RIDA Reports Limited
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Kabier Salam
LLFA Engineer

11 11 2022

Dear Kabier,

Application no: 22/02470/DISC

Location: OS Parcels 3309 And 4319 Adjoining And North Of, Milton Road, Adderbury

Re: [0202] Land North Of Milton Road, Adderbury

Following you comments regarding drainage. We respond to your queries below.

Condition 9 states:

"No development shall commence unless and until full design details of the proposal, implementation, maintenance and management of a surface water drainage scheme have been submitted to and approved in writing by the local planning authority. Those details shall include:"

Query a: "Information about the design storm period and intensity (1 in 30 & 1 in 100 (+40% allowance for climate change), discharge rates and volumes (both pre and post development), temporary storage facilities, means of access for maintenance, the methods employed to delay and control surface water discharged from the site, and the measures taken to prevent flooding and pollution of the receiving groundwater and/or surface waters;

Provide detailed drainage drawing to show all drainage infrastrucure and SuDS. Ensure invert and cover levels has been provided. Provide surface water catchment plan, showing the extent of the impermeable area and stating the area. The detailed drainage strategy should also show phase 1 and its proposals."

Response: See attached proposed site layouts including catchment areas and full set of calculations.

Query b: "Any works required off-site to ensure adequate discharge of surface water without causing flooding or pollution (which should include refurbishment of existing culverts and headwalls or removal of unused culverts where relevant)"

Response: All flows are kept on site. No changes to outside infrastructure are required.

Query c: "Flood water exceedance routes, both on and off site; Provide exceedance plan, showing surface water run off by using flow arrows. Ensure all surface water is kept away from structures and within the site boundary."

Response: The exceedance flow routes are provided on the main site layout. No risk to proposed or existing buildings.

Query d: “A timetable for implementation;

Not provided.”

Response: Due to the community nature of the development the timescales could fluctuate depending on the grants and the moneys collected by the community. The development will be implemented as follows:

Stage 1 : Winter 2022 and Spring 2023

Stage 2: Spring 2023 and Summer 2023

Query e: “Site investigation and test results to confirm infiltrations rates. Infiltration testing location plan not provided. Reason - To ensure satisfactory drainage of the site in the interests of public health, to avoid flooding of adjacent land and property and to comply with Policy ESD6 of the Cherwell Local Plan 2011 – 2031 Part 1, Saved Policy ENV1 of the Cherwell Local Plan 1996 and Government guidance contained within the National Planning Policy Framework.”

Response: See attached updated site plan showing the location of the trial pits and their results. The calculations have been undated with the new soakaway results.

Argemiro Rivera
Director
arge@rida-reports.co.uk

Drainage Design

Drawing Scale Bar

Drawing scale	Line length	Drawing scale	Line length
1:5 =	0.25 metres	1:200 =	10.0 metres
1:10 =	0.5 metres	1:250 =	12.5 metres
1:20 =	1.0 metres	1:500 =	25.0 metres
1:25 =	1.25 metres	1:1000 =	50.0 metres
1:50 =	2.5 metres	1:1250 =	62.5 metres
1:100 =	5.0 metres	1:2500 =	125 metres

Measure length of line above for checking of scale

KEY

- Perforated Pipe
- Carrier Pipe
- Exceedance Flow
- Self Draining Area (due to infiltration rate)
- Positively drained area

SCALE 1:500

GENERAL NOTES

1. All dimensions are in millimetres and levels in m AOD unless stated otherwise.

2. Do not scale. If in any doubt, consult Engineer.

3. Read in conjunction with the architects and engineers schedule drawings.

4. Check inverts and sizes of existing pipes prior to the commencement of any work. Report any discrepancies to the engineer and await instructions.

5. The location of services is shown as indicative. This drawing should be read in conjunction with the utilities drawings. No warranty to their accuracy can be given. The contractor shall take all necessary measures to satisfy himself as to the location of the existing services and connection points. Excavation should be undertaken in compliance with HSG47.

6. Concrete structures design sulphate class and ACEC concrete class unknown.

7. Pipework to be 110mm Thermoplastics U-PVC (Polypipe or similar) installed at levels marked on this drawing. Pipe bedding should be class Z in pipes within 1.5m of the building or shallower than 700mm below ground level. For all other areas the pipe bedding should be class S.

8. Joints and fittings for gravity sewers shall comply with the relevant provisions of BS EN 1401-1, BS EN 1852 and BS EN 12666-1. Pipes shall have a limit of 6% deformation. Pipes shall be SN8 ring stiffness and stamped accordingly. Pipe sections shall not be longer than 3m.

9. Plastic chambers and rings, including demarcation chambers,shall comply with BS EN 3598-1 or BS EN 13598-2 as appropriate.

10. Inspection chamber covers and frames shall comply with the relevant provisions of BS EN 124 and should be double sealed.

11. All inspection chamber covers shall be the non-ventilating type and shall have closed keyways.

12. Testing of pipelines should be as follow:

Gravity Pipework: Air pipe testing. Pipework should withstand a pressure of 100mm water gauge and this should not fall by more than 25mm in a 5minute period. However where traps or gullies are connected they should withstand a pressure of 50mm water gauge and this should not fall by more than 12mm in a 5minute period. It is recommended that pipework installations are tested in sections rather than waiting to complete in one operation.

13. Manhole covers to be set square to the building. Covers of existing manholes to be adjusted to match final ground levels.

14. Granular Bedding for pipes shall be constructed by spreading and compacting granular bedding material over the full width of the pipe trench. After the pipes have been laid, additional granular material shall, if required, be placed and compacted equally on each side of the pipes and, where practicable, this shall be done in sequence with the removal of the trench supports.

Rev	Details	Date	By	Chd

Drawing Status:

PRELIMINARY

RIDA
FLOOD RISK ASSESSMENT & DRAINAGE STRATEGIES

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Client:

Project:

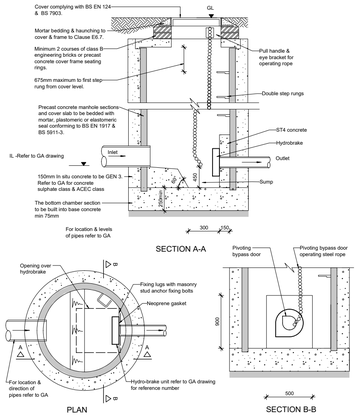
Land North Of Milton Road, Adderbury

Drawing:

Proposed Drainage Strategy
Phase 1 and 2

Print Size:	Project No:	Drawing No:	Revision:
A1	0202	003	P1

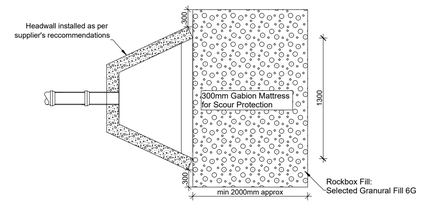
Phase 1

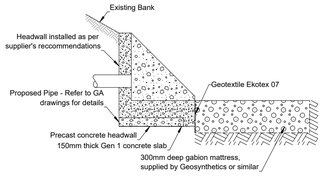


NOTE:
1. Refer to GA for manhole size and Hydrobrake reference number

2. Hydrobrake to be installed as per supplier's recommendations

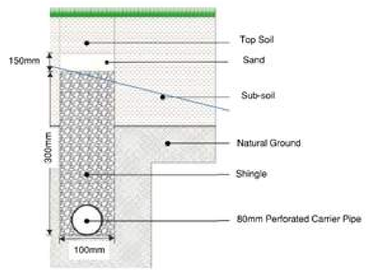
Flow Control Device Chamber- Hydrobrake



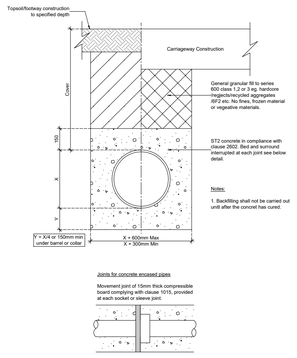


Headwall	Accommod ate Pipe Sizes	Back wall height (external)	Front wall height (external)	Width at back wall (internal)	Width at front wall (internal)	Headwall Length	Wall Thickness	Floor thickness	Approx. Weight
	mm	mm	mm	mm	mm	mm	mm	mm	kg
FPM/Cann Precast Headwall HW Small 100	300,225,160	810	300	520	1300	1320	100	162	1090

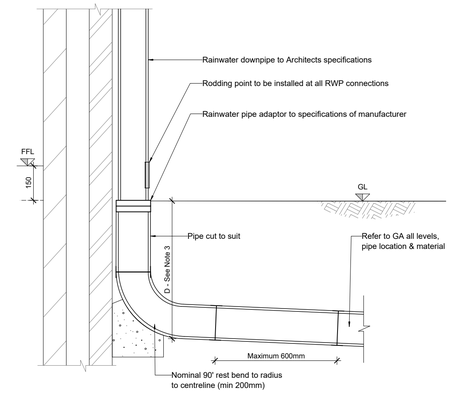
Precast Concrete Headwall



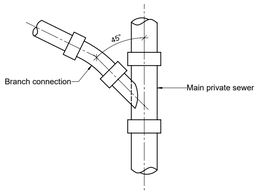
Phase 2



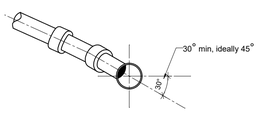
Pipe Bedding Detail Type Z



8251 - External Rainwater Pipe Connection Detail



PLAN VIEW



SECTION VIEW

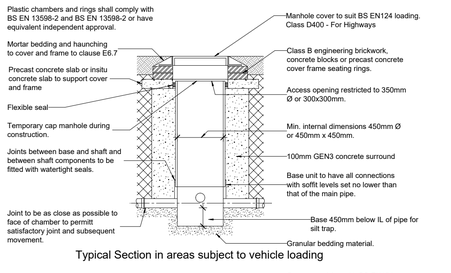
NOTES:

1. The vertical angle between the connecting pipe and the horizontal should be greater than 0° and not more than 60°.

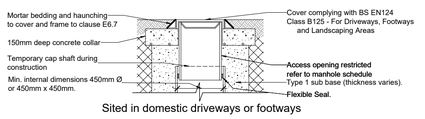
2. Where the connection is being made to a sewer with a nominal internal diameter of 300 mm or less, connections should be made using 45° angle, or 90° angle, curved square junctions.

3. Connections made with junction fittings should be made by cutting the existing pipe, inserting the junction fitting and jointing with flexible repair couplings or slip couplers.

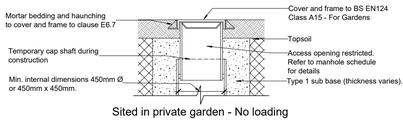
Lateral Connection to private sewer



Typical Section in areas subject to vehicle loading



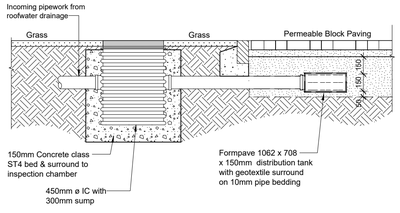
Sited in domestic driveways or footways



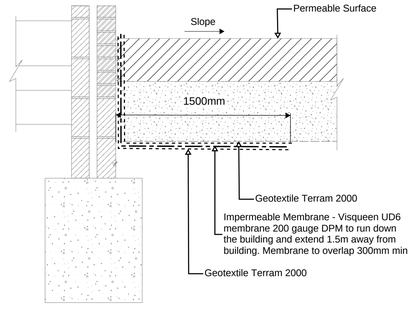
Sited in private garden - No loading

Notes:
1. Refer to drawing 8193 for base layouts.

Silt Trap Plastic



SD064 - Sump and Dispersion Unit



Permeable Surface Against Building

Drawing Scale Bar

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1:25	= 1.25 metres	1:1000	= 50.0 metres
1:50	= 2.5 metres	1:1250	= 62.5 metres
1:100	= 5.0 metres	1:2500	= 125 metres

Measure length of line above for checking of scale

GENERAL NOTES

Rev	Details	Date	By	Chk'd

Drawing Status:
PRELIMINARY

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Land North Of Milton Road, Adderbury

Drawing:
Standard Details

Print Size:	Project No:	Drawing No:	Revision:
A1	0202	006	P1

Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	2	Maximum Rainfall (mm/hr)	50.0
Additional Flow (%)	0	Minimum Velocity (m/s)	1.00
FSR Region	England and Wales	Connection Type	Level Inverts
M5-60 (mm)	20.000	Minimum Backdrop Height (m)	0.200
Ratio-R	0.409	Preferred Cover Depth (m)	0.500
CV	0.750	Include Intermediate Ground	✓
Time of Entry (mins)	6.00	Enforce best practice design rules	✓

1 STANDARD Link Type

Shape	Circular	Auto Increment (mm)	75
Barrels	1	Follow Ground	x

Available Diameters (mm)

100 | 150

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
Building	0.055	6.00	100.000	450	-79.325	595.400	0.400
Car Park	0.035	6.00	100.000	450	-69.325	595.449	0.500
OUT			100.000	450	-59.325	595.400	0.600

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	Building	Car Park	10.000	0.600	99.600	99.500	0.100	100.0	225	6.13	50.0
1.001	Car Park	OUT	10.000	0.600	99.500	99.400	0.100	100.0	100	6.34	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	1.307	52.0	7.5	0.175	0.275	0.055	0.0
1.001	0.769	6.0	12.2	0.400	0.500	0.090	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	10.000	100.0	225	1 STANDARD	100.000	99.600	0.175	100.000	99.500	0.275
1.001	10.000	100.0	100	1 STANDARD	100.000	99.500	0.400	100.000	99.400	0.500

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	Building	450	Manhole	1 STANDARD	Car Park	450	Manhole	1 STANDARD
1.001	Car Park	450	Manhole	1 STANDARD	OUT	450	Manhole	1 STANDARD

Node Car Park Online Pump Control

Flap Valve	x	Design Depth (m)	0.500	Switch off depth (m)	0.010
Replaces Downstream Link	✓	Design Flow (l/s)	0.1		
Invert Level (m)	99.500	Switch on depth (m)	0.500		

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.001	0.000	0.500	0.000

Node Car Park Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.18450	Invert Level (m)	99.500	Slope (1:X)	400.0
Side Inf Coefficient (m/hr)	0.18450	Time to half empty (mins)	12	Depth (m)	0.400
Safety Factor	2.0	Width (m)	70.000	Inf Depth (m)	
Porosity	0.30	Length (m)	10.000		

Rainfall

Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)	Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)
1 year 15 minute summer	110.333	31.220	2 year 240 minute winter	14.914	5.932
1 year 15 minute winter	77.427	31.220	2 year 360 minute summer	17.054	4.389
1 year 30 minute summer	71.731	20.297	2 year 360 minute winter	11.086	4.389
1 year 30 minute winter	50.337	20.297	2 year 480 minute summer	13.385	3.537
1 year 60 minute summer	48.435	12.800	2 year 480 minute winter	8.893	3.537
1 year 60 minute winter	32.179	12.800	2 year 600 minute summer	10.937	2.992
1 year 120 minute summer	29.920	7.907	2 year 600 minute winter	7.473	2.992
1 year 120 minute winter	19.878	7.907	2 year 720 minute summer	9.733	2.609
1 year 180 minute summer	23.067	5.936	2 year 720 minute winter	6.541	2.609
1 year 180 minute winter	14.994	5.936	2 year 960 minute summer	7.979	2.101
1 year 240 minute summer	18.307	4.838	2 year 960 minute winter	5.286	2.101
1 year 240 minute winter	12.162	4.838	2 year 1440 minute summer	5.779	1.549
1 year 360 minute summer	14.012	3.606	2 year 1440 minute winter	3.884	1.549
1 year 360 minute winter	9.108	3.606	30 year 15 minute summer	270.732	76.608
1 year 480 minute summer	11.040	2.918	30 year 15 minute winter	189.988	76.608
1 year 480 minute winter	7.335	2.918	30 year 30 minute summer	175.606	49.690
1 year 600 minute summer	9.050	2.475	30 year 30 minute winter	123.232	49.690
1 year 600 minute winter	6.184	2.475	30 year 60 minute summer	116.589	30.811
1 year 720 minute summer	8.075	2.164	30 year 60 minute winter	77.459	30.811
1 year 720 minute winter	5.427	2.164	30 year 120 minute summer	70.174	18.545
1 year 960 minute summer	6.650	1.751	30 year 120 minute winter	46.622	18.545
1 year 960 minute winter	4.405	1.751	30 year 180 minute summer	52.993	13.637
1 year 1440 minute summer	4.848	1.299	30 year 180 minute winter	34.447	13.637
1 year 1440 minute winter	3.258	1.299	30 year 240 minute summer	41.313	10.918
2 year 15 minute summer	142.607	40.353	30 year 240 minute winter	27.448	10.918
2 year 15 minute winter	100.075	40.353	30 year 360 minute summer	30.933	7.960
2 year 30 minute summer	92.106	26.063	30 year 360 minute winter	20.107	7.960
2 year 30 minute winter	64.636	26.063	30 year 480 minute summer	24.064	6.359
2 year 60 minute summer	61.301	16.200	30 year 480 minute winter	15.988	6.359
2 year 60 minute winter	40.727	16.200	30 year 600 minute summer	19.523	5.340
2 year 120 minute summer	37.296	9.856	30 year 600 minute winter	13.339	5.340
2 year 120 minute winter	24.778	9.856	30 year 720 minute summer	17.268	4.628
2 year 180 minute summer	28.484	7.330	30 year 720 minute winter	11.605	4.628
2 year 180 minute winter	18.515	7.330	30 year 960 minute summer	14.015	3.690
2 year 240 minute summer	22.448	5.932	30 year 960 minute winter	9.284	3.690

Rainfall

Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)
30 year 1440 minute summer	9.998	2.680
30 year 1440 minute winter	6.719	2.680
30 year +40% CC 15 minute summer	379.025	107.251
30 year +40% CC 15 minute winter	265.983	107.251
30 year +40% CC 30 minute summer	245.848	69.567
30 year +40% CC 30 minute winter	172.525	69.567
30 year +40% CC 60 minute summer	163.225	43.136
30 year +40% CC 60 minute winter	108.443	43.136
30 year +40% CC 120 minute summer	98.244	25.963
30 year +40% CC 120 minute winter	65.271	25.963
30 year +40% CC 180 minute summer	74.190	19.092
30 year +40% CC 180 minute winter	48.225	19.092
30 year +40% CC 240 minute summer	57.839	15.285
30 year +40% CC 240 minute winter	38.427	15.285
30 year +40% CC 360 minute summer	43.306	11.144
30 year +40% CC 360 minute winter	28.150	11.144
30 year +40% CC 480 minute summer	33.690	8.903
30 year +40% CC 480 minute winter	22.383	8.903
30 year +40% CC 600 minute summer	27.332	7.476
30 year +40% CC 600 minute winter	18.675	7.476
30 year +40% CC 720 minute summer	24.175	6.479
30 year +40% CC 720 minute winter	16.247	6.479
30 year +40% CC 960 minute summer	19.621	5.167
30 year +40% CC 960 minute winter	12.997	5.167
30 year +40% CC 1440 minute summer	13.997	3.751
30 year +40% CC 1440 minute winter	9.407	3.751
100 year 15 minute summer	351.460	99.451
100 year 15 minute winter	246.639	99.451
100 year 30 minute summer	229.876	65.047
100 year 30 minute winter	161.317	65.047
100 year 60 minute summer	153.288	40.510
100 year 60 minute winter	101.841	40.510
100 year 120 minute summer	92.222	24.372
100 year 120 minute winter	61.270	24.372
100 year 180 minute summer	69.425	17.866
100 year 180 minute winter	45.128	17.866
100 year 240 minute summer	53.918	14.249
100 year 240 minute winter	35.822	14.249
100 year 360 minute summer	40.132	10.327
100 year 360 minute winter	26.087	10.327
100 year 480 minute summer	31.099	8.219
100 year 480 minute winter	20.662	8.219
100 year 600 minute summer	25.151	6.879
100 year 600 minute winter	17.185	6.879
100 year 720 minute summer	22.187	5.946
100 year 720 minute winter	14.911	5.946
100 year 960 minute summer	17.929	4.721
100 year 960 minute winter	11.876	4.721
100 year 1440 minute summer	12.706	3.405
100 year 1440 minute winter	8.539	3.405
100 year +40% CC 15 minute summer	492.044	139.231
100 year +40% CC 15 minute winter	345.294	139.231
100 year +40% CC 30 minute summer	321.827	91.066
100 year +40% CC 30 minute winter	225.843	91.066
100 year +40% CC 60 minute summer	214.603	56.713
100 year +40% CC 60 minute winter	142.577	56.713
100 year +40% CC 120 minute summer	129.111	34.120
100 year +40% CC 120 minute winter	85.778	34.120
100 year +40% CC 180 minute summer	97.196	25.012
100 year +40% CC 180 minute winter	63.180	25.012
100 year +40% CC 240 minute summer	75.485	19.949
100 year +40% CC 240 minute winter	50.151	19.949
100 year +40% CC 360 minute summer	56.184	14.458
100 year +40% CC 360 minute winter	36.521	14.458
100 year +40% CC 480 minute summer	43.539	11.506
100 year +40% CC 480 minute winter	28.926	11.506
100 year +40% CC 600 minute summer	35.212	9.631
100 year +40% CC 600 minute winter	24.059	9.631
100 year +40% CC 720 minute summer	31.062	8.325
100 year +40% CC 720 minute winter	20.875	8.325
100 year +40% CC 960 minute summer	25.100	6.610
100 year +40% CC 960 minute winter	16.627	6.610
100 year +40% CC 1440 minute summer	17.789	4.768
100 year +40% CC 1440 minute winter	11.955	4.768

Results for 1 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	Building	10	99.667	0.067	7.1	0.1946	0.0000	OK
15 minute winter	Car Park	14	99.521	0.021	11.7	1.9168	0.0000	OK
15 minute summer	OUT	1	99.400	0.000	0.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	Building	1.000	Car Park	7.2	1.388	0.138	0.0565	
15 minute winter	Car Park	Pump	OUT	0.0				0.0
15 minute winter	Car Park	Infiltration		7.6				

Results for 2 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	Building	10	99.676	0.076	9.2	0.2213	0.0000	OK
15 minute winter	Car Park	14	99.526	0.026	15.2	2.7887	0.0000	OK
15 minute summer	OUT	1	99.400	0.000	0.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	Building	1.000	Car Park	9.3	1.477	0.179	0.0682	
15 minute winter	Car Park	Pump	OUT	0.0				0.0
15 minute winter	Car Park	Infiltration		9.2				

Results for 30 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	Building	10	99.706	0.106	17.5	0.3087	0.0000	OK
15 minute winter	Car Park	14	99.543	0.043	28.7	6.4354	0.0000	OK
15 minute summer	OUT	1	99.400	0.000	0.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	Building	1.000	Car Park	17.7	1.717	0.340	0.1093	
15 minute winter	Car Park	Pump	OUT	0.0				0.0
15 minute winter	Car Park	Infiltration		15.5				

Results for 30 year +40% CC Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	Building	10	99.727	0.127	24.5	0.3689	0.0000	OK
15 minute winter	Car Park	15	99.559	0.059	40.3	9.9441	0.0000	OK
15 minute summer	OUT	1	99.400	0.000	0.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	Building	1.000	Car Park	24.7	1.840	0.475	0.1412	
15 minute winter	Car Park	Pump	OUT	0.0				0.0
15 minute winter	Car Park	Infiltration		18.1				

Results for 100 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	Building	10	99.722	0.122	22.7	0.3540	0.0000	OK
15 minute winter	Car Park	15	99.555	0.055	37.4	8.9071	0.0000	OK
15 minute summer	OUT	1	99.400	0.000	0.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	Building	1.000	Car Park	22.9	1.812	0.440	0.1331	
15 minute winter	Car Park	Pump	OUT	0.0				0.0
15 minute winter	Car Park	Infiltration		18.1				

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	Building	10	99.746	0.146	31.8	0.4256	0.0000	OK
30 minute winter	Car Park	24	99.583	0.083	43.0	14.8337	0.0000	OK
15 minute summer	OUT	1	99.400	0.000	0.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	Building	1.000	Car Park	32.0	1.926	0.616	0.1733	
30 minute winter	Car Park	Pump	OUT	0.0				0.0
30 minute winter	Car Park	Infiltration		18.2				

Soakaway Tests

Scale 1:500

Drawing Scale Bar

Drawing scale	Line length	Drawing scale	Line length
1:5 =	0.25 metres	1:200 =	10.0 metres
1:10 =	0.5 metres	1:250 =	12.5 metres
1:20 =	1.0 metres	1:500 =	25.0 metres
1:25 =	1.25 metres	1:1000 =	50.0 metres
1:50 =	2.5 metres	1:1250 =	62.5 metres
1:100 =	5.0 metres	1:2500 =	125 metres

Measure length of line above for checking of scale

GENERAL NOTES

This drawing should be read

Rev	Details	Date	By	Chkd

Drawing Status:

PRELIMINARY

RIDA
FLOOD RISK ASSESSMENT & DRAINAGE STRATEGIES

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e: info@rida-reports.co.uk
t: 01608 510 121
www.rida-reports.co.uk

Client:

Project:
Land North Of Milton Road, Adderbury

Drawing:
Trial Pit Layout

Print Size:	Project No:	Drawing No:	Revision:
A1	0202	001	P1

Project:	Land North Of Milton Road, Adderbury
Calculation By:	Mario Mora
Title :	Soakaway Calculation
Date:	19/10/2022

SOAKAWAY TRIAL PIT 1

TEST 1

Pit Dimensions:

L:	1500	mm
W:	700	mm
D:	1000	mm

Key

	Input
	Calculation

Time Since Start	Water Level from GL	Depth of water
min	mm	mm
0	182	818
10	432	568
20	584	416
30	705	295
40	810	190
50	913	87
60	1000	0

Mean Surface Area	2.85	m2
Depth of water	818	mm
Time at 25% or at	204.5	mm of water

Interpolating Values

Time	Water Depth
30	295
40	190

t: 38.62 min. From interpolating values

Time at 75% or at	613.5	mm of water

Interpolating Values

Time	Water Depth
0	818
10	568

t: 8.18 min. From interpolating values

Volume of test Pit between 25% and 75% of water depth:	0.429	m3	
Time Taken to drain between 25% and 75% of water depth:	30.44	min or	0.507 hr

Test 1 - Soil Infiltration rate: 8.25E-05 m/s

0.29706 m/hr

SOAKAWAY TRIAL PIT 1

TEST 2

Pit Dimensions:

L:	1500	mm
W:	700	mm
D:	1000	mm

Key

	Input
	Calculation

Time Since Start	Water Level from GL	Depth of water
min	mm	mm
0	171	829
10	405	595
20	543	457
30	652	348
40	713	287
50	781	219
60	809	191
70	846	154

Mean Surface Area	2.87	m2
Depth of water	829	mm
Time at 25% or at	207.3	mm of water

Interpolating Values

Time	Water Depth
50	219
60	191

t: 54.2 min. From interpolating values

Time at 75% or at	621.8	mm of water

Interpolating Values

Time	Water Depth
0	829
10	595

t: 8.857 min. From interpolating values

Volume of test Pit between 25% and 75% of water depth:	0.435	m3	
Time Taken to drain between 25% and 75% of water depth:	45.34	min or	0.756 hr

Test 2 - Soil Infiltration rate:

5.57E-05	m/s
0.20042	m/hr

SOAKAWAY TRIAL PIT 1

TEST 3

Pit Dimensions:

L:	1500	mm
W:	700	mm
D:	1000	mm

Key

	Input
	Calculation

Time Since Start	Water Level from GL	Depth of water
min	mm	mm
0	170	830
10	405	595
20	536	464
30	650	350
40	707	293
50	769	231
60	798	202
70	823	177
80	849	151
90	875	125
100	902	98

Mean Surface Area	2.88	m2
Depth of water	830	mm
Time at 25% or at	207.5	mm of water

Interpolating Values

Time	Water Depth
50	231
60	202

t: 58.1 min. From interpolating values

Time at 75% or at	622.5	mm of water

Interpolating Values

Time	Water Depth
0	830
10	595

t: 8.83 min. From interpolating values

Volume of test Pit between 25% and 75% of water depth:	0.436	m3	
Time Taken to drain between 25% and 75% of water depth:	49.27	min or	0.821 hr

Test 3 - Soil Infiltration rate:

5.12E-05	m/s
0.18450	m/hr

SOAKAWAY TRIAL PIT 1 INFILTRATION RATE

5.12E-05	m/s
0.18450	m/hr

Project:	Land North Of Milton Road, Adderbury
Calculation By:	Mario Mora
Title :	Soakaway Calculation
Date:	19/10/2022

SOAKAWAY TRIAL PIT 3

TEST 1

Pit Dimensions:

L:	1500	mm
W:	700	mm
D:	1000	mm

Key

	Input
	Calculation

Time Since Start	Water Level from GL	Depth of water
min	mm	mm
0	197	803
10	487	513
20	693	307
30	824	176
40	981	19
50	1000	0

Mean Surface Area: 2.82 m2
Depth of water: 803 mm
Time at 25% or at: 200.8 mm of water

Interpolating Values

Time	Water Depth
20	307
30	176

t: 28.11 min. From interpolating values

Time at 75% or at: 602.3 mm of water

Interpolating Values

Time	Water Depth
0	803
10	513

t: 6.922 min. From interpolating values

Volume of test Pit between 25% and 75% of water depth: 0.422 m3
Time Taken to drain between 25% and 75% of water depth: 21.19 min or 0.353 hr

Test 1 - Soil Infiltration rate: 1.18E-04 m/s
0.42384 m/hr

SOAKAWAY TRIAL PIT 3

TEST 2

Pit Dimensions:

L:	1500	mm
W:	700	mm
D:	1000	mm

Key

	Input
	Calculation

Time Since Start	Water Level from GL	Depth of water
min	mm	mm
0	181	819
10	476	524
20	660	340
30	781	219
40	911	89
50	1000	0

Mean Surface Area	2.85	m2
Depth of water	819	mm
Time at 25% or at	204.8	mm of water

Interpolating Values

Time	Water Depth
30	219
40	89

t: 31.1 min. From interpolating values

Time at 75% or at	614.3	mm of water

Interpolating Values

Time	Water Depth
0	819
10	524

t: 6.941 min. From interpolating values

Volume of test Pit between 25% and 75% of water depth:	0.43	m3	
Time Taken to drain between 25% and 75% of water depth:	24.16	min or	0.403 hr

Test 2 - Soil Infiltration rate:

1.04E-04	m/s
0.37451	m/hr

SOAKAWAY TRIAL PIT 3

TEST 3

Pit Dimensions:

L:	1500	mm
W:	700	mm
D:	1000	mm

Key

	Input
	Calculation

Time Since Start	Water Level from GL	Depth of water
min	mm	mm
0	181	819
10	472	528
20	647	353
30	749	251
40	900	100
50	1000	0

Mean Surface Area	2.85	m2
Depth of water	819	mm
Time at 25% or at	204.8	mm of water

Interpolating Values

Time	Water Depth
30	251
40	100

t: 33.06 min. From interpolating values

Time at 75% or at	614.3	mm of water

Interpolating Values

Time	Water Depth
0	819
10	528

t: 7.036 min. From interpolating values

Volume of test Pit between 25% and 75% of water depth:	0.43	m3	
Time Taken to drain between 25% and 75% of water depth:	26.03	min or	0.434 hr

Test 3 - Soil Infiltration rate:

9.65E-05	m/s
0.34758	m/hr

SOAKAWAY TRIAL PIT 3 INFILTRATION RATE

9.65E-05	m/s
0.34758	m/hr

Project:	Land North Of Milton Road, Adderbury
Calculation By:	Mario Mora
Title :	Soakaway Calculation
Date:	19/10/2022

Results

SOAKAWAY TRIAL PIT 1 INFILTRATION RATE

INFILTRATION RATE	5.12E-05	m/s
	0.18450	m/hr

SOAKAWAY TRIAL PIT 3 INFILTRATION RATE

INFILTRATION RATE	9.65E-05	m/s
	0.34758	m/hr

MINIMUM INFILTRATION RATE	5.12E-05
	0.18450