Surface Water Design Calculations

Job Name	Client
Proposed AD Plant Land off Weighbridge Road Deeside CH5 2LL	BioConstruct GmbH
PDC Reference	**Designer**
29718	MJH

Revision	Date	Revised by
D – Planning reference updated	30/04/25	IBE
C – Updates to simulation	24/01/25	IBE
B – Updates to simulation	27/11/24	IBE
A – Pipe layout amended	11/11/24	IBE
0	15/10/24	-

Design Parameters	
Storm design return period	1 in 100 years
Allowance for Climate Change (CC)	30% increase in rainfall
Storm Profiles	Summer & Winter
Storm Duration	15mins to 7 days (to determine the critical duration)
Drained Area	2.303ha
Cv Summer	1.0
Cv Winter	1.0
Voids Ratio	100%
Flow Restriction	10.0l/s
Rainfall Data	FSR

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A: Units T6 & T7, Snetterton Business Park, Harling Road, Snetterton, NR16 2JU

Description of Calculations
The drainage system has been designed to contain up to and including the 1 in 30 year rainfall event + CC, and allow minor, shallow flooding above-ground during the 1 in 100 year rainfall event + CC. FSR rainfall data, a climate change allowance of 30%, and a restricted rate of 10.0l/s have been chosen in accordance with the drainage design previously approved under Planning Application Reference 062923.
Notes
An attenuation system has been designed for the proposed hardstanding and roof areas, which will outfall into an attenuation pond, before outfalling to the ditch to the west of the site at a restricted rate. The attenuation pond, which drains 2.303ha, should have a volume of 2366m^3, and be 2.0m deep including freeboard, with 1:4 side slopes and a 1.5m wet bench. The attenuation drainage system will contain up to and including the 1 in 30 year rainfall event + CC and allow minor, shallow flooding above-ground during the 100 year + CC event. This would pond locally before re-entering the drainage system or flowing overland towards the basin. Refer to InfoDrainage Design Simulations for the dimensions, and design of the drainage features. To reduce the risk of flooding due to the failure of the surface water drainage system over its lifespan, regular maintenance should be undertaken. The long term maintenance and repair of the proposed surface water drainage system shall be the responsibility of the site owner. Ongoing maintenance of the drainage features will prevent blockages that occur through overgrown vegetation and silt build up.

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Pages	Calculations	Checked	Date
1-35	InfoDrainage Design Simulations	MJH	24/01/25
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Asphalt 15

Type : Catchment Area

Area (ha)	0.052

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100

Hardstanding 2

Type : Catchment Area

Area (ha)	0.129

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100

Building 1

Type : Catchment Area

Area (ha)	0.055

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100

Building 3

Type : Catchment Area

Area (ha)	0.031

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100

Building 4

Type : Catchment Area

Area (ha)	0.035

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100

Building 2

Type : Catchment Area

Area (ha)	0.027

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100

Building 5

Type : Catchment Area

Area (ha)	0.016

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100

Building 6

Type : Catchment Area

Area (ha)	0.033

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100

Asphalt 1

Type : Catchment Area

Area (ha)	0.045

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100

Asphalt 2

Type : Catchment Area

Area (ha)	0.032

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100

Asphalt 3

Type : Catchment Area

Area (ha)	0.008

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100

Asphalt 4

Type : Catchment Area

Area (ha)	0.015

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100

Asphalt 5

Type : Catchment Area

Area (ha)	0.017

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100

Asphalt 7

Type : Catchment Area

Area (ha)	0.077

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100

Asphalt 6

Type : Catchment Area

Area (ha)	0.02

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100

Asphalt 12

Type : Catchment Area

Area (ha)	0.076

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100

Hardstanding 3

Type : Catchment Area

Area (ha)	0.064

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100

Hardstanding 4

Type : Catchment Area

Area (ha)	0.057

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100

Asphalt 13

Type : Catchment Area

Area (ha)	0.016

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100

Asphalt 14

Type : Catchment Area

Area (ha)	0.021

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100

Asphalt 8

Type : Catchment Area

Area (ha)	0.043

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100

Asphalt 9

Type : Catchment Area

Area (ha)	0.038

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100

Asphalt 10

Type : Catchment Area

Area (ha)	0.049

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100

Asphalt 20

Type : Catchment Area

Area (ha)	0.057

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100

Asphalt 18

Type : Catchment Area

Area (ha)	0.022

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100

Asphalt 11

Type : Catchment Area

Area (ha)	0.036

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100

Asphalt 16

Type : Catchment Area

Area (ha)	0.022

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100

Hardstanding 1

Type : Catchment Area

Area (ha)	0.108

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100

Asphalt 17

Type : Catchment Area

Area (ha)	0.034

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100

Asphalt 22

Type : Catchment Area

Area (ha)	0.083

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100

Asphalt 21

Type : Catchment Area

Area (ha)	0.004

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100

Bund

Type : Catchment Area

Area (ha)	0.977

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100

Project:	Date:		
29718 Network RevC Land off Weighbridge Road Deeside	20/01/2025		
	Designed by:	Checked by:	Approved By:
	MJH	MJH	MJH
Report Details: Type: Junctions Storm Phase: Phase	Company Address: PDC Engineering Units T6 & T7 Snetterton Business Park, NR16 2JU		

Name	Junction Type	Easting (m)	Northing (m)	Cover Level (m)	Depth (m)	Invert Level (m)	Chamber Shape	Diameter (m)
18	Manhole	331080.219	371270.220	9.544	1.025	8.519	Circular	1.200
19	Manhole	331081.580	371247.620	9.399	1.025	8.374	Circular	1.200
20	Manhole	331083.172	371221.193	9.278	1.155	8.123	Circular	1.200
21	Manhole	331113.902	371228.801	9.451	1.025	8.426	Circular	1.200
22	Manhole	331097.904	371227.846	9.438	1.107	8.331	Circular	1.200
10	Manhole	331134.668	371230.016	9.451	1.068	8.383	Circular	1.200
11	Manhole	331159.012	371231.404	9.534	1.386	8.148	Circular	1.200
12	Manhole	331158.002	371268.118	9.554	1.068	8.485	Circular	1.200
13	Manhole	331159.647	371222.729	9.246	1.267	7.979	Circular	1.200
23	Manhole	331093.336	371210.845	9.180	1.153	8.027	Circular	1.200
5	Manhole	331192.492	371253.768	9.550	0.904	8.646	Circular	1.200
4	Manhole	331203.951	371224.646	9.549	1.182	8.366	Circular	1.200
6	Manhole	331200.438	371205.616	9.364	1.459	7.906	Circular	1.200
7	Manhole	331193.699	371194.363	9.022	1.240	7.782	Circular	1.200
9	Manhole	331161.560	371191.208	8.856	1.515	7.341	Circular	1.350
26	Manhole	331132.364	371187.175	8.818	1.368	7.450	Circular	1.200
24	Manhole	331111.435	371204.473	9.062	1.206	7.855	Circular	1.200
25	Manhole	331131.864	371196.688	8.957	1.362	7.595	Circular	1.200
29	Manhole	331140.509	371165.901	8.722	2.192	6.530	Circular	1.350
16	Manhole	331151.995	371166.379	8.720	2.090	6.630	Circular	1.350
17	Manhole	331080.581	371168.328	9.102	1.025	8.077	Circular	1.200
28	Manhole	331105.692	371185.915	8.945	1.078	7.867	Circular	1.200
30	Manhole	331090.152	371156.617	9.019	2.669	6.350	Circular	1.200
31	Manhole	331066.928	371176.630	9.068	2.854	6.214	Circular	1.200
32	Manhole	330978.970	371173.854	5.531	1.025	4.506	Circular	1.200
1	Manhole	331195.322	371278.015	9.740	0.904	8.837	Circular	1.200
2	Manhole	331203.518	371253.746	9.545	0.904	8.641	Circular	1.200
3	Manhole	331211.823	371229.157	9.431	0.993	8.438	Circular	1.200
14	Manhole	331165.156	371225.144	9.548	1.025	8.523	Circular	1.200
8	Manhole	331193.697	371205.086	9.393	0.904	8.490	Circular	1.200
27	Manhole	331094.527	371185.446	8.959	1.025	7.934	Circular	1.200
15	Manhole	331151.203	371170.891	8.803	2.103	6.700	Circular	1.200

Name	Lock
18	None
19	None
20	None
21	None
22	None
10	None
11	None
12	None
13	None
23	None
5	None
4	None
6	None
7	None
9	None
26	None
24	None
25	None
29	None
16	None
17	None
28	None
30	None
31	None
32	None
1	None
2	None
3	None
14	None
8	None
27	None
15	None

Inlets

Junction	Inlet Name	Incoming Item(s)	Bypass Destination	Capacity Type
18	Inlet	Asphalt 1 Building 1	(None)	No Restriction
19	Inlet	8.000 Asphalt 2	(None)	No Restriction
20	Inlet	8.001 Asphalt 3 9.001	(None)	No Restriction
21	Inlet	Asphalt 4 Building 4	(None)	No Restriction
22	Inlet	9.000 Asphalt 5	(None)	No Restriction
	Inlet (1)	Building 3	(None)	No Restriction
10	Inlet	Building 6 Asphalt 6	(None)	No Restriction
11	Inlet	4.000 5.000	(None)	No Restriction
12	Inlet	Asphalt 7 Building 2 Building 5	(None)	No Restriction
13	Inlet	4.001 6.000 Asphalt 16 Asphalt 9	(None)	No Restriction

Project:	Date:		
29718 Network RevC Land off Weighbridge Road Deeside	20/01/2025		
	Designed by: MJH	Checked by: MJH	Approved By: MJH
Report Details: Type: Junctions Storm Phase: Phase	Company Address: PDC Engineering Units T6 & T7 Snetterton Business Park, NR16 2JU		

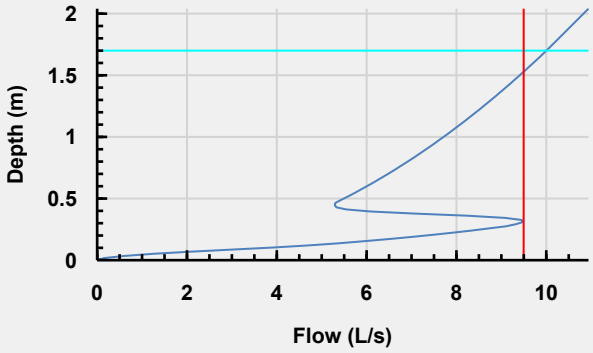
Junction	Inlet Name	Incoming Item(s)	Bypass Destination	Capacity Type
23	Inlet	Asphalt 8	(None)	No Restriction
	Inlet (1)	8.002	(None)	No Restriction
5	Inlet	Asphalt 12	(None)	No Restriction
4	Inlet	2.000 1.002 Asphalt 13	(None)	No Restriction
6	Inlet	1.003 Asphalt 14	(None)	No Restriction
7	Inlet	1.004 3.000 Asphalt 15	(None)	No Restriction
9	Inlet	1.005 Asphalt 17 4.002	(None)	No Restriction
26	Inlet (1)	8.005 10.001	(None)	No Restriction
24	Inlet	Asphalt 10 8.003	(None)	No Restriction
25	Inlet	8.004 Asphalt 11	(None)	No Restriction
29	Inlet (1)	1.008	(None)	No Restriction
16	Inlet	Asphalt 21 1.007	(None)	No Restriction
17	Inlet	Asphalt 22	(None)	No Restriction
28	Inlet	Asphalt 18 10.000	(None)	No Restriction
30	Inlet	1.010	(None)	No Restriction
31	Inlet	1.011	(None)	No Restriction
32	Inlet	1.012	(None)	No Restriction
1	Inlet	Hardstanding 3	(None)	No Restriction
2	Inlet	1.000	(None)	No Restriction
	Inlet (1)	Hardstanding 4	(None)	No Restriction
3	Inlet	1.001	(None)	No Restriction
14	Inlet	Hardstanding 1	(None)	No Restriction
8	Inlet	Hardstanding 2	(None)	No Restriction
27	Inlet	Asphalt 20	(None)	No Restriction
15	Inlet	1.006	(None)	No Restriction
	Inlet (1)	8.006	(None)	No Restriction
	Inlet (2)	7.000	(None)	No Restriction

Project:	Date:		
29718 Network RevC Land off Weighbridge Road Deeside	20/01/2025		
	Designed by:	Checked by:	Approved By:
	MJH	MJH	MJH
Report Details: Type: Junctions Storm Phase: Phase	Company Address: PDC Engineering Units T6 & T7 Snetterton Business Park, NR16 2JU		

Outlets

Junction	Outlet Name	Outgoing Connection	Outlet Type
18	Outlet	8.000	Free Discharge
19	Outlet	8.001	Free Discharge
20	Outlet	8.002	Free Discharge
21	Outlet	9.000	Free Discharge
22	Outlet	9.001	Free Discharge
10	Outlet	4.000	Free Discharge
11	Outlet	4.001	Free Discharge
12	Outlet	5.000	Free Discharge
13	Outlet	4.002	Free Discharge
23	Outlet	8.003	Free Discharge
5	Outlet	2.000	Free Discharge
4	Outlet	1.003	Free Discharge
6	Outlet	1.004	Free Discharge
7	Outlet	1.005	Free Discharge
9	Outlet	1.006	Free Discharge
26	Outlet (1)	8.006	Free Discharge
24	Outlet	8.004	Free Discharge
25	Outlet	8.005	Free Discharge
29	Outlet (1)	1.009	Free Discharge
16	Outlet	1.008	Free Discharge
17	Outlet (1)	7.000	Free Discharge
28	Outlet	10.001	Free Discharge
30	Outlet (1)	1.011	Hydro-Brake®

Invert Level (m)	6.350
Design Depth (m)	1.700
Design Flow (L/s)	10.0
Objective	Minimise Upstream Storage Requirements
Application	Surface Water Only
Sump Available	☐
Unit Reference	CHE-0127-1000-1700-1000



31	Outlet	1.012	Free Discharge
1	Outlet	1.000	Free Discharge
2	Outlet	1.001	Free Discharge
3	Outlet	1.002	Free Discharge
14	Outlet	6.000	Free Discharge
8	Outlet	3.000	Free Discharge
27	Outlet	10.000	Free Discharge
15	Outlet	1.007	Free Discharge

Pond

Type : Pond

Dimensions

Exceedance Level (m)	8.333
Depth (m)	2.000
Base Level (m)	6.333
Freeboard (mm)	300
Initial Depth (m)	0.000
Porosity (%)	100
Average Slope (1:X)	6.203
Total Volume (m³)	1822.473

Depth (m)	Area (m²)	Volume (m³)
0.000	478.00	0.000
0.600	769.00	370.657
0.601	969.00	371.524
1.700	1706.00	1822.473
2.000	1923.00	2366.499

Inlets

Inlet

Inlet Type	Point Inflow
Incoming Item(s)	Bund
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (2)

Inlet Type	Point Inflow
Incoming Item(s)	1.009
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Outlet (1)

Outgoing Connection	1.010
Outlet Type	Free Discharge

Advanced

Perimeter	Circular
Length (m)	69.595
Friction Scheme	Manning's n
n	0.03

Project:	Date:		
29718 Network RevC Land off Weighbridge Road Deeside	20/01/2025		
	Designed by: MJH	Checked by: MJH	Approved By: MJH
Report Details: Type: Inflow Summary Storm Phase: Phase	Company Address: PDC Engineering Units T6 & T7 Snetterton Business Park, NR16 2JU		

Inflow Label	Connected To	Flow (L/s)	Runoff Method	Area (ha)	Percentage Impervious (%)	Urban Creep (%)	Adjusted Percentage Impervious (%)	Area Analysed (ha)
Asphalt 1	18		Time of Concentration	0.045	100	0	100	0.045
Asphalt 2	19		Time of Concentration	0.032	100	0	100	0.032
Asphalt 3	20		Time of Concentration	0.008	100	0	100	0.008
Asphalt 4	21		Time of Concentration	0.015	100	0	100	0.015
Asphalt 5	22		Time of Concentration	0.017	100	0	100	0.017
Asphalt 6	10		Time of Concentration	0.020	100	0	100	0.020
Asphalt 7	12		Time of Concentration	0.077	100	0	100	0.077
Asphalt 8	23		Time of Concentration	0.043	100	0	100	0.043
Asphalt 9	13		Time of Concentration	0.038	100	0	100	0.038
Asphalt 10	24		Time of Concentration	0.049	100	0	100	0.049
Asphalt 11	25		Time of Concentration	0.036	100	0	100	0.036
Asphalt 12	5		Time of Concentration	0.076	100	0	100	0.076
Asphalt 13	4		Time of Concentration	0.016	100	0	100	0.016
Asphalt 14	6		Time of Concentration	0.021	100	0	100	0.021
Asphalt 15	7		Time of Concentration	0.052	100	0	100	0.052
Asphalt 16	13		Time of Concentration	0.022	100	0	100	0.022
Asphalt 17	9		Time of Concentration	0.034	100	0	100	0.034
Asphalt 18	28		Time of Concentration	0.022	100	0	100	0.022
Asphalt 20	27		Time of Concentration	0.057	100	0	100	0.057
Asphalt 21	16		Time of Concentration	0.004	100	0	100	0.004
Asphalt 22	17		Time of Concentration	0.083	100	0	100	0.083
Building 1	18		Time of Concentration	0.055	100	0	100	0.055
Building 2	12		Time of Concentration	0.027	100	0	100	0.027
Building 3	22		Time of Concentration	0.031	100	0	100	0.031
Building 4	21		Time of Concentration	0.035	100	0	100	0.035
Building 5	12		Time of Concentration	0.016	100	0	100	0.016
Building 6	10		Time of Concentration	0.033	100	0	100	0.033
Bund	Pond		Time of Concentration	0.977	100	0	100	0.977
Hardstanding 1	14		Time of Concentration	0.108	100	0	100	0.108
Hardstanding 2	8		Time of Concentration	0.129	100	0	100	0.129
Hardstanding 3	1		Time of Concentration	0.064	100	0	100	0.064
Hardstanding 4	2		Time of Concentration	0.057	100	0	100	0.057
TOTAL		**0.0**		**2.303**				**2.303**

Project:	Date:		
29718 Network RevC Land off Weighbridge Road Deeside	20/01/2025		
	Designed by:	Checked by:	Approved By:
	MJH	MJH	MJH
Report Title:	Company Address:		
Rainfall Analysis Criteria	PDC Engineering Units T6 & T7 Snetterton Business Park, NR16 2JU		

Runoff Type	Dynamic
Output Interval (mins)	5
Time Step	Default
Urban Creep	Apply Global Value
Urban Creep Global Value (%)	0
Junction Flood Risk Margin (mm)	300
Perform No Discharge Analysis	☐

Rainfall

FSR

Type: FSR

Region	England And Wales
M5-60 (mm)	18.0
Ratio R	0.374
Summer	☑
Winter	☑

Return Period

Return Period (years)	Increase Rainfall (%)
100.0	30.000
30.0	30.000
1.0	30.000

Storm Durations

Duration (mins)	Run Time (mins)
15	30
30	60
60	120
120	240
180	360
240	480
360	720
480	960
600	1200
720	1440
960	1920
1440	2880
2160	4320
2880	5760
4320	8640
5760	11520
7200	14400
8640	17280
10080	20160

Project:	Date:		
29718 Network RevC Land off Weighbridge Road Deeside	20/01/2025		
	Designed by: MJH	Checked by: MJH	Approved By: MJH
Report Details: Type: Junctions Summary Storm Phase: Phase	Company Address: PDC Engineering Units T6 & T7 Snetterton Business Park, NR16 2JU		

FSR: 100 years: Increase Rainfall (%): +30: Critical Storm Per Item: Rank By: Max. Depth

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
18	FSR: 100 years: +30 %: 15 mins: Summer	9.544	8.519	9.230	0.711	63.5	0.804	0.000	52.0	28.069	Surcharged
19	FSR: 100 years: +30 %: 15 mins: Summer	9.399	8.374	9.160	0.787	72.0	0.890	0.000	59.8	36.943	Flood Risk
20	FSR: 100 years: +30 %: 30 mins: Summer	9.278	8.123	9.087	0.964	95.2	1.090	0.000	92.7	88.851	Flood Risk
21	FSR: 100 years: +30 %: 30 mins: Summer	9.451	8.426	9.221	0.794	21.5	0.898	0.000	21.2	18.611	Flood Risk
22	FSR: 100 years: +30 %: 30 mins: Summer	9.438	8.331	9.193	0.861	42.1	0.974	0.000	38.7	36.776	Flood Risk
10	FSR: 100 years: +30 %: 15 mins: Summer	9.451	8.383	8.948	0.565	33.9	0.639	0.000	23.4	15.036	Surcharged
11	FSR: 100 years: +30 %: 15 mins: Summer	9.534	8.148	8.924	0.777	84.1	0.878	0.000	79.1	49.121	Surcharged
12	FSR: 100 years: +30 %: 15 mins: Summer	9.554	8.485	9.106	0.621	76.7	0.702	0.000	60.6	33.891	Surcharged
13	FSR: 100 years: +30 %: 15 mins: Summer	9.246	7.979	8.862	0.883	163.5	0.998	0.000	150.2	96.108	Surcharged
23	FSR: 100 years: +30 %: 30 mins: Summer	9.180	8.027	8.952	0.925	111.0	1.046	0.000	108.3	104.757	Flood Risk
5	FSR: 100 years: +30 %: 15 mins: Summer	9.550	8.646	9.550	0.904	48.5	1.138	0.115	34.2	21.258	Flood
4	FSR: 100 years: +30 %: 15 mins: Summer	9.549	8.366	9.423	1.056	81.4	1.195	0.000	83.9	59.617	Flood Risk
6	FSR: 100 years: +30 %: 15 mins: Summer	9.364	7.906	9.067	1.161	87.0	1.313	0.000	94.9	65.567	Flood Risk
7	FSR: 100 years: +30 %: 15 mins: Summer	9.022	7.782	8.991	1.209	175.4	1.367	0.000	165.0	116.156	Flood Risk
9	FSR: 100 years: +30 %: 960 mins: Summer	8.856	7.341	8.303	0.961	349.0	1.376	0.000	50.0	821.038	Surcharged
26	FSR: 100 years: +30 %: 960 mins: Summer	8.818	7.450	8.370	0.920	231.9	1.040	0.000	34.6	519.958	Surcharged
24	FSR: 100 years: +30 %: 30 mins: Summer	9.062	7.855	8.720	0.865	129.1	0.978	0.000	126.8	122.802	Surcharged
25	FSR: 100 years: +30 %: 30 mins: Summer	8.957	7.595	8.372	0.777	142.4	0.879	0.000	139.1	136.246	Surcharged
29	FSR: 100 years: +30 %: 2880 mins: Winter	8.722	6.530	8.389	1.859	583.4	5.115	1.978	309.2	2079.363	Surcharged

16	FSR: 100 years: +30 %: 1440 mins: Summer	8.720	6.630	8.704	2.074	112.6	2.968	0.000	828.6	1989.345	Flood Risk
17	FSR: 100 years: +30 %: 15 mins: Summer	9.102	8.077	8.258	0.181	52.9	0.205	0.000	41.9	23.196	OK
28	FSR: 100 years: +30 %: 30 mins: Summer	8.945	7.867	8.212	0.344	33.3	0.389	0.000	32.3	29.388	Surcharged
30	FSR: 100 years: +30 %: 960 mins: Winter	9.019	6.350	7.984	1.634	9.6	1.848	0.000	9.6	932.192	Surcharged
31	FSR: 100 years: +30 %: 960 mins: Winter	9.068	6.214	6.269	0.055	9.6	0.063	0.000	9.6	931.526	OK
32	FSR: 100 years: +30 %: 960 mins: Winter	5.531	4.506	4.561	0.055	9.6	0.000	0.000	9.6	931.526	OK
1	FSR: 100 years: +30 %: 15 mins: Summer	9.740	8.837	9.741	0.904	40.5	1.023	0.001	40.7	17.935	Flood
2	FSR: 100 years: +30 %: 15 mins: Summer	9.545	8.641	9.551	0.909	76.6	6.415	5.392	36.1	33.685	Flood
3	FSR: 100 years: +30 %: 15 mins: Summer	9.431	8.438	9.433	0.995	36.1	3.362	2.238	66.6	33.710	Flood
14	FSR: 100 years: +30 %: 15 mins: Summer	9.548	8.523	8.975	0.452	68.6	0.511	0.000	55.2	30.272	Surcharged
8	FSR: 100 years: +30 %: 15 mins: Summer	9.393	8.490	9.251	0.762	82.0	0.862	0.000	70.3	36.178	Flood Risk
27	FSR: 100 years: +30 %: 30 mins: Summer	8.959	7.934	8.236	0.302	24.4	0.342	0.000	23.8	21.138	Surcharged
15	FSR: 100 years: +30 %: 1440 mins: Summer	8.803	6.700	8.411	1.711	426.6	1.935	0.000	96.0	1887.812	Surcharged

Project:	Date:		
29718 Network RevC Land off Weighbridge Road Deeside	20/01/2025		
	Designed by: MJH	Checked by: MJH	Approved By: MJH
Report Details: Type: Junctions Summary Storm Phase: Phase	Company Address: PDC Engineering Units T6 & T7 Snetterton Business Park, NR16 2JU		

FSR: 30 years: Increase Rainfall (%): +30: Critical Storm Per Item: Rank By: Max. Depth

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
18	FSR: 30 years: +30 %: 15 mins: Summer	9.544	8.519	8.693	0.174	49.7	0.197	0.000	48.6	21.672	OK
19	FSR: 30 years: +30 %: 15 mins: Summer	9.399	8.374	8.579	0.205	64.3	0.232	0.000	44.9	28.568	OK
20	FSR: 30 years: +30 %: 15 mins: Summer	9.278	8.123	8.550	0.427	86.8	0.483	0.000	82.9	51.766	Surcharged
21	FSR: 30 years: +30 %: 15 mins: Summer	9.451	8.426	8.705	0.279	24.9	0.315	0.000	19.8	10.834	Surcharged
22	FSR: 30 years: +30 %: 15 mins: Summer	9.438	8.331	8.670	0.339	44.0	0.383	0.000	37.8	21.417	Surcharged
10	FSR: 30 years: +30 %: 15 mins: Summer	9.451	8.383	8.496	0.113	26.6	0.128	0.000	26.0	11.594	OK
11	FSR: 30 years: +30 %: 15 mins: Summer	9.534	8.148	8.361	0.214	84.3	0.242	0.000	55.2	37.789	OK
12	FSR: 30 years: +30 %: 15 mins: Summer	9.554	8.485	8.656	0.170	60.0	0.193	0.000	58.3	26.091	OK
13	FSR: 30 years: +30 %: 15 mins: Summer	9.246	7.979	8.355	0.376	138.7	0.425	0.000	140.9	74.064	Surcharged
23	FSR: 30 years: +30 %: 15 mins: Summer	9.180	8.027	8.437	0.409	104.1	0.463	0.000	100.7	61.035	Surcharged
5	FSR: 30 years: +30 %: 15 mins: Summer	9.550	8.646	8.969	0.323	38.0	0.365	0.000	26.8	16.521	Surcharged
4	FSR: 30 years: +30 %: 15 mins: Summer	9.549	8.366	8.843	0.477	69.2	0.539	0.000	72.2	46.199	Surcharged
6	FSR: 30 years: +30 %: 15 mins: Summer	9.364	7.906	8.519	0.613	74.6	0.693	0.000	80.8	50.809	Surcharged
7	FSR: 30 years: +30 %: 15 mins: Summer	9.022	7.782	8.455	0.673	154.0	0.761	0.000	147.1	89.836	Surcharged
9	FSR: 30 years: +30 %: 15 mins: Summer	8.856	7.341	7.792	0.450	305.0	0.644	0.000	292.5	171.550	Surcharged
26	FSR: 30 years: +30 %: 480 mins: Winter	8.818	7.450	7.766	0.315	24.6	0.357	0.000	57.1	311.452	OK
24	FSR: 30 years: +30 %: 15 mins: Summer	9.062	7.855	8.234	0.379	124.8	0.428	0.000	122.8	71.542	Surcharged
25	FSR: 30 years: +30 %: 15 mins: Summer	8.957	7.595	7.906	0.311	140.9	0.352	0.000	134.4	79.419	Surcharged
29	FSR: 30 years: +30 %: 600 mins: Winter	8.722	6.530	8.243	1.713	135.4	2.452	0.000	211.7	980.852	Surcharged
16	FSR: 30 years: +30 %: 2160 mins: Summer	8.720	6.630	8.645	2.015	480.8	2.883	0.000	40.4	1798.469	Flood Risk

17	FSR: 30 years: +30 %: 15 mins: Summer	9.102	8.077	8.199	0.121	41.4	0.137	0.000	40.4	17.935	OK
28	FSR: 30 years: +30 %: 15 mins: Summer	8.945	7.867	7.996	0.128	38.8	0.145	0.000	38.6	17.091	OK
30	FSR: 30 years: +30 %: 960 mins: Winter	9.019	6.350	7.707	1.357	9.5	1.534	0.000	9.5	838.139	Surcharged
31	FSR: 30 years: +30 %: 10080 mins: Winter	9.068	6.214	6.269	0.055	9.5	0.062	0.000	9.5	2854.423	OK
32	FSR: 30 years: +30 %: 10080 mins: Winter	5.531	4.506	4.561	0.055	9.5	0.000	0.000	9.5	2854.423	OK
1	FSR: 30 years: +30 %: 15 mins: Summer	9.740	8.837	9.176	0.339	31.7	0.383	0.000	21.7	13.845	Surcharged
2	FSR: 30 years: +30 %: 15 mins: Summer	9.545	8.641	9.088	0.446	49.7	0.505	0.000	40.1	26.067	Surcharged
3	FSR: 30 years: +30 %: 15 mins: Summer	9.431	8.438	8.895	0.457	40.1	0.517	0.000	43.2	26.115	Surcharged
14	FSR: 30 years: +30 %: 15 mins: Winter	9.548	8.523	8.624	0.100	50.4	0.113	0.000	51.1	23.352	OK
8	FSR: 30 years: +30 %: 15 mins: Summer	9.393	8.490	8.600	0.110	64.2	0.124	0.000	63.0	27.959	OK
27	FSR: 30 years: +30 %: 15 mins: Summer	8.959	7.934	8.082	0.148	28.2	0.168	0.000	27.7	12.293	OK
15	FSR: 30 years: +30 %: 1440 mins: Winter	8.803	6.700	8.030	1.330	250.3	1.504	0.000	223.9	1594.213	Surcharged

Project:	Date:		
29718 Network RevC Land off Weighbridge Road Deeside	20/01/2025		
	Designed by:	Checked by:	Approved By:
	MJH	MJH	MJH
Report Details: Type: Junctions Summary Storm Phase: Phase	Company Address: PDC Engineering Units T6 & T7 Snetterton Business Park, NR16 2JU		

FSR: 1 years: Increase Rainfall (%): +30: Critical Storm Per Item: Rank By: Max. Depth

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
18	FSR: 1 years: +30 %: 15 mins: Summer	9.544	8.519	8.620	0.101	20.3	0.115	0.000	19.7	8.829	OK
19	FSR: 1 years: +30 %: 15 mins: Summer	9.399	8.374	8.471	0.098	26.1	0.110	0.000	24.9	11.612	OK
20	FSR: 1 years: +30 %: 15 mins: Summer	9.278	8.123	8.288	0.165	45.8	0.186	0.000	42.9	21.042	OK
21	FSR: 1 years: +30 %: 15 mins: Summer	9.451	8.426	8.507	0.081	10.2	0.091	0.000	9.8	4.417	OK
22	FSR: 1 years: +30 %: 15 mins: Summer	9.438	8.331	8.419	0.088	19.8	0.099	0.000	19.1	8.728	OK
10	FSR: 1 years: +30 %: 15 mins: Summer	9.451	8.383	8.452	0.069	10.9	0.078	0.000	10.5	4.722	OK
11	FSR: 1 years: +30 %: 15 mins: Summer	9.534	8.148	8.254	0.107	34.2	0.121	0.000	32.1	15.366	OK
12	FSR: 1 years: +30 %: 15 mins: Summer	9.554	8.485	8.584	0.099	24.6	0.112	0.000	23.7	10.672	OK
13	FSR: 1 years: +30 %: 15 mins: Summer	9.246	7.979	8.118	0.139	66.3	0.157	0.000	64.4	30.243	OK
23	FSR: 1 years: +30 %: 15 mins: Summer	9.180	8.027	8.188	0.161	51.6	0.182	0.000	49.6	24.805	OK
5	FSR: 1 years: +30 %: 15 mins: Summer	9.550	8.646	8.733	0.087	15.5	0.098	0.000	14.9	6.748	OK
4	FSR: 1 years: +30 %: 15 mins: Summer	9.549	8.366	8.481	0.114	39.6	0.129	0.000	37.8	18.751	OK
6	FSR: 1 years: +30 %: 15 mins: Summer	9.364	7.906	8.054	0.149	42.1	0.168	0.000	40.6	20.609	OK
7	FSR: 1 years: +30 %: 15 mins: Summer	9.022	7.782	7.957	0.176	77.1	0.198	0.000	74.0	36.539	OK
9	FSR: 1 years: +30 %: 15 mins: Summer	8.856	7.341	7.509	0.168	145.4	0.240	0.000	139.8	69.769	OK
26	FSR: 1 years: +30 %: 15 mins: Summer	8.818	7.450	7.568	0.117	78.0	0.133	0.000	76.1	39.227	OK
24	FSR: 1 years: +30 %: 15 mins: Summer	9.062	7.855	8.015	0.159	59.5	0.180	0.000	57.2	29.073	OK
25	FSR: 1 years: +30 %: 15 mins: Summer	8.957	7.595	7.756	0.161	64.6	0.182	0.000	62.8	32.266	OK
29	FSR: 1 years: +30 %: 960 mins: Summer	8.722	6.530	7.089	0.559	29.9	0.800	0.000	29.2	461.365	Surcharged

16	FSR: 1 years: +30 %: 960 mins: Summer	8.720	6.630	7.089	0.459	30.5	0.657	0.000	29.9	462.478	OK
17	FSR: 1 years: +30 %: 15 mins: Summer	9.102	8.077	8.147	0.070	17.0	0.079	0.000	16.1	7.371	OK
28	FSR: 1 years: +30 %: 15 mins: Summer	8.945	7.867	7.942	0.074	15.8	0.084	0.000	15.3	6.995	OK
30	FSR: 1 years: +30 %: 960 mins: Summer	9.019	6.350	7.088	0.738	9.5	0.835	0.000	9.5	639.343	Surcharged
31	FSR: 1 years: +30 %: 4320 mins: Winter	9.068	6.214	6.269	0.055	9.5	0.062	0.000	9.5	1203.934	OK
32	FSR: 1 years: +30 %: 4320 mins: Winter	5.531	4.506	4.561	0.055	9.5	0.000	0.000	9.5	1203.934	OK
1	FSR: 1 years: +30 %: 15 mins: Summer	9.740	8.837	8.917	0.081	13.0	0.091	0.000	12.5	5.636	OK
2	FSR: 1 years: +30 %: 15 mins: Summer	9.545	8.641	8.760	0.119	24.0	0.134	0.000	22.5	10.620	OK
3	FSR: 1 years: +30 %: 15 mins: Summer	9.431	8.438	8.559	0.121	22.5	0.137	0.000	21.4	10.601	OK
14	FSR: 1 years: +30 %: 15 mins: Summer	9.548	8.523	8.580	0.056	22.0	0.064	0.000	21.8	9.539	OK
8	FSR: 1 years: +30 %: 15 mins: Summer	9.393	8.490	8.557	0.067	26.3	0.076	0.000	26.1	11.409	OK
27	FSR: 1 years: +30 %: 15 mins: Summer	8.959	7.934	8.020	0.086	11.6	0.097	0.000	11.3	5.015	OK
15	FSR: 1 years: +30 %: 960 mins: Summer	8.803	6.700	7.089	0.389	31.3	0.440	0.000	30.4	459.070	OK

Project:	Date:		
29718 Network RevC Land off Weighbridge Road Deeside	20/01/2025		
	Designed by: MJH	Checked by: MJH	Approved By: MJH
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	Company Address: PDC Engineering Units T6 & T7 Snetterton Business Park, NR16 2JU		

FSR: 100 years: Increase Rainfall (%): +30: Critical Storm Per Item: Rank By: Max. DS Depth

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Percentage Available (%)	Status
Pond	FSR: 100 years: +30 %: 960 mins: Winter	7.986	7.986	1.653	1.653	94.6	1742.960	0.000	0.000	9.6	1015.889	4.363	OK

Project:	Date:		
29718 Network RevC Land off Weighbridge Road Deeside	20/01/2025		
	Designed by: MJH	Checked by: MJH	Approved By: MJH
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	Company Address: PDC Engineering Units T6 & T7 Snetterton Business Park, NR16 2JU		

FSR: 30 years: Increase Rainfall (%): +30: Critical Storm Per Item: Rank By: Max. DS Depth

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Percentage Available (%)	Status
Pond	FSR: 30 years: +30 %: 960 mins: Winter	7.707	7.708	1.375	1.375	74.3	1307.175	0.000	0.000	9.5	994.458	28.275	OK

FSR: 1 years: Increase Rainfall (%): +30: Critical Storm Per Item: Rank By: Max. DS Depth

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Percentage Available (%)	Status
Pond	FSR: 1 years: +30 %: 960 mins: Summer	7.089	7.089	0.756	0.756	52.3	528.682	0.000	0.000	9.5	640.095	70.991	OK

Project:	Date:		
29718 Network RevC Land off Weighbridge Road Deeside	20/01/2025		
	Designed by:	Checked by:	Approved By:
	MJH	MJH	MJH
Report Details: Type: Connections Summary Storm Phase: Phase	Company Address: PDC Engineering Units T6 & T7 Snetterton Business Park, NR16 2JU		

FSR: 100 years: Increase Rainfall (%): +30: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
8.000	FSR: 100 years: +30 %: 15 mins: Summer	Pipe	18	19	9.544	9.230	0.300	28.069	0.9	0.58	52.0	Surcharged
8.001	FSR: 100 years: +30 %: 15 mins: Summer	Pipe	19	20	9.399	9.160	0.300	36.943	0.8	0.55	59.8	Flood Risk
9.000	FSR: 100 years: +30 %: 15 mins: Summer	Pipe	21	22	9.451	9.195	0.225	13.908	0.7	0.6	24.0	Flood Risk
4.000	FSR: 100 years: +30 %: 15 mins: Winter	Pipe	10	11	9.451	8.862	0.225	15.029	0.7	0.55	28.0	Surcharged
5.000	FSR: 100 years: +30 %: 15 mins: Summer	Pipe	12	11	9.554	9.106	0.300	33.891	1.0	0.57	60.6	Surcharged
4.001	FSR: 100 years: +30 %: 15 mins: Summer	Pipe	11	13	9.534	8.924	0.300	49.121	1.1	0.51	79.1	Surcharged
2.000	FSR: 100 years: +30 %: 15 mins: Winter	Pipe	5	4	9.550	9.510	0.225	21.353	0.9	0.71	34.7	Flood Risk
1.003	FSR: 100 years: +30 %: 15 mins: Winter	Pipe	4	6	9.549	9.353	0.225	59.641	2.2	1.09	87.6	Flood Risk
1.004	FSR: 100 years: +30 %: 15 mins: Winter	Pipe	6	7	9.364	8.959	0.300	65.631	1.4	0.89	96.4	Surcharged
1.005	FSR: 100 years: +30 %: 15 mins: Summer	Pipe	7	9	9.022	8.991	0.300	116.156	2.3	1.27	165.0	Flood Risk
8.004	FSR: 100 years: +30 %: 15 mins: Summer	Pipe	24	25	9.062	8.686	0.300	92.291	1.9	1.09	131.9	Surcharged
1.012	FSR: 100 years: +30 %: 960 mins: Winter	Pipe	31	32	9.068	6.269	0.055	931.526	1.3	0.13	9.6	OK
1.000	FSR: 100 years: +30 %: 15 mins: Summer	Pipe	1	2	9.740	9.741	0.225	17.935	1.0	0.9	40.7	Flood
1.001	FSR: 100 years: +30 %: 30 mins: Winter	Pipe	2	3	9.545	9.546	0.225	44.768	1.1	0.96	44.2	Flood

1.002	FSR: 100 years: +30 %: 15 mins: Winter	Pipe	3	4	9.431	9.432	0.225	33.670	1.7	1.46	67.1	Flood
6.000	FSR: 100 years: +30 %: 15 mins: Summer	Pipe	14	13	9.548	8.975	0.225	30.272	1.4	0.35	55.2	Surcharged
3.000	FSR: 100 years: +30 %: 15 mins: Summer	Pipe	8	7	9.393	9.251	0.225	36.178	1.8	0.52	70.3	Flood Risk
1.011	FSR: 100 years: +30 %: 960 mins: Winter	Pipe	30	31	9.019	7.984	0.070	932.004	0.9	0.28	9.6	Surcharged
1.010	FSR: 100 years: +30 %: 15 mins: Summer	Pipe	Pond	30	8.586	7.174	0.300	10.439	0.2	0.19	12.1	Surcharged
1.009	FSR: 100 years: +30 %: 15 mins: Summer	Pipe	29	Pond	8.722	7.425	0.525	356.508	2.4	1.34	525.3	Surcharged
8.005	FSR: 100 years: +30 %: 15 mins: Summer	Pipe	25	26	8.957	8.316	0.300	102.632	2.0	1.05	144.2	Surcharged
4.002	FSR: 100 years: +30 %: 15 mins: Summer	Pipe	13	9	9.246	8.862	0.300	96.108	2.1	0.95	150.2	Surcharged
8.003	FSR: 100 years: +30 %: 15 mins: Summer	Pipe	23	24	9.180	8.923	0.300	78.674	1.6	1.06	111.5	Flood Risk
8.002	FSR: 100 years: +30 %: 15 mins: Summer	Pipe	20	23	9.278	9.061	0.300	66.648	1.4	1.12	101.5	Flood Risk
9.001	FSR: 100 years: +30 %: 15 mins: Summer	Pipe	22	20	9.438	9.163	0.225	27.602	1.0	0.67	39.4	Flood Risk
10.000	FSR: 100 years: +30 %: 15 mins: Winter	Pipe	27	28	8.959	8.111	0.202	15.924	0.9	0.81	32.1	OK
10.001	FSR: 100 years: +30 %: 30 mins: Summer	Pipe	28	26	8.945	8.212	0.225	29.388	1.2	0.5	32.3	Surcharged
1.008	FSR: 100 years: +30 %: 1440 mins: Summer	Pipe	16	29	8.720	8.704	0.525	1410.958	3.8	1.83	828.6	Flood Risk
1.006	FSR: 100 years: +30 %: 30 mins: Summer	Pipe	9	15	8.856	8.175	0.450	294.914	2.1	0.62	335.7	Surcharged
1.007	FSR: 100 years: +30 %: 960 mins: Summer	Pipe	15	16	8.803	8.017	0.525	1273.899	16.1	5.79	3476.4	Surcharged
8.006	FSR: 100 years: +30 %: 30 mins: Summer	Pipe	26	15	8.818	8.117	0.375	165.981	1.7	0.54	188.6	Surcharged

7.000	FSR: 100 years: +30 %: 15 mins: Winter	Pipe	17	15	9.102	8.229	0.225	23.197	1.1	0.59	42.9	OK

Project:	Date:		
29718 Network RevC Land off Weighbridge Road Deeside	20/01/2025		
	Designed by: MJH	Checked by: MJH	Approved By: MJH
Report Details: Type: Connections Summary Storm Phase: Phase	Company Address: PDC Engineering Units T6 & T7 Snetterton Business Park, NR16 2JU		

FSR: 30 years: Increase Rainfall (%): +30: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
8.000	FSR: 30 years: +30 %: 15 mins: Summer	Pipe	18	19	9.544	8.693	0.190	21.672	1.0	0.55	48.6	OK
8.001	FSR: 30 years: +30 %: 15 mins: Winter	Pipe	19	20	9.399	8.541	0.277	28.492	0.8	0.45	48.4	OK
9.000	FSR: 30 years: +30 %: 15 mins: Summer	Pipe	21	22	9.451	8.705	0.225	10.834	0.6	0.5	19.8	Surcharged
4.000	FSR: 30 years: +30 %: 15 mins: Summer	Pipe	10	11	9.451	8.496	0.164	11.594	0.8	0.51	26.0	OK
5.000	FSR: 30 years: +30 %: 15 mins: Summer	Pipe	12	11	9.554	8.656	0.192	26.091	1.2	0.55	58.3	OK
4.001	FSR: 30 years: +30 %: 15 mins: Winter	Pipe	11	13	9.534	8.342	0.237	37.691	1.3	0.49	75.4	OK
2.000	FSR: 30 years: +30 %: 15 mins: Summer	Pipe	5	4	9.550	8.969	0.225	16.521	0.8	0.55	26.8	Surcharged
1.003	FSR: 30 years: +30 %: 15 mins: Summer	Pipe	4	6	9.549	8.843	0.225	46.199	1.8	0.9	72.2	Surcharged
1.004	FSR: 30 years: +30 %: 15 mins: Summer	Pipe	6	7	9.364	8.519	0.300	50.809	1.4	0.75	80.8	Surcharged
1.005	FSR: 30 years: +30 %: 15 mins: Summer	Pipe	7	9	9.022	8.455	0.300	89.836	2.2	1.13	147.1	Surcharged
8.004	FSR: 30 years: +30 %: 15 mins: Summer	Pipe	24	25	9.062	8.234	0.300	71.542	1.7	1.01	122.8	Surcharged
1.012	FSR: 30 years: +30 %: 10080 mins: Winter	Pipe	31	32	9.068	6.269	0.055	2854.423	1.3	0.13	9.5	OK
1.000	FSR: 30 years: +30 %: 15 mins: Summer	Pipe	1	2	9.740	9.176	0.225	13.845	0.6	0.48	21.7	Surcharged
1.001	FSR: 30 years: +30 %: 15 mins: Summer	Pipe	2	3	9.545	9.088	0.225	26.067	1.0	0.87	40.1	Surcharged

1.002	FSR: 30 years: +30 %: 15 mins: Summer	Pipe	3	4	9.431	8.895	0.225	26.115	1.1	0.94	43.2	Surcharged
6.000	FSR: 30 years: +30 %: 15 mins: Summer	Pipe	14	13	9.548	8.613	0.225	23.356	1.3	0.34	53.5	OK
3.000	FSR: 30 years: +30 %: 15 mins: Summer	Pipe	8	7	9.393	8.600	0.225	27.959	1.6	0.47	63.0	OK
1.011	FSR: 30 years: +30 %: 8640 mins: Winter	Pipe	30	31	9.019	7.252	0.069	2761.987	0.9	0.27	9.5	Surcharged
1.010	FSR: 30 years: +30 %: 15 mins: Winter	Pipe	Pond	30	8.586	7.039	0.300	9.639	0.2	0.18	11.9	Surcharged
1.009	FSR: 30 years: +30 %: 15 mins: Summer	Pipe	29	Pond	8.722	7.195	0.525	274.300	2.3	1.21	476.0	Surcharged
8.005	FSR: 30 years: +30 %: 15 mins: Summer	Pipe	25	26	8.957	7.906	0.263	79.419	2.3	0.98	134.4	Surcharged
4.002	FSR: 30 years: +30 %: 15 mins: Winter	Pipe	13	9	9.246	8.259	0.300	73.960	2.0	0.9	142.6	OK
8.003	FSR: 30 years: +30 %: 15 mins: Summer	Pipe	23	24	9.180	8.437	0.300	61.035	1.5	0.96	100.7	Surcharged
8.002	FSR: 30 years: +30 %: 15 mins: Summer	Pipe	20	23	9.278	8.550	0.300	51.766	1.2	0.92	82.9	Surcharged
9.001	FSR: 30 years: +30 %: 15 mins: Summer	Pipe	22	20	9.438	8.670	0.225	21.417	1.0	0.64	37.8	Surcharged
10.000	FSR: 30 years: +30 %: 15 mins: Summer	Pipe	27	28	8.959	8.082	0.138	12.293	1.1	0.69	27.7	OK
10.001	FSR: 30 years: +30 %: 15 mins: Summer	Pipe	28	26	8.945	7.996	0.171	17.091	1.2	0.59	38.6	OK
1.008	FSR: 30 years: +30 %: 1440 mins: Winter	Pipe	16	29	8.720	7.874	0.525	1212.518	8.6	4.1	1851.9	Surcharged
1.006	FSR: 30 years: +30 %: 15 mins: Summer	Pipe	9	15	8.856	7.792	0.450	171.550	1.8	0.54	292.5	Surcharged
1.007	FSR: 30 years: +30 %: 960 mins: Winter	Pipe	15	16	8.803	7.798	0.525	974.230	2.9	1.04	621.6	Surcharged
8.006	FSR: 30 years: +30 %: 15 mins: Winter	Pipe	26	15	8.818	7.639	0.375	96.408	1.5	0.46	160.9	OK

7.000	FSR: 30 years: +30 %: 15 mins: Summer	Pipe	17	15	9.102	8.199	0.225	17.935	1.0	0.56	40.4	OK

Project:	Date:		
29718 Network RevC Land off Weighbridge Road Deeside	20/01/2025		
	Designed by: MJH	Checked by: MJH	Approved By: MJH
Report Details: Type: Connections Summary Storm Phase: Phase	Company Address: PDC Engineering Units T6 & T7 Snetterton Business Park, NR16 2JU		

FSR: 1 years: Increase Rainfall (%): +30: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
8.000	FSR: 1 years: +30 %: 15 mins: Summer	Pipe	18	19	9.544	8.620	0.099	8.829	1.0	0.22	19.7	OK
8.001	FSR: 1 years: +30 %: 15 mins: Summer	Pipe	19	20	9.399	8.471	0.131	11.612	0.8	0.23	24.9	OK
9.000	FSR: 1 years: +30 %: 15 mins: Summer	Pipe	21	22	9.451	8.507	0.084	4.417	0.7	0.25	9.8	OK
4.000	FSR: 1 years: +30 %: 15 mins: Summer	Pipe	10	11	9.451	8.452	0.088	4.722	0.7	0.21	10.5	OK
5.000	FSR: 1 years: +30 %: 15 mins: Summer	Pipe	12	11	9.554	8.584	0.103	10.672	1.1	0.22	23.7	OK
4.001	FSR: 1 years: +30 %: 15 mins: Summer	Pipe	11	13	9.534	8.254	0.123	15.366	1.2	0.21	32.1	OK
2.000	FSR: 1 years: +30 %: 15 mins: Summer	Pipe	5	4	9.550	8.733	0.101	6.748	0.9	0.3	14.9	OK
1.003	FSR: 1 years: +30 %: 15 mins: Summer	Pipe	4	6	9.549	8.481	0.132	18.751	1.6	0.47	37.8	OK
1.004	FSR: 1 years: +30 %: 15 mins: Summer	Pipe	6	7	9.364	8.054	0.162	20.609	1.0	0.38	40.6	OK
1.005	FSR: 1 years: +30 %: 15 mins: Summer	Pipe	7	9	9.022	7.957	0.172	36.539	1.8	0.57	74.0	OK
8.004	FSR: 1 years: +30 %: 15 mins: Summer	Pipe	24	25	9.062	8.015	0.160	29.073	1.5	0.47	57.2	OK
1.012	FSR: 1 years: +30 %: 4320 mins: Winter	Pipe	31	32	9.068	6.269	0.055	1203.934	1.3	0.13	9.5	OK
1.000	FSR: 1 years: +30 %: 15 mins: Summer	Pipe	1	2	9.740	8.917	0.100	5.636	0.7	0.28	12.5	OK
1.001	FSR: 1 years: +30 %: 15 mins: Summer	Pipe	2	3	9.545	8.760	0.120	10.620	1.0	0.49	22.5	OK
1.002	FSR: 1 years: +30 %: 15 mins: Summer	Pipe	3	4	9.431	8.559	0.118	10.601	1.0	0.46	21.4	OK
6.000	FSR: 1 years: +30 %: 15 mins: Summer	Pipe	14	13	9.548	8.580	0.098	9.539	1.3	0.14	21.8	OK
3.000	FSR: 1 years: +30 %: 15 mins: Summer	Pipe	8	7	9.393	8.557	0.121	11.409	1.2	0.19	26.1	OK
1.011	FSR: 1 years: +30 %: 4320 mins: Winter	Pipe	30	31	9.019	6.756	0.069	1203.936	0.9	0.27	9.5	Surcharged
1.010	FSR: 1 years: +30 %: 60 mins: Winter	Pipe	Pond	30	8.586	6.860	0.300	34.120	0.2	0.15	9.8	Surcharged

1.009	FSR: 1 years: +30 %: 15 mins: Summer	Pipe	29	Pond	8.722	6.820	0.267	115.280	2.3	0.54	210.8	OK
8.005	FSR: 1 years: +30 %: 15 mins: Summer	Pipe	25	26	8.957	7.756	0.139	32.266	2.0	0.46	62.8	OK
4.002	FSR: 1 years: +30 %: 15 mins: Summer	Pipe	13	9	9.246	8.118	0.153	30.243	1.8	0.41	64.4	OK
8.003	FSR: 1 years: +30 %: 15 mins: Summer	Pipe	23	24	9.180	8.188	0.160	24.805	1.3	0.47	49.6	OK
8.002	FSR: 1 years: +30 %: 15 mins: Summer	Pipe	20	23	9.278	8.288	0.163	21.042	1.1	0.47	42.9	OK
9.001	FSR: 1 years: +30 %: 15 mins: Summer	Pipe	22	20	9.438	8.419	0.126	8.728	0.8	0.32	19.1	OK
10.000	FSR: 1 years: +30 %: 15 mins: Summer	Pipe	27	28	8.959	8.020	0.080	5.015	0.9	0.28	11.3	OK
10.001	FSR: 1 years: +30 %: 15 mins: Summer	Pipe	28	26	8.945	7.942	0.096	6.995	0.9	0.23	15.3	OK
1.008	FSR: 1 years: +30 %: 15 mins: Summer	Pipe	16	29	8.720	6.946	0.303	116.483	1.7	0.48	218.1	OK
1.006	FSR: 1 years: +30 %: 15 mins: Summer	Pipe	9	15	8.856	7.509	0.249	69.769	1.5	0.26	139.8	OK
1.007	FSR: 1 years: +30 %: 15 mins: Summer	Pipe	15	16	8.803	7.030	0.323	116.244	1.6	0.37	221.2	OK
8.006	FSR: 1 years: +30 %: 15 mins: Summer	Pipe	26	15	8.818	7.568	0.224	39.227	1.1	0.22	76.1	OK
7.000	FSR: 1 years: +30 %: 15 mins: Summer	Pipe	17	15	9.102	8.147	0.200	7.371	0.4	0.22	16.1	OK

Surface Water Maintenance Schedule

Feature	Schedule	Required Action	Frequency	Responsibility
Drainage Pipe Network	Regular Inspections	Inspect and identify any areas that are not operating correctly. If required take remedial action.	Monthly for 3 months then annually	Site Owner
		Inspect flow control manhole and check for blockages to grates and outlets.	Monthly and after large storm events	
		Remove debris from the catchment surface (where it may cause risks to performance)	Monthly	
		Maintain vegetation to designed limits within the vicinity of below ground drainage pipes to avoid damage to system.	Monthly or as required	
		Inspect rainwater down pipes, channel drains and road gullies, removing obstructions and silt as necessary. Check there is no physical damage.	Monthly	
	Occasional Maintenance	Remove silt and leaf build up from manholes, gutters etc.	Annually (or as required)	
		Remove sediment from pre-treatment inlet structures and inspection chambers.	Annually (or as required)	
		Remove inspection covers and inspect, ensuring that the water is flowing freely and that the exit route for water is unobstructed. Remove debris and silt.	Annually	
		Removal of sediment, oil, grease and floatables from separator	Half yearly. (or as required)	
	Remedial Actions	Replacement of malfunctioning parts.	As required	
		Repair physical damage if necessary	As required	
	Monitoring	Inspect inlets and pre-treatment systems for silt accumulation. Establish appropriate silt removal frequencies.	Half yearly.	
		Undertake inspection after leaf fall in Autumn	Annually	
		Inspect all inlets, outlets and vents to ensure that they are in good condition and operating as designed.	Annually	
		Survey inside of pipe runs for sediment build up and remove if necessary.	Every 5 years or as required	
		Check outlet for blockages to ditch outlet	Three monthly	
		Check Flow control for blockages	Three monthly	
		Check manholes, gutters etc. for silt and leaf build up.	Annually	
Detention Basins	Regular Maintenance	Remove litter and debris	Monthly	Site Owner
		Cut grass - for spillways and access routes	Monthly (during growing season), or as required	
		Cut grass - meadow grass in and around basin	Half yearly (spring - before nesting season, and autumn)	
		Manage other vegetation and remove nuisance plants	Monthly (at start, then as required)	
		Inspect inlets, outlets and overflows for blockages, and clear if required	Monthly	
		Inspect banksides, structures, pipework etc for evidence of physical damage	Monthly	
		Inspect inlets and facility surface for silt accumulation, establish appropriate silt removal frequencies	Monthly (for first year), then annually or as required	
		Check any penstocks and other mechanical devices	Annually	
		Tidy all dead growth before start of growing season	Annually	
		Remove sediment from inlets, outlet and forebay	Annually (or as required)	
		Manage wetland plants in outlet pool - where provided	Annually (as set out in Chapter 23)	
	Occasional Maintenance	Reseed areas of poor vegetation growth	As required	
		Prune and trim any trees and remove cuttings	Every 2 years, or as required	
		Remove sediment from inlets, outlets, forebay and main basin when required	Every 5 years, or as required (likely to be minimal requirements where effective upstream source control is provided)	
	Remedial Actions	Repair erosion or other damage by re-turfing or reseeding	As required	
		Realignment of rip-rap	As required	
		Repair/rehabilitate inlets, outlet and overflows	As required	
		Relevel uneven surfaces and reinstate design levels	As required	

Civil engineering and building

- Industrial, Commercial, Agricultural and Domestic building design
- Foundation Design and ground improvements
- Highway Engineering including Civil 3D
- Retaining walls
- Sheet Piling
- Infrastructure planning and design
- Design of sustainable drainage system (SUDS)
- Soakaway design
- Architectural design of industrial buildings
- Planning and building regulation applications
- 3D conceptual models
- Renewable Energy Civil Engineering design and project management
- Anaerobic Digestion and Waste to Energy Project design and detail

Environmental engineering

- Contaminated Land reports
- Environmental impact assessments (EIA)
- Flood Risk Assessments
- Water supply, treatment, storage and distribution
- Foul and surface water & effluent/leachate drainage design
- Drainage network modelling
- 1D & 2D flood modelling
- Hydraulic river modelling
- Flood Alleviation
- Breach & overtopping analysis
- Reservoir flood inundation modelling
- Consent to discharge applications
- Environmental Permits
- Nutrient Neutrality

Structural engineering

- Structural calculations for Commercial, Agricultural and Domestic building design
- Structural design using steel, stainless & carbon steel, concrete, timberand masonry
- Maritime and Hydraulic structures
- Structural surveys and structural suitability surveys
- Structural failure studies
- Subsidence claims
- 3D Finite Element Analysis
- Structural monitoring
- Structural enhancement/ remedial work
- Historic building advice
- 3D Revit & Level 2 BIM structural design & modelling

Surveying land and buildings

- Geomatic / topographical site surveys
- Building, Road, and Earthworks Setting out
- Engineering Setting out
- Establish precise site survey control
- 3D digital terrain modelling
- Volumetric analysis
- Site area computations
- Flood risk surveys using GPS active network
- Measured building floor plans and elevation surveys
- Land transfer plans to Land Registry requirements
- Drainage network surveys
- Assistance/Expert witness in land boundary disputes
- Deterioration monitoring
- Preparation of asset plans
- As built record surveys

PLANNING
DESIGN
CIVIL

PDC Engineering
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