	23	0.0	0.000	0.000	0.2803	
30 minute winter	23	Orifice	24	2.0				
60 minute winter	24	4.002	25	7.4	0.781	0.291	0.8544	
60 minute winter	25	Orifice	26	7.4				
120 minute winter	28	4.005	OUTFALL2	1.9	0.469	0.052	0.0254	33.7
120 minute winter	26	Hydro-Brake®	28	1.9				
120 minute winter	27	5.001	26	-2.7	0.192	-0.199	1.0194	

**Results for 30 year Critical Storm Duration. Lowest mass balance: 98.37%**

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m <sup>3</sup> )	Flood (m <sup>3</sup> )	Status
120 minute winter	10	114	217.463	0.797	9.8	3.5970	0.0000	FLOOD RISK
120 minute summer	11	242	216.702	0.091	8.5	0.0257	0.0000	OK
15 minute summer	OUTFALL1	78	216.662	0.082	8.5	0.0000	0.0000	OK
120 minute winter	12	122	217.355	0.792	0.7	0.2240	0.0000	FLOOD RISK
120 minute winter	OUTFALL2	122	215.605	0.034	1.9	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m <sup>3</sup> )	Discharge Vol (m <sup>3</sup> )
120 minute winter	10	Hydro-Brake®	11	8.5				
120 minute summer	11	1.010	OUTFALL1	8.5	0.809	0.583	0.0480	118.1
120 minute winter	12	5.000	27	-0.7	-0.094	-0.053	0.2066	

**Results for 100 year +30% CC Critical Storm Duration. Lowest mass balance: 98.37%**

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute winter	1	44	219.087	0.377	3.2	0.1067	0.0000	SURCHARGED
60 minute winter	2	46	219.087	0.587	8.5	2.3907	0.0000	SURCHARGED
60 minute winter	3	48	219.081	0.938	15.0	9.2916	0.0000	FLOOD RISK
60 minute winter	4	60	218.509	0.960	25.5	14.0444	0.0000	FLOOD RISK
60 minute winter	5	60	218.502	1.113	26.0	16.8352	0.0000	FLOOD RISK
360 minute winter	6	352	218.030	0.812	11.5	63.3646	0.0000	FLOOD RISK
360 minute winter	7	352	218.027	0.937	8.8	4.2832	0.0000	SURCHARGED
60 minute winter	13	45	219.317	0.653	7.9	0.4404	0.0000	SURCHARGED
120 minute winter	14	114	219.311	0.798	6.2	2.4018	0.0000	SURCHARGED
120 minute winter	20	116	219.310	0.835	0.8	0.2497	0.0000	SURCHARGED
120 minute winter	21	116	219.310	0.919	1.7	1.7317	0.0000	SURCHARGED
120 minute winter	15	116	219.310	1.008	5.4	5.6941	0.0000	SURCHARGED
120 minute winter	16	116	219.307	1.271	6.3	6.4762	0.0000	SURCHARGED
120 minute winter	17	118	219.303	1.483	8.0	13.4730	0.0000	FLOOD RISK
30 minute winter	18	21	218.038	0.549	23.8	3.2208	0.0000	SURCHARGED
360 minute winter	19	344	218.026	0.721	7.7	2.8560	0.0000	SURCHARGED
360 minute winter	8	352	218.025	1.178	16.1	28.5168	0.0000	FLOOD RISK
120 minute winter	9	84	217.602	0.847	10.4	1.8885	0.0000	SURCHARGED
60 minute winter	22	47	218.698	0.082	0.7	0.0232	0.0000	OK
60 minute winter	23	46	218.698	0.730	7.3	4.5121	0.0000	FLOOD RISK
30 minute winter	24	21	217.811	0.498	15.8	1.1935	0.0000	SURCHARGED
120 minute winter	25	90	217.704	1.458	15.4	16.6016	0.4799	FLOOD
360 minute winter	28	280	215.639	0.038	2.0	0.0428	0.0000	OK
360 minute winter	26	280	217.604	1.526	6.5	24.9273	0.0000	FLOOD RISK
360 minute winter	27	272	217.600	1.106	2.4	7.4442	3.9431	FLOOD

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute winter	1	1.000	2	-3.2	-0.225	-0.220	0.5543	
60 minute winter	2	1.001	3	6.6	0.375	0.342	0.5317	
60 minute winter	3	Orifice	4	4.3				
60 minute winter	4	1.003	5	19.3	0.485	0.560	1.4353	
60 minute winter	5	Orifice	6	7.3				
360 minute winter	6	1.005	7	6.7	0.568	0.196	1.1469	
360 minute winter	7	1.006	8	8.5	0.287	0.167	1.0030	
60 minute winter	13	2.000	14	7.0	0.674	0.482	0.3981	
120 minute winter	14	2.001	15	4.5	0.565	0.314	0.5573	
120 minute winter	20	3.000	21	-0.5	0.158	-0.033	0.2211	
120 minute winter	21	3.001	15	0.9	0.186	0.060	0.2363	
120 minute winter	15	2.002	16	4.3	0.503	0.295	0.7028	
120 minute winter	16	2.003	17	5.4	0.309	0.377	0.5717	
120 minute winter	17	Orifice	18	2.3				
30 minute winter	18	2.005	19	17.7	0.870	0.418	1.0970	
360 minute winter	19	2.006	8	7.5	0.199	0.145	1.8341	
360 minute winter	8	Orifice	9	8.3				
120 minute winter	9	1.008	10	9.6	0.413	0.226	0.5293	
60 minute winter	22	4.000	23	-0.7	-0.060	-0.027	0.4374	
60 minute winter	23	Orifice	24	2.2				
30 minute winter	24	4.002	25	12.3	0.752	0.484	0.8546	
120 minute winter	25	Orifice	26	6.6				
360 minute winter	28	4.005	OUTFALL2	2.0	0.479	0.057	0.0270	64.0
360 minute winter	26	Hydro-Brake®	28	2.0				
360 minute winter	27	5.001	26	-2.1	-0.122	-0.158	1.0194	

**Results for 100 year +30% CC Critical Storm Duration. Lowest mass balance: 98.37%**

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m <sup>3</sup> )	Flood (m <sup>3</sup> )	Status
120 minute winter	10	84	217.598	0.932	11.0	5.1912	0.0000	FLOOD RISK
30 minute summer	11	247	216.702	0.091	8.5	0.0257	0.0000	OK
30 minute summer	OUTFALL1	247	216.662	0.082	8.5	0.0000	0.0000	OK
360 minute winter	12	312	217.600	1.037	0.3	0.2935	0.0000	FLOOD RISK
360 minute winter	OUTFALL2	280	215.607	0.036	2.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m <sup>3</sup> )	Discharge Vol (m <sup>3</sup> )
120 minute winter	10	Hydro-Brake®	11	8.5				
30 minute summer	11	1.010	OUTFALL1	8.5	0.809	0.583	0.0480	122.6
360 minute winter	12	5.000	27	-0.3	-0.047	-0.021	0.2066	

**Results for 2 year 15 minute summer. 255 minute analysis at 1 minute timestep. Mass balance: 99.61%**

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	1	1	218.710	0.000	0.0	0.0000	0.0000	OK
15 minute summer	2	11	218.540	0.040	3.1	0.0469	0.0000	OK
15 minute summer	3	13	218.449	0.305	6.0	0.7139	0.0000	SURCHARGED
15 minute summer	4	15	217.718	0.169	10.1	0.3387	0.0000	OK
15 minute summer	5	15	217.716	0.327	12.1	1.2356	0.0000	SURCHARGED
15 minute summer	6	19	217.319	0.101	9.7	0.2513	0.0000	OK
15 minute summer	7	19	217.318	0.228	12.5	0.6583	0.0000	SURCHARGED
15 minute summer	13	10	218.709	0.045	2.9	0.0303	0.0000	OK
15 minute summer	14	11	218.567	0.054	4.0	0.0438	0.0000	OK
15 minute summer	20	12	218.487	0.012	0.2	0.0037	0.0000	OK
15 minute summer	21	11	218.417	0.026	1.0	0.0142	0.0000	OK
15 minute summer	15	12	218.364	0.062	5.5	0.0784	0.0000	OK
15 minute summer	16	19	218.232	0.196	6.8	0.3982	0.0000	SURCHARGED
15 minute summer	17	19	218.231	0.411	7.3	1.6026	0.0000	SURCHARGED
15 minute summer	18	10	217.549	0.060	6.5	0.1186	0.0000	OK
15 minute summer	19	11	217.366	0.061	8.5	0.0703	0.0000	OK
15 minute summer	8	19	217.313	0.466	21.3	2.7840	0.0000	SURCHARGED
15 minute summer	9	15	216.841	0.086	7.7	0.0998	0.0000	OK
15 minute summer	22	1	218.616	0.000	0.0	0.0000	0.0000	OK
15 minute summer	23	13	218.167	0.199	2.6	0.2671	0.0000	SURCHARGED
15 minute summer	24	11	217.355	0.042	4.4	0.0418	0.0000	OK
15 minute summer	25	13	216.616	0.370	9.1	0.6226	0.0000	SURCHARGED
15 minute summer	28	50	215.634	0.033	1.6	0.0376	0.0000	OK
15 minute summer	26	21	216.483	0.405	7.6	2.3400	0.0000	SURCHARGED
15 minute summer	27	12	216.510	0.016	0.4	0.0088	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	1	1.000	2	0.0	0.000	0.000	0.0586	
15 minute summer	2	1.001	3	3.0	0.240	0.154	0.3221	
15 minute summer	3	Orifice	4	3.0				
15 minute summer	4	1.003	5	9.7	0.415	0.283	1.2960	
15 minute summer	5	Orifice	6	5.4				
15 minute summer	6	1.005	7	9.7	0.760	0.281	0.8223	
15 minute summer	7	1.006	8	11.3	0.454	0.222	1.0029	
15 minute summer	13	2.000	14	2.8	0.566	0.196	0.1134	
15 minute summer	14	2.001	15	4.0	0.657	0.279	0.1980	
15 minute summer	20	3.000	21	0.2	0.161	0.014	0.0169	
15 minute summer	21	3.001	15	0.9	0.240	0.065	0.0592	
15 minute summer	15	2.002	16	5.2	0.687	0.358	0.4654	
15 minute summer	16	2.003	17	5.1	0.351	0.352	0.5717	
15 minute summer	17	Orifice	18	1.3				
15 minute summer	18	2.005	19	6.4	0.752	0.151	0.2360	
15 minute summer	19	2.006	8	8.5	0.347	0.163	1.1177	
15 minute summer	8	Orifice	9	7.3				
15 minute summer	9	1.008	10	7.5	0.450	0.178	0.3120	
15 minute summer	22	4.000	23	0.0	0.000	0.000	0.2803	
15 minute summer	23	Orifice	24	1.1				
15 minute summer	24	4.002	25	4.4	0.755	0.171	0.5251	
15 minute summer	25	Orifice	26	5.2				
15 minute summer	28	4.005	OUTFALL2	1.6	0.446	0.044	0.0224	6.0
15 minute summer	26	Hydro-Brake®	28	1.6				
15 minute summer	27	5.001	26	0.3	0.050	0.024	0.5390	



**Results for 2 year 15 minute summer. 255 minute analysis at 1 minute timestep. Mass balance: 99.61%**

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m <sup>3</sup> )	Flood (m <sup>3</sup> )	Status
15 minute summer	10	15	216.840	0.174	8.3	0.4033	0.0000	SURCHARGED
15 minute summer	11	15	216.696	0.085	7.7	0.0240	0.0000	OK
15 minute summer	OUTFALL1	15	216.657	0.077	7.7	0.0000	0.0000	OK
15 minute summer	12	1	216.563	0.000	0.0	0.0000	0.0000	OK
15 minute summer	OUTFALL2	50	215.603	0.031	1.6	0.0000	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m <sup>3</sup> )	Discharge Vol (m <sup>3</sup> )
15 minute summer	10	Hydro-Brake®	11	7.7				
15 minute summer	11	1.010	OUTFALL1	7.7	0.791	0.526	0.0443	20.1
15 minute summer	12	5.000	27	0.0	0.000	0.000	0.0060	

**Results for 2 year 15 minute winter. 255 minute analysis at 1 minute timestep. Mass balance: 99.60%**

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	1	1	218.710	0.000	0.0	0.0000	0.0000	OK
15 minute winter	2	11	218.540	0.040	3.2	0.0479	0.0000	OK
15 minute winter	3	14	218.477	0.334	6.2	0.8359	0.0000	SURCHARGED
15 minute winter	4	15	217.756	0.207	10.6	0.4737	0.0000	OK
15 minute winter	5	15	217.752	0.362	11.4	1.4287	0.0000	SURCHARGED
15 minute winter	6	18	217.356	0.138	10.0	0.3944	0.0000	OK
15 minute winter	7	18	217.352	0.262	13.4	0.8061	0.0000	SURCHARGED
15 minute winter	13	10	218.710	0.046	3.0	0.0308	0.0000	OK
15 minute winter	14	11	218.568	0.055	4.2	0.0449	0.0000	OK
15 minute winter	20	12	218.487	0.012	0.2	0.0037	0.0000	OK
15 minute winter	21	11	218.418	0.027	1.0	0.0149	0.0000	OK
15 minute winter	15	12	218.365	0.063	5.7	0.0820	0.0000	OK
15 minute winter	16	19	218.267	0.231	7.1	0.5474	0.0000	SURCHARGED
15 minute winter	17	19	218.266	0.446	7.9	1.7977	0.0000	SURCHARGED
15 minute winter	18	10	217.550	0.061	6.8	0.1223	0.0000	OK
15 minute winter	19	11	217.368	0.063	8.9	0.0728	0.0000	OK
15 minute winter	8	19	217.347	0.500	22.5	3.1563	0.0000	SURCHARGED
15 minute winter	9	16	216.852	0.097	8.0	0.1184	0.0000	OK
15 minute winter	22	1	218.616	0.000	0.0	0.0000	0.0000	OK
15 minute winter	23	14	218.190	0.222	2.8	0.3159	0.0000	SURCHARGED
15 minute winter	24	11	217.356	0.043	4.6	0.0428	0.0000	OK
15 minute winter	25	14	216.658	0.412	9.6	0.7562	0.0000	SURCHARGED
15 minute winter	28	58	215.634	0.033	1.6	0.0376	0.0000	OK
15 minute winter	26	23	216.514	0.436	7.9	2.7024	0.0000	SURCHARGED
15 minute winter	27	22	216.518	0.024	0.6	0.0150	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	1	1.000	2	0.0	0.000	0.000	0.0600	
15 minute winter	2	1.001	3	3.1	0.240	0.159	0.3234	
15 minute winter	3	Orifice	4	3.1				
15 minute winter	4	1.003	5	9.0	0.415	0.263	1.4082	
15 minute winter	5	Orifice	6	5.7				
15 minute winter	6	1.005	7	10.5	0.772	0.305	0.9409	
15 minute winter	7	1.006	8	12.0	0.462	0.235	1.0030	
15 minute winter	13	2.000	14	2.9	0.571	0.203	0.1162	
15 minute winter	14	2.001	15	4.2	0.654	0.288	0.2042	
15 minute winter	20	3.000	21	0.2	0.157	0.014	0.0175	
15 minute winter	21	3.001	15	1.0	0.240	0.069	0.0616	
15 minute winter	15	2.002	16	5.4	0.681	0.376	0.4818	
15 minute winter	16	2.003	17	5.5	0.380	0.380	0.5717	
15 minute winter	17	Orifice	18	1.3				
15 minute winter	18	2.005	19	6.7	0.761	0.158	0.2440	
15 minute winter	19	2.006	8	8.9	0.358	0.171	1.1247	
15 minute winter	8	Orifice	9	7.6				
15 minute winter	9	1.008	10	7.9	0.454	0.187	0.3392	
15 minute winter	22	4.000	23	0.0	0.000	0.000	0.2803	
15 minute winter	23	Orifice	24	1.2				
15 minute winter	24	4.002	25	4.5	0.757	0.179	0.5281	
15 minute winter	25	Orifice	26	5.3				
15 minute winter	28	4.005	OUTFALL2	1.6	0.446	0.044	0.0224	6.7
15 minute winter	26	Hydro-Brake®	28	1.6				
15 minute winter	27	5.001	26	-0.6	0.134	-0.044	0.5617	

**Results for 2 year 15 minute winter. 255 minute analysis at 1 minute timestep. Mass balance: 99.60%**

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m <sup>3</sup> )	Flood (m <sup>3</sup> )	Status
15 minute winter	10	16	216.850	0.183	8.4	0.4293	0.0000	SURCHARGED
15 minute winter	11	16	216.698	0.087	8.0	0.0247	0.0000	OK
15 minute winter	OUTFALL1	17	216.659	0.079	8.0	0.0000	0.0000	OK
15 minute winter	12	1	216.563	0.000	0.0	0.0000	0.0000	OK
15 minute winter	OUTFALL2	58	215.603	0.031	1.6	0.0000	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m <sup>3</sup> )	Discharge Vol (m <sup>3</sup> )
15 minute winter	10	Hydro-Brake®	11	8.0				
15 minute winter	11	1.010	OUTFALL1	8.0	0.799	0.549	0.0458	22.5
15 minute winter	12	5.000	27	0.0	0.000	0.000	0.0105	

**Results for 2 year 30 minute summer. 270 minute analysis at 1 minute timestep. Mass balance: 99.71%**

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute summer	1	1	218.710	0.000	0.0	0.0000	0.0000	OK
30 minute summer	2	18	218.538	0.038	2.8	0.0449	0.0000	OK
30 minute summer	3	21	218.458	0.315	5.6	0.7538	0.0000	SURCHARGED
30 minute summer	4	23	217.746	0.197	9.7	0.4359	0.0000	OK
30 minute summer	5	23	217.745	0.356	11.1	1.3963	0.0000	SURCHARGED
30 minute summer	6	32	217.381	0.163	9.6	0.5077	0.0000	OK
30 minute summer	7	32	217.378	0.288	12.4	0.9179	0.0000	SURCHARGED
30 minute summer	13	18	218.707	0.043	2.6	0.0289	0.0000	OK
30 minute summer	14	18	218.564	0.051	3.7	0.0408	0.0000	OK
30 minute summer	20	19	218.487	0.012	0.2	0.0037	0.0000	OK
30 minute summer	21	18	218.416	0.025	0.9	0.0137	0.0000	OK
30 minute summer	15	19	218.362	0.060	5.0	0.0743	0.0000	OK
30 minute summer	16	30	218.289	0.253	6.4	0.6600	0.0000	SURCHARGED
30 minute summer	17	30	218.288	0.468	6.6	1.9246	0.0000	SURCHARGED
30 minute summer	18	18	217.548	0.059	6.3	0.1173	0.0000	OK
30 minute summer	19	31	217.375	0.070	8.2	0.0843	0.0000	OK
30 minute summer	8	32	217.374	0.527	18.4	3.4388	0.0000	SURCHARGED
30 minute summer	9	26	216.860	0.105	8.1	0.1353	0.0000	OK
30 minute summer	22	1	218.616	0.000	0.0	0.0000	0.0000	OK
30 minute summer	23	21	218.176	0.208	2.4	0.2870	0.0000	SURCHARGED
30 minute summer	24	18	217.354	0.041	4.1	0.0404	0.0000	OK
30 minute summer	25	22	216.634	0.388	8.5	0.6779	0.0000	SURCHARGED
30 minute summer	28	74	215.634	0.033	1.6	0.0376	0.0000	OK
30 minute summer	26	33	216.532	0.454	7.1	2.9087	0.0000	SURCHARGED
30 minute summer	27	34	216.534	0.040	0.8	0.0317	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
30 minute summer	1	1.000	2	0.0	0.000	0.000	0.0558	
30 minute summer	2	1.001	3	2.8	0.218	0.143	0.3194	
30 minute summer	3	Orifice	4	3.0				
30 minute summer	4	1.003	5	8.9	0.350	0.258	1.3842	
30 minute summer	5	Orifice	6	5.6				
30 minute summer	6	1.005	7	9.7	0.748	0.281	1.0163	
30 minute summer	7	1.006	8	9.2	0.410	0.179	1.0030	
30 minute summer	13	2.000	14	2.6	0.553	0.179	0.1071	
30 minute summer	14	2.001	15	3.7	0.631	0.253	0.1863	
30 minute summer	20	3.000	21	0.2	0.161	0.014	0.0163	
30 minute summer	21	3.001	15	0.9	0.223	0.061	0.0564	
30 minute summer	15	2.002	16	4.9	0.640	0.337	0.4786	
30 minute summer	16	2.003	17	4.5	0.317	0.309	0.5717	
30 minute summer	17	Orifice	18	1.3				
30 minute summer	18	2.005	19	6.2	0.748	0.147	0.2305	
30 minute summer	19	2.006	8	8.0	0.314	0.155	1.1572	
30 minute summer	8	Orifice	9	7.8				
30 minute summer	9	1.008	10	8.0	0.423	0.188	0.3607	
30 minute summer	22	4.000	23	0.0	0.000	0.000	0.2803	
30 minute summer	23	Orifice	24	1.1				
30 minute summer	24	4.002	25	4.1	0.777	0.161	0.5211	
30 minute summer	25	Orifice	26	4.9				
30 minute summer	28	4.005	OUTFALL2	1.6	0.446	0.044	0.0224	7.9
30 minute summer	26	Hydro-Brake®	28	1.6				
30 minute summer	27	5.001	26	-0.7	0.189	-0.052	0.6183	

**Results for 2 year 30 minute summer. 270 minute analysis at 1 minute timestep. Mass balance: 99.71%**

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m <sup>3</sup> )	Flood (m <sup>3</sup> )	Status
30 minute summer	10	26	216.858	0.192	8.3	0.4502	0.0000	SURCHARGED
30 minute summer	11	26	216.699	0.088	8.1	0.0249	0.0000	OK
30 minute summer	OUTFALL1	26	216.659	0.079	8.1	0.0000	0.0000	OK
30 minute summer	12	1	216.563	0.000	0.0	0.0000	0.0000	OK
30 minute summer	OUTFALL2	74	215.603	0.031	1.6	0.0000	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m <sup>3</sup> )	Discharge Vol (m <sup>3</sup> )
30 minute summer	10	Hydro-Brake®	11	8.1				
30 minute summer	11	1.010	OUTFALL1	8.1	0.800	0.554	0.0462	27.0
30 minute summer	12	5.000	27	0.0	0.000	0.000	0.0220	

**Results for 2 year 30 minute winter. 270 minute analysis at 1 minute timestep. Mass balance: 99.71%**

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute winter	1	1	218.710	0.000	0.0	0.0000	0.0000	OK
30 minute winter	2	18	218.537	0.037	2.6	0.0430	0.0000	OK
30 minute winter	3	22	218.473	0.330	5.2	0.8160	0.0000	SURCHARGED
30 minute winter	4	25	217.784	0.235	9.1	0.5958	0.0000	SURCHARGED
30 minute winter	5	24	217.780	0.391	9.8	1.6029	0.0000	SURCHARGED
30 minute winter	6	32	217.420	0.202	9.4	0.7312	0.0000	OK
30 minute winter	7	32	217.416	0.326	11.6	1.0894	0.0000	SURCHARGED
30 minute winter	13	18	218.705	0.041	2.4	0.0278	0.0000	OK
30 minute winter	14	18	218.562	0.049	3.4	0.0382	0.0000	OK
30 minute winter	20	20	218.487	0.012	0.2	0.0037	0.0000	OK
30 minute winter	21	19	218.415	0.024	0.8	0.0129	0.0000	OK
30 minute winter	15	19	218.360	0.058	4.7	0.0699	0.0000	OK
30 minute winter	16	30	218.335	0.299	5.9	0.8998	0.0000	SURCHARGED
30 minute winter	17	30	218.334	0.514	5.9	2.1854	0.0000	SURCHARGED
30 minute winter	18	18	217.546	0.057	5.8	0.1117	0.0000	OK
30 minute winter	19	33	217.413	0.108	7.6	0.1586	0.0000	OK
30 minute winter	8	32	217.412	0.565	16.4	3.8261	0.0000	SURCHARGED
30 minute winter	9	31	216.887	0.132	8.5	0.1814	0.0000	OK
30 minute winter	22	1	218.616	0.000	0.0	0.0000	0.0000	OK
30 minute winter	23	22	218.192	0.224	2.2	0.3214	0.0000	SURCHARGED
30 minute winter	24	19	217.353	0.040	3.9	0.0391	0.0000	OK
30 minute winter	25	23	216.671	0.425	7.9	0.8006	0.0000	SURCHARGED
30 minute winter	28	85	215.634	0.033	1.6	0.0376	0.0000	OK
30 minute winter	26	35	216.566	0.488	6.9	3.2964	0.0000	SURCHARGED
30 minute winter	27	34	216.567	0.073	1.4	0.0821	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
30 minute winter	1	1.000	2	0.0	0.000	0.000	0.0530	
30 minute winter	2	1.001	3	2.6	0.214	0.133	0.3167	
30 minute winter	3	Orifice	4	3.1				
30 minute winter	4	1.003	5	7.9	0.359	0.231	1.4353	
30 minute winter	5	Orifice	6	5.9				
30 minute winter	6	1.005	7	9.3	0.732	0.271	1.1159	
30 minute winter	7	1.006	8	8.5	0.413	0.167	1.0030	
30 minute winter	13	2.000	14	2.4	0.539	0.166	0.1009	
30 minute winter	14	2.001	15	3.4	0.612	0.233	0.1777	
30 minute winter	20	3.000	21	0.2	0.171	0.014	0.0156	
30 minute winter	21	3.001	15	0.8	0.235	0.055	0.0539	
30 minute winter	15	2.002	16	4.6	0.620	0.315	0.4743	
30 minute winter	16	2.003	17	4.1	0.296	0.285	0.5717	
30 minute winter	17	Orifice	18	1.4				
30 minute winter	18	2.005	19	5.8	0.731	0.137	0.3049	
30 minute winter	19	2.006	8	7.5	0.314	0.144	1.3492	
30 minute winter	8	Orifice	9	8.1				
30 minute winter	9	1.008	10	8.2	0.423	0.194	0.4236	
30 minute winter	22	4.000	23	0.0	0.000	0.000	0.2803	
30 minute winter	23	Orifice	24	1.2				
30 minute winter	24	4.002	25	3.9	0.758	0.152	0.5172	
30 minute winter	25	Orifice	26	4.8				
30 minute winter	28	4.005	OUTFALL2	1.6	0.446	0.044	0.0224	8.9
30 minute winter	26	Hydro-Brake®	28	1.6				
30 minute winter	27	5.001	26	-1.3	0.189	-0.097	0.7571	

**Results for 2 year 30 minute winter. 270 minute analysis at 1 minute timestep. Mass balance: 99.71%**

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m <sup>3</sup> )	Flood (m <sup>3</sup> )	Status
30 minute winter	10	31	216.885	0.219	8.6	0.5233	0.0000	SURCHARGED
30 minute winter	11	31	216.700	0.089	8.3	0.0253	0.0000	OK
30 minute winter	OUTFALL1	31	216.661	0.080	8.3	0.0000	0.0000	OK
30 minute winter	12	34	216.568	0.005	0.1	0.0014	0.0000	OK
30 minute winter	OUTFALL2	85	215.603	0.031	1.6	0.0000	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m <sup>3</sup> )	Discharge Vol (m <sup>3</sup> )
30 minute winter	10	Hydro-Brake <sup>®</sup>	11	8.3				
30 minute winter	11	1.010	OUTFALL1	8.3	0.805	0.567	0.0470	30.3
30 minute winter	12	5.000	27	-0.1	-0.025	-0.006	0.0512	

**Results for 2 year 60 minute summer. 300 minute analysis at 1 minute timestep. Mass balance: 99.82%**

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	1	1	218.710	0.000	0.0	0.0000	0.0000	OK
60 minute summer	2	33	218.534	0.034	2.2	0.0388	0.0000	OK
60 minute summer	3	37	218.428	0.285	4.4	0.6328	0.0000	SURCHARGED
60 minute summer	4	40	217.740	0.191	8.1	0.4119	0.0000	OK
60 minute summer	5	40	217.737	0.348	8.6	1.3459	0.0000	SURCHARGED
60 minute summer	6	49	217.407	0.189	8.5	0.6543	0.0000	OK
60 minute summer	7	51	217.404	0.314	10.5	1.0326	0.0000	SURCHARGED
60 minute summer	13	33	218.702	0.038	2.0	0.0253	0.0000	OK
60 minute summer	14	33	218.558	0.045	2.9	0.0338	0.0000	OK
60 minute summer	20	33	218.487	0.012	0.2	0.0035	0.0000	OK
60 minute summer	21	34	218.413	0.022	0.7	0.0115	0.0000	OK
60 minute summer	15	34	218.355	0.053	3.9	0.0601	0.0000	OK
60 minute summer	16	47	218.319	0.283	5.0	0.8185	0.0000	SURCHARGED
60 minute summer	17	48	218.317	0.497	4.5	2.0906	0.0000	SURCHARGED
60 minute summer	18	33	217.542	0.053	5.1	0.1032	0.0000	OK
60 minute summer	19	50	217.401	0.096	6.7	0.1347	0.0000	OK
60 minute summer	8	51	217.401	0.554	14.8	3.7113	0.0000	SURCHARGED
60 minute summer	9	51	216.880	0.125	8.3	0.1700	0.0000	OK
60 minute summer	22	1	218.616	0.000	0.0	0.0000	0.0000	OK
60 minute summer	23	38	218.162	0.194	1.9	0.2574	0.0000	SURCHARGED
60 minute summer	24	34	217.350	0.037	3.4	0.0364	0.0000	OK
60 minute summer	25	39	216.620	0.374	6.8	0.6329	0.0000	SURCHARGED
60 minute summer	28	105	215.634	0.033	1.6	0.0376	0.0000	OK
60 minute summer	26	56	216.556	0.477	6.1	3.1763	0.0000	SURCHARGED
60 minute summer	27	58	216.556	0.062	1.1	0.0625	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute summer	1	1.000	2	0.0	0.000	0.000	0.0471	
60 minute summer	2	1.001	3	2.2	0.192	0.113	0.3110	
60 minute summer	3	Orifice	4	2.9				
60 minute summer	4	1.003	5	7.0	0.307	0.203	1.3659	
60 minute summer	5	Orifice	6	5.6				
60 minute summer	6	1.005	7	8.5	0.704	0.246	1.0864	
60 minute summer	7	1.006	8	7.3	0.344	0.143	1.0030	
60 minute summer	13	2.000	14	2.0	0.511	0.138	0.0891	
60 minute summer	14	2.001	15	2.9	0.585	0.197	0.1566	
60 minute summer	20	3.000	21	0.2	0.169	0.013	0.0139	
60 minute summer	21	3.001	15	0.7	0.202	0.046	0.0476	
60 minute summer	15	2.002	16	3.8	0.567	0.265	0.4593	
60 minute summer	16	2.003	17	3.1	0.231	0.213	0.5717	
60 minute summer	17	Orifice	18	1.4				
60 minute summer	18	2.005	19	5.1	0.705	0.120	0.2735	
60 minute summer	19	2.006	8	6.6	0.286	0.128	1.2912	
60 minute summer	8	Orifice	9	8.0				
60 minute summer	9	1.008	10	8.2	0.406	0.192	0.4079	
60 minute summer	22	4.000	23	0.0	0.000	0.000	0.2803	
60 minute summer	23	Orifice	24	1.1				
60 minute summer	24	4.002	25	3.4	0.769	0.134	0.5092	
60 minute summer	25	Orifice	26	4.3				
60 minute summer	28	4.005	OUTFALL2	1.6	0.446	0.044	0.0224	10.3
60 minute summer	26	Hydro-Brake®	28	1.6				
60 minute summer	27	5.001	26	-1.0	-0.083	-0.072	0.7083	