Ref: 9672BAC/5

Application Number:	**PL/2022/04474**
Site Address:	**The Former Biddestone Arms, The Green, Biddestone, Chippenham, Wiltshire, SN14 7DG**

RE: s.73 variation to Planning Permission PL//2022/04474

We are working on the SW drainage strategy for the Biddestone site, a residential development of 4 units and the demolition of the existing pub. The scheme was previously approved for planning under ref 20/10605/FUL and 20/10605/FUL. We are employing a similar drainage solution where queries regarding the groundwater level and infiltration testing have been raised and dealt with through consultation with relevant stakeholders.

In the previous scheme, the drainage strategy was to use infiltration based on rates tested on-site. Following the drainage hierarchy, a similar strategy was developed for the new scheme, based on on-site testing, however, you (LLFA) have raised some issues with this, citing concerns about infiltration in the area.

We have therefore considered alternative discharge locations for the surface water. Still following the drainage discharge hierarchy we are investigating a discharge to a watercourse. There is an existing ditch adjacent to the site in third-party land across The Green public highway. A discharge to this location is not feasible through gravity and would therefore need to be pumped.

Our next option in the hierarchy is a discharge to the public sewers. There is a Wessex Water foul water sewer within The Green public highway. We have consulted with Wessex Water (twice) and on both occasions they have refused a connection for surface water to the foul sewer as this public sewer shortly drains to the Biddestone Manor sewage pumping station which is indicated as frequently spilling overflow. The government has published its plan to reduce storm overflow spills and the steer is for surface water drainage to no longer be combined with foul water, due to the nationwide focus on reducing discharges from storm overflows from combined sewers, as well as reducing the unnecessary high carbon footprint arising from pumping and treating surface water which could be returned to the environment without needing to pass through a sewage treatment works.

We have tested for infiltration twice on-site and yielded acceptable infiltration rates, although low, they are still feasible. Please see appended to this letter all infiltration tests carried out on site. Our soakaway has been sized for the maximum 1 in 100 + 45% uplift for climate change and therefore there is some factor of safety as typically schemes are required to retain up to the 30-year storm below ground. We have provided an exceedance plan in the event of an extreme event, which demonstrates no risk to property or harm to life. In addition the developer will install water butts to each unit to allow the collection of rainwater for re-use.

The shared driveway will be managed privately via a management company owned by the residents and funded through the shared maintenance charge. A maintenance schedule has been produced and submitted which is in accordance with CIRIA good practice guidance. The soakaway has been sited 5m from all houses and is only within 5m of a bin store. This is not a habitable space so settlement cracks (if any at all) from ground movement are not any cause for concern.

As the soakaway is an irregular shape to work with the available space, we are proposing inspectable units such as AquaCell NG units by Wavin or similar approved. This will facilitate access for maintenance.

We therefore consider our proposal to meet compliance requirements and therefore seek your decision to approve. Please get in touch if you require any further information.

Roshnee Valla BA (Hons)
Drainage Engineer
roshnee@structuralsolutions.co.uk

13 December 2023

LIST OF APPENDICES

Appendix A - Infiltration Test Results from the test carried out between 25 May 2023 to 27 May 2023.

Appendix B – Updated Calculations using new infiltration rate

Appendix C – Updated Drainage Layout

Appendix D – Previous Infiltration Test Results

APPENDIX A

CALC SHEET

Project no: 9672BAC
Calc sheet no: 1

STRUCTURAL SOLUTIONS
Dairy Studios | 102 Lincoln Street | Bristol | BS5 0BJ
T. 0117 924 5014

STRUCTURAL SOLUTIONS CHARTERED ENGINEERS

Project title: The Biddestone Arms
Chippenham
SN14 7DG

Date 15-Jun-23
Calc by RV
Drawing ref **P505**

Calculation of Soil Infiltration Rate: Proceedure from BRE 365:

$$f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$$

Where:

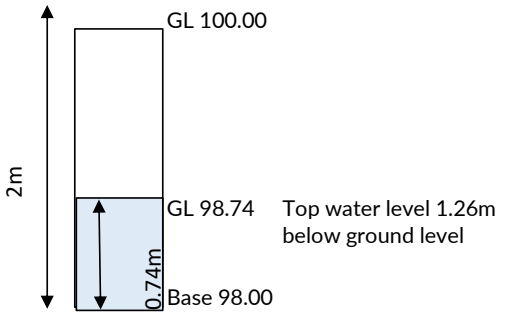
- f = Soil infiltration rate
- V_{p75-25} = Effective storage volume of water in trial pit between 75% and 25% effective depth
- a_{p50} = Internal surface area of trial pit upto 50% effective depth and including base area
- t_{p75-25} = Time for water level to fall from 75% to 25% effective depth

Test carried out over the period 25-May-23 to 27-May-23 approx 3m south east of proposed soakaway.

Pit dimensions (m) 2.8 x 0.8 x 2 deep

Ground Level (m AOD) **100.000**
Base Level of soakaway (m AOD) **98.000**
Design top water level of soakaway (m AOD) **98.740**
Effective depth of soakaway (m) 0.74
Width of trial pit (m) **0.800**
Length of trial pit (m) **2.800**
Base area of soakaway (m^2) 2.24
V_{p75-25} (m^3) = 0.83

a_{p50} (m^2) = 4.90



	Field trial times (seconds)					No of Tests
		Test 1	Test 2	Test 3		
Average time taken for soakaway to empty by 25% of the effective depth (seconds)	6306	3660	6258	9000		3
Water level (m below ground level) when soakaway has emptied by 25% of the effective depth	1.445					
Average time taken for soakaway to empty by 75% of the effective depth (seconds)	42940	38820	42300	47700		3
Water level (m below ground level) when soakaway has emptied by 75% of the effective depth	1.815					
t_{p75-25} =	36634.00					

Soil infiltration rate, f (m/s) =	**4.61E-06**
	0.0166 m/hr

The infiltration rate should allow the soakaway to discharge from full to half volume within 24 hours.

APPENDIX B

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Date 15/06/2023 16:26
File 230615 Biddestone Cascade

Designed by
Checked by

XP Solutions

Source Control 2019.1

Cascade Summary of Results for 230615 Biddestone Soakaway v1.2.SRCX

Upstream Structures	Outflow To	Overflow To
220901 Biddestone Permeable Paving v1.3.SRCX	(None)	(None)

Half Drain Time : 4828 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	96.844	0.644	0.1	23.9	O K
30 min Summer	97.076	0.876	0.1	32.4	O K
60 min Summer	97.332	1.132	0.1	42.0	O K
120 min Summer	97.603	1.403	0.1	52.0	O K
180 min Summer	97.749	1.549	0.2	57.4	O K
240 min Summer	97.858	1.658	0.2	61.4	O K
360 min Summer	98.011	1.811	0.2	67.1	O K
480 min Summer	98.120	1.920	0.2	71.1	O K
600 min Summer	98.203	2.003	0.2	74.2	O K
720 min Summer	98.269	2.069	0.2	76.6	O K
960 min Summer	98.365	2.165	0.2	80.2	O K
1440 min Summer	98.479	2.279	0.2	84.4	O K
2160 min Summer	98.550	2.350	0.2	87.1	O K
2880 min Summer	98.560	2.360	0.2	87.4	O K
4320 min Summer	98.518	2.318	0.2	85.9	O K
5760 min Summer	98.465	2.265	0.2	83.9	O K
7200 min Summer	98.411	2.211	0.2	81.9	O K
8640 min Summer	98.356	2.156	0.2	79.9	O K
10080 min Summer	98.300	2.100	0.2	77.8	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	138.058	0.0	46
30 min Summer	92.717	0.0	64
60 min Summer	59.342	0.0	88
120 min Summer	36.592	0.0	132
180 min Summer	27.130	0.0	190
240 min Summer	21.809	0.0	250
360 min Summer	16.049	0.0	370
480 min Summer	12.889	0.0	490
600 min Summer	10.863	0.0	608
720 min Summer	9.442	0.0	728
960 min Summer	7.560	0.0	968
1440 min Summer	5.516	0.0	1446
2160 min Summer	4.016	0.0	2164
2880 min Summer	3.202	0.0	2880
4320 min Summer	2.323	0.0	3672
5760 min Summer	1.847	0.0	4432
7200 min Summer	1.548	0.0	5192
8640 min Summer	1.340	0.0	5976
10080 min Summer	1.187	0.0	6856

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XP Solutions | Source Control 2019.1

Cascade Summary of Results for 230615 Biddestone Soakaway v1.2.SRCX

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Winter	96.925	0.725	0.1	26.9	O K
30 min Winter	97.188	0.988	0.1	36.6	O K
60 min Winter	97.471	1.271	0.1	47.1	O K
120 min Winter	97.775	1.575	0.2	58.4	O K
180 min Winter	97.946	1.746	0.2	64.7	O K
240 min Winter	98.065	1.865	0.2	69.1	O K
360 min Winter	98.242	2.042	0.2	75.6	O K
480 min Winter	98.367	2.167	0.2	80.3	O K
600 min Winter	98.462	2.262	0.2	83.8	O K
720 min Winter	98.538	2.338	0.2	86.6	O K
960 min Winter	98.651	2.451	0.2	90.8	O K
1440 min Winter	98.790	2.590	0.2	96.0	O K
2160 min Winter	98.886	2.686	0.2	99.5	O K
2880 min Winter	98.916	2.716	0.2	100.6	O K
4320 min Winter	98.884	2.684	0.2	99.4	O K
5760 min Winter	98.815	2.615	0.2	96.9	O K
7200 min Winter	98.753	2.553	0.2	94.6	O K
8640 min Winter	98.683	2.483	0.2	92.0	O K
10080 min Winter	98.607	2.407	0.2	89.2	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Winter	138.058	0.0	50
30 min Winter	92.717	0.0	70
60 min Winter	59.342	0.0	94
120 min Winter	36.592	0.0	130
180 min Winter	27.130	0.0	188
240 min Winter	21.809	0.0	248
360 min Winter	16.049	0.0	364
480 min Winter	12.889	0.0	482
600 min Winter	10.863	0.0	600
720 min Winter	9.442	0.0	718
960 min Winter	7.560	0.0	952
1440 min Winter	5.516	0.0	1418
2160 min Winter	4.016	0.0	2104
2880 min Winter	3.202	0.0	2772
4320 min Winter	2.323	0.0	4032
5760 min Winter	1.847	0.0	4608
7200 min Winter	1.548	0.0	5480
8640 min Winter	1.340	0.0	6408
10080 min Winter	1.187	0.0	7368

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Cascade Rainfall Details for 230615 Biddestone Soakaway v1.2.SRCX

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	20.200	Shortest Storm (mins)	15
Ratio R	0.350	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+45

Time Area Diagram

Total Area (ha) 0.057

Time From:	(mins) To:	Area (ha)	Time From:	(mins) To:	Area (ha)	Time From:	(mins) To:	Area (ha)
0	4	0.019	4	8	0.019	8	12	0.019

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Cascade Model Details for 230615 Biddestone Soakaway v1.2.SRCX

Storage is Online Cover Level (m) 100.000

Cellular Storage Structure

Invert Level (m) 96.200 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.01660 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.01660

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	39.0	39.0	2.801	0.0	89.0
2.800	39.0	89.0			

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Cascade Summary of Results for 220901 Biddestone Permeable Paving v1.3.SRCX

Upstream Structures	Outflow To	Overflow To
(None)	230615 Biddestone Soakaway v1.2.SRCX	(None)

Half Drain Time : 17 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
15 min Summer	99.914	0.114	0.0	4.3	4.3	5.7	Flood Risk
30 min Summer	99.932	0.132	0.0	4.4	4.4	7.4	Flood Risk
60 min Summer	99.933	0.133	0.0	4.4	4.4	7.5	Flood Risk
120 min Summer	99.919	0.119	0.0	4.3	4.3	6.2	Flood Risk
180 min Summer	99.902	0.102	0.0	4.3	4.3	4.6	Flood Risk
240 min Summer	99.884	0.084	0.0	4.2	4.2	3.2	Flood Risk
360 min Summer	99.852	0.052	0.0	4.1	4.1	1.2	Flood Risk
480 min Summer	99.821	0.021	0.0	4.0	4.0	0.2	Flood Risk
600 min Summer	99.800	0.000	0.0	3.7	3.7	0.0	Flood Risk
720 min Summer	99.800	0.000	0.0	3.2	3.2	0.0	Flood Risk
960 min Summer	99.800	0.000	0.0	2.6	2.6	0.0	Flood Risk
1440 min Summer	99.800	0.000	0.0	1.9	1.9	0.0	Flood Risk
2160 min Summer	99.800	0.000	0.0	1.4	1.4	0.0	Flood Risk
2880 min Summer	99.800	0.000	0.0	1.1	1.1	0.0	Flood Risk
4320 min Summer	99.800	0.000	0.0	0.8	0.8	0.0	Flood Risk
5760 min Summer	99.800	0.000	0.0	0.6	0.6	0.0	Flood Risk
7200 min Summer	99.800	0.000	0.0	0.5	0.5	0.0	Flood Risk
8640 min Summer	99.800	0.000	0.0	0.4	0.4	0.0	Flood Risk
10080 min Summer	99.800	0.000	0.0	0.4	0.4	0.0	Flood Risk

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
15 min Summer	138.058	0.0	9.4	21
30 min Summer	92.717	0.0	13.0	30
60 min Summer	59.342	0.0	17.1	48
120 min Summer	36.592	0.0	21.5	80
180 min Summer	27.130	0.0	23.9	112
240 min Summer	21.809	0.0	25.9	142
360 min Summer	16.049	0.0	28.6	200
480 min Summer	12.889	0.0	30.7	254
600 min Summer	10.863	0.0	32.3	0
720 min Summer	9.442	0.0	33.7	0
960 min Summer	7.560	0.0	36.0	0
1440 min Summer	5.516	0.0	39.3	0
2160 min Summer	4.016	0.0	42.7	0
2880 min Summer	3.202	0.0	45.1	0
4320 min Summer	2.323	0.0	48.5	0
5760 min Summer	1.847	0.0	50.8	0
7200 min Summer	1.548	0.0	52.5	0
8640 min Summer	1.340	0.0	53.9	0
10080 min Summer	1.187	0.0	55.0	0

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Cascade Summary of Results for 220901 Biddestone Permeable Paving v1.3.SRCX

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
15 min Winter	99.924	0.124	0.0	4.4	4.4	6.7	Flood Risk
30 min Winter	99.947	0.147	0.0	4.4	4.4	8.7	Flood Risk
60 min Winter	99.946	0.146	0.0	4.4	4.4	8.7	Flood Risk
120 min Winter	99.922	0.122	0.0	4.4	4.4	6.5	Flood Risk
180 min Winter	99.894	0.094	0.0	4.3	4.3	4.0	Flood Risk
240 min Winter	99.866	0.066	0.0	4.2	4.2	2.0	Flood Risk
360 min Winter	99.800	0.000	0.0	3.9	3.9	0.0	Flood Risk
480 min Winter	99.800	0.000	0.0	3.2	3.2	0.0	Flood Risk
600 min Winter	99.800	0.000	0.0	2.7	2.7	0.0	Flood Risk
720 min Winter	99.800	0.000	0.0	2.3	2.3	0.0	Flood Risk
960 min Winter	99.800	0.000	0.0	1.9	1.9	0.0	Flood Risk
1440 min Winter	99.800	0.000	0.0	1.4	1.4	0.0	Flood Risk
2160 min Winter	99.800	0.000	0.0	1.0	1.0	0.0	Flood Risk
2880 min Winter	99.800	0.000	0.0	0.8	0.8	0.0	Flood Risk
4320 min Winter	99.800	0.000	0.0	0.6	0.6	0.0	Flood Risk
5760 min Winter	99.800	0.000	0.0	0.4	0.4	0.0	Flood Risk
7200 min Winter	99.800	0.000	0.0	0.4	0.4	0.0	Flood Risk
8640 min Winter	99.800	0.000	0.0	0.3	0.3	0.0	Flood Risk
10080 min Winter	99.800	0.000	0.0	0.3	0.3	0.0	Flood Risk

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
15 min Winter	138.058	0.0	10.6	21
30 min Winter	92.717	0.0	14.8	32
60 min Winter	59.342	0.0	19.3	50
120 min Winter	36.592	0.0	24.2	86
180 min Winter	27.130	0.0	27.0	118
240 min Winter	21.809	0.0	29.1	146
360 min Winter	16.049	0.0	32.2	0
480 min Winter	12.889	0.0	34.6	0
600 min Winter	10.863	0.0	36.4	0
720 min Winter	9.442	0.0	38.0	0
960 min Winter	7.560	0.0	40.6	0
1440 min Winter	5.516	0.0	44.3	0
2160 min Winter	4.016	0.0	48.2	0
2880 min Winter	3.202	0.0	50.9	0
4320 min Winter	2.323	0.0	54.8	0
5760 min Winter	1.847	0.0	57.5	0
7200 min Winter	1.548	0.0	59.6	0
8640 min Winter	1.340	0.0	61.3	0
10080 min Winter	1.187	0.0	62.6	0

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Cascade Rainfall Details for 220901 Biddestone Permeable Paving v1.3.SRCX

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	20.200	Shortest Storm (mins)	15
Ratio R	0.350	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+45

Time Area Diagram

Total Area (ha) 0.042

Time From:	(mins) To:	Area (ha)	Time From:	(mins) To:	Area (ha)	Time From:	(mins) To:	Area (ha)
0	4	0.014	4	8	0.014	8	12	0.014

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Cascade Model Details for 220901 Biddestone Permeable Paving v1.3.SRCX

Storage is Online Cover Level (m) 100.000

Porous Car Park Structure

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	10.0
Membrane Percolation (mm/hr)	1000	Length (m)	30.0
Max Percolation (l/s)	83.3	Slope (1:X)	300.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	99.800	Membrane Depth (m)	0

Orifice Outflow Control

Diameter (m) 0.050 Discharge Coefficient 0.600 Invert Level (m) 99.200

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APPENDIX C

KEY

- APPROX SITE BOUNDARY
- EXISTING WESSEX WATER SEWERS
- EXISTING PRIVATE SHARED DRAINAGE
- PRIVATE SHARED DRAINAGE TO BE DIVERTED
- PROPOSED ROUTE OF DIVERTED DRAINAGE
- PROPOSED PRIVATE FOUL WATER DRAINAGE
- PROPOSED PVT SURFACE WATER DRAINAGE
- 5m OFFSET FROM SOAKAWAY
- PROPOSED PERMEABLE PAVING
- PROPOSED SOAKAWAY
- PROPOSED ADOPTABLE FOUL DRAINAGE
- SVP — FOUL WASTE POINT (REF ARCHITECTS DETAILS FOR EXACT LOCATIONS)
- RWP — RAINWATER DOWNPIPE (REF ARCH DETAILS)
- 150Ø PERFORATED PIPE -> — PERFORATED PIPE OUTLET FOR PERMEABLE PAVING
- SECTION 184 WORKS BY OTHERS
- G — GULLY

CDM SYMBOLS LEGEND

- INDICATES A RESIDUAL RISK REQUIRING A COMPULSORY ACTION
- INDICATES A RESIDUAL RISK FOR INFORMATION
- INDICATES A RESIDUAL RISK REQUIRING A PROHIBITIVE ACTION
- INDICATES A RESIDUAL RISK AS A WARNING

THE GREEN

5402
CL 114.06
IL 112.52
DATA FROM WW RECORDS

APPROX LOCATION OF 225Ø WESSEX WATER FOUL WATER SEWER

NEW ADOPTABLE MIN 1350Ø PCC MANHOLE OVER 225Ø WW SEWER.
LEVELS ASSESSED AND GRAVITY CONNECTION FEASIBLE.
IL 112.216 225Ø
IL 112.341 100Ø
SUBJECT TO WW SECTION 106 APPLICATION.

INVESTIGATE LEVELS AND SUITABILITY FOR RE-USE FOR FOUL WATER CONNECTION TO PUBLIC SEWER.

5401
CL 113.37
IL 111.88
DATA FROM WW RECORDS

N

DEMARCATION CHAMBER
ORIFICE CHAMBER
150Ø PERFORATED PIPE

EXISTING DRAINAGE ROUTE ASSUMED SHARED

EXMH5
CL 114.33
IL UNKNOWN

EXMH4
CL 114.60
IL UNKNOWN

EXMH3
CL 114.62
IL UNKNOWN

EXMH2
CL 114.66
IL UNKNOWN

EXMH1
CL 115.11
IL UNKNOWN

APPROX ROUTE OF DIVERTED FOUL DRAINAGE. GRADIENT TO SUIT EXISTING.

INVESTIGATE EXISTING DRAINAGE AND UPSTREAM CONNECTIONS. INDICATIVE DIVERSION SHOWN TO RETAIN LIVE CONNECTIONS. DISUSED DRAINAGE LESS THAN 1.5m DEEP SHOULD AS FAR AS PRACTICABLE BE REMOVED. OTHER PIPES SHOULD BE SEALED AT BOTH ENDS AND AT ANY POINT OF CONNECTION AND GROUT FILLED TO ENSURE RATS CANNOT GAIN ACCESS.

RE-BUILD MANHOLE BASE OR INSTALL NEW CHAMBER OVER EXISTING FOUL MANHOLE FOR PROPOSED FOUL WATER SEWER DIVERSION.

APPROX LOCATION OF GEO-CELLULAR SOAKAWAY (39m² x 2.8m DEEP) SITED 5m FROM BUILDINGS AND 2m FROM SITE BOUNDARY. 109.2m³ STORAGE REQUIRED BASED ON ROOF AREA 565m² AND HARDSTANDING AREA 420m² INFILTRATION RATE FROM SITE TESTING IS 4.37 x 10^{-06}m/s. SIZED FOR 100 YEAR + 45% CLIMATE CHANGE ALLOWANCE. AQUACELL PLUS UNITS BY WAVIN OR SIMILAR APPROVED INSPECTABLE UNITS.
AVERAGE CL 114.60
INCOMING PIPE IL 112.65 (150Ø)
TANK BASE LEVEL 110.80
TOP OF TANK 112.80.

SOAKAWAY TO HAVE INSPECTABLE UNITS FOR FULL MAINTENANCE ACCESS.

MINIMUM AREA OF 350m² OF PERMEABLE SURFACE (TYPE C SEALED SYSTEM) WITH SUB-BASE LAYER 200mm DEEP TO SUPPLEMENT REQUIRED ATTENUATION STORAGE. BASE LAID 1:300 (FLAT) WITH 150mmØ PERFORATED PIPE OUTLET AT LOW POINT, CHECK DAMS MAY BE USED IN STEEPLY SLOPING AREAS. OUTLET TO BE FITTED WITH 50mmØ ORIFICE PLATE FLOW CONTROL CHAMBER.

300mmØ ORIFICE FLOW CONTROL CHAMBER WITH 50mmØ OPENING. CONTROFLOW 300 SERIES UNIT BY SEL ENVIRONMENTAL LTD REF SUDS01001 OR SIMILAR APPROVED.

WAVERING BROOK FARM

INFILTRATION RATE 4.37 x 10^{-06}m/s BASED ON INFILTRATION TEST CARRIED OUT ON SITE BETWEEN 25 MAY 2023 TO 27 MAY 2023.

NOT FOR CONSTRUCTION

SUBJECT TO APPROVAL FROM LOCAL AUTHORITY

Reference Drawings:

1. TOPOGRAPHIC LAND SURVEY.
2. ARCHITECT'S PROPOSED SITE PLAN.
3. WESSEX WATER SEWER RECORD DRAWINGS.
4. STRUCTURAL SOLUTIONS CONTRIBUTING AREAS PLAN REF 9672BAC-P501, MANHOLE SCHEDULE AND DRAINAGE NOTES REF 9672BAC-506 AND SOAKAWAY BUILDING OFFSETS PLAN 9672BAC-P504.

NOT FOR CONSTRUCTION

REV	DATE	AMENDMENT		
P6	23/08/23	BASE DRAWING UPDATED	ABK	RV
P5	23/08/23	BASE DRAWING UPDATED	ABK	RV
P4	19/07/23	SOAKAWAY TO BE INSPECTABLE UNITS S3, S5 AND S6 TO BE SILT TRAPS	RV	DT
P3	16/06/23	REVISED TO SUIT NEW INFILTRATION RATE	RV	
P2	19/12/22	REVISED TO SUIT S184 WORKS	OH	DT

DRAWING STATUS: FOR INFORMATION ONLY

PROJECT: THE BIDDESTONE ARMS, CHIPPENHAM, SN14 7DG

TITLE: DRAINAGE LAYOUT

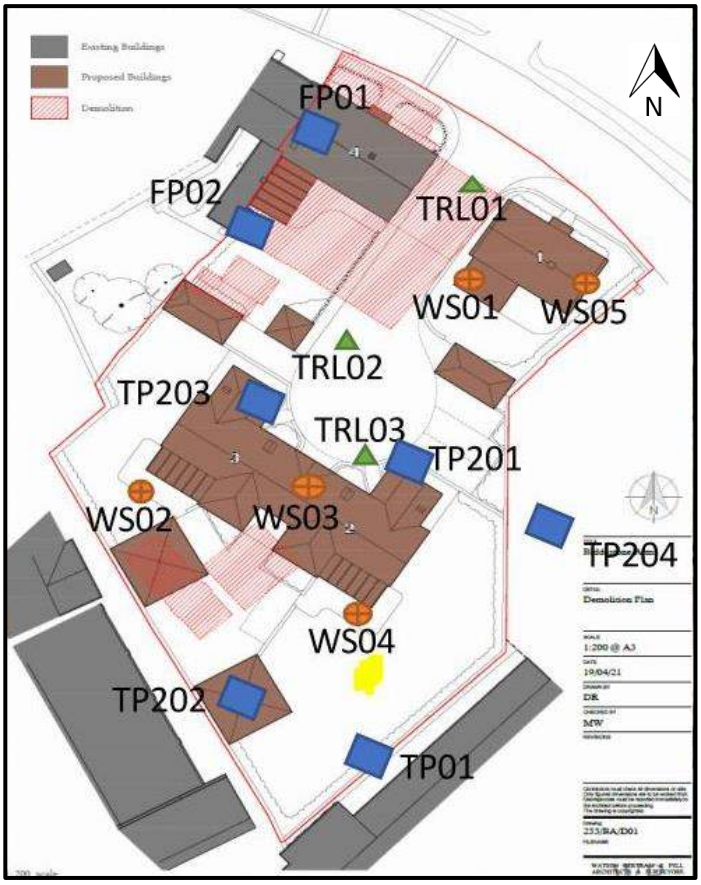
SCALE	DATE	SHEET SIZE
1:200	28/09/22	A3

PROJECT NO.	DRAWING NO.			REV.
9672BAC	P505	RV	DT	P6

STRUCTURAL SOLUTIONS
Dairy Studios | 102 Lincoln Street | Bristol | BS5 0BJ
0117 924 5014

APPENDIX D

Figure 6 - Exploratory Hole Location Plan



7.2 Laboratory Geotechnical Testing

A programme of laboratory testing was carried out on samples taken from the various strata to assist in classification and determine the engineering properties of the materials underlying the site. The testing was scheduled by EEGSL and carried out by GSTL. The test procedures used were generally in accordance with the methods described in BS1377. Details of the specific tests used in each case are given in Table 7 below.

Table 7 - Summary of Geotechnical Laboratory Tests Undertaken

TEST	STANDARD	No.
Moisture Content	BS1377:1990 Part 2, Clause 3.2	4
Liquid Limit, Plastic Limit, Plasticity Index	BS1377:1990 Part 2, Clause 4/5	4
Sulphate content of 2:1 soil: water extract	BS1377:1990 Part 3, Clause 5	4
pH value	BS1377:1990 Part 3, Clause 9	4

The results of the laboratory geotechnical tests are included in Appendix 6.

Earth Environmental & Geotechnical Ltd

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SOAKAWAY TEST

(To: BRE 365 2016)

Job No:	B2443
Site:	Biddestone
Client:	Structural Solutions

Location Reference:	**TP201 - Test 1**	
Date	10/08/2022	
Geology in test section	GRAVEL	
Depth to Base of Hole	1.50	m
Effective Depth	0.74	m
Hole Width	0.80	m
Hole Length	2.80	m
Depth to water at start of test below ground level	0.77	m
Depth to water at end of test below ground level	0.98	m
Effective storage depth to 75% full	0.55	m
(Depth below GL)	0.95	m
Effective storage depth to 50% full	0.37	m
(Depth below GL)	1.13	m
Effective storage depth to 25% full	0.18	m
(Depth below GL)	1.32	m
Height to 50% depth	0.37	m3
Effective Storage Volume V*p75-25*	1.65	m3
Time tp25 at which water is 75% of effective depth (minutes)	135.0	mins
Time tp25 at which water is 25% of effective depth (minutes)	700.0	mins
Time for water level to fall between Vp75 -25	565.0	mins
Time for water level to fall between Vp75 -25	33900.0	secs
Internal surface area of hole up to 50% depth including base	3.86	m2
Soil Infiltration Rate, f	1.26E-05	m/s

Time Elapsed (mins:sec)	**Depth of Water below GL** (m)
0	0.765
1	0.770
2	0.780
3	0.785
4	0.785
5	0.790
7	0.805
10	0.815
15	0.830
30	0.860
60	0.895
90	0.920
120	0.940
180	0.980

Measured Data

