

Appendix E

Drainage Strategy Drawings, Details & Supporting Calculations

Offices:

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Bath 2nd Floor, Unit 7, Riverside Court, Bath BA2 3DZ

Registration:

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FOR CONTINUATION OF
PATHWAY SEE BELOW

NOTE: FOR DETAILS SEE
AWA DRAWING 12718-201

Indicative external finishes (Kerb Types)

- 125 x 255 HALF BATTER KERB
DETAIL (Ref. HB2)
(See 12718-201 for Details)
- EDGING KERB - FLUSH
(Ref. EF1)
(See 12718-201 for Details)
- 125 x 150 FLAT CHANNEL KERB
(Ref. CS2)
(See 12718-201 for Details)
- TIMBER EDGING
(See 12718-201 for Details)

Indicative external finishes

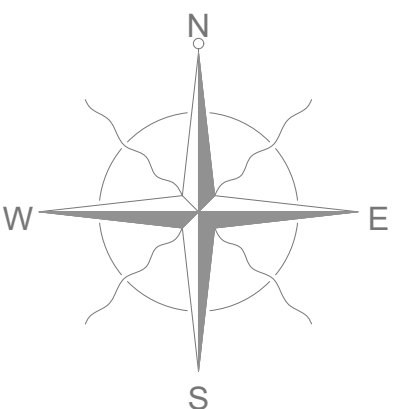
- | | |
|---|--|
|  | <p>Loose shale & concrete
plinths on Porous Sub-Base
(See 12718-201 for Details)</p> |
|  | <p>Impermeable Asphalt
(See 12718-201 for Details)</p> |
|  | <p>Permeable Block Paving - E1
(See 12718-201 for Details)</p> |
|  | <p>Porous Asphalt Permeable
Paving Parking Bays - E2
(See 12718-201 for Details)</p> |
|  | <p>Porous Asphalt Permeable
Paving Parking Bays - E3
(See 12718-201 for Details)</p> |
|  | <p>Permeable Flag Paving
(See 12718-201 for Details)</p> |
|  | <p>Self-binding Gravel Pathway
(See 12718-201 for Details)</p> |

EXTENT OF HIGHWAY
OWNERSHIP/S278 WORKS
TO BE CONFIRMED

SURFACE FINISHES AND KERB
TYPES TO S278 AREA TO BE
CONFIRMED BY OTHERS

Refer to Vectos for access design

EXTERNAL WORKS PLAN

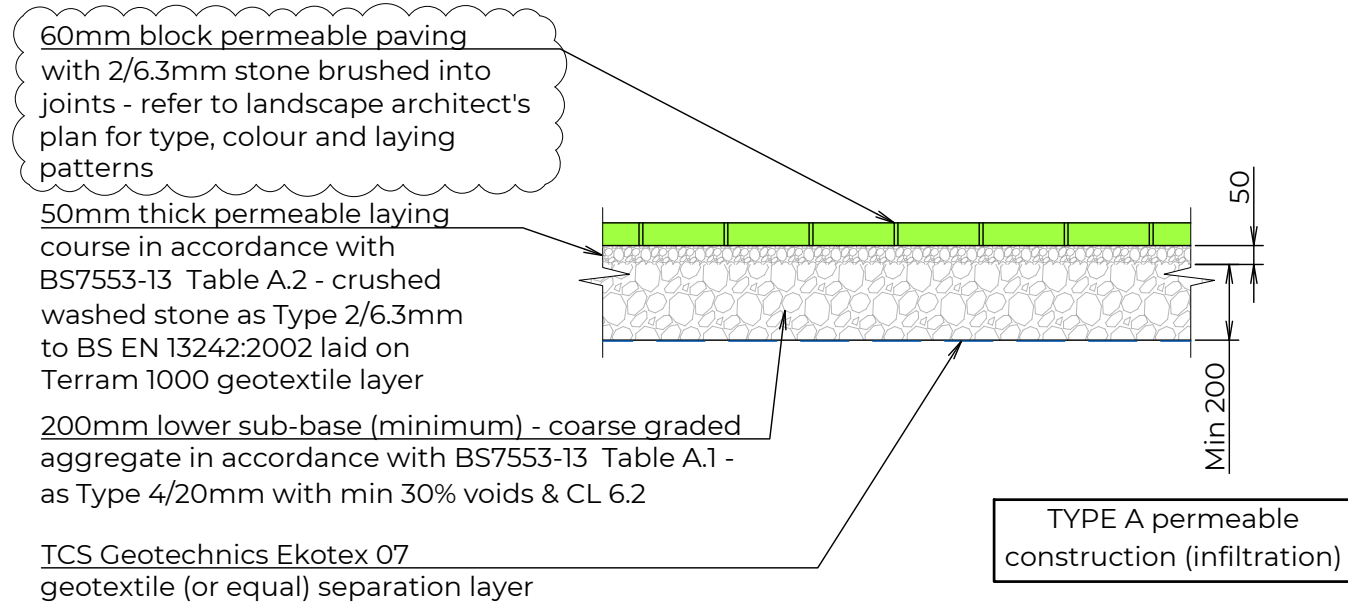


FOR CONTINUATION
SEE ABOVE PLAN

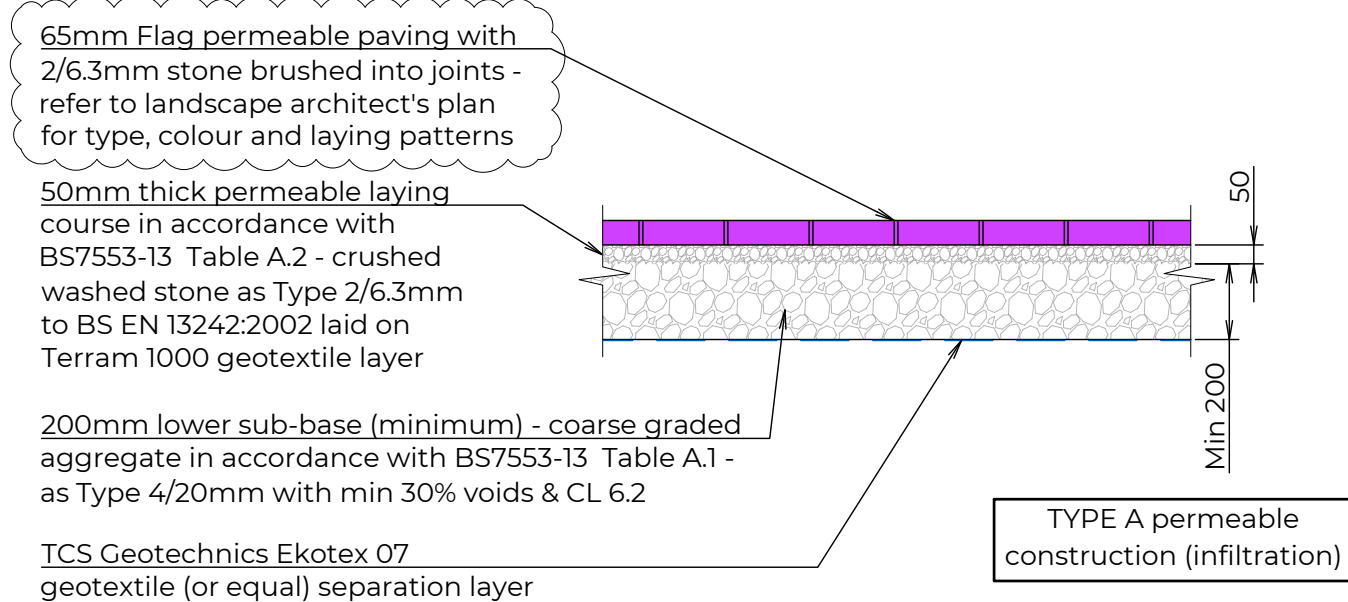
EXTERNAL WORKS PLAN CONTINUED



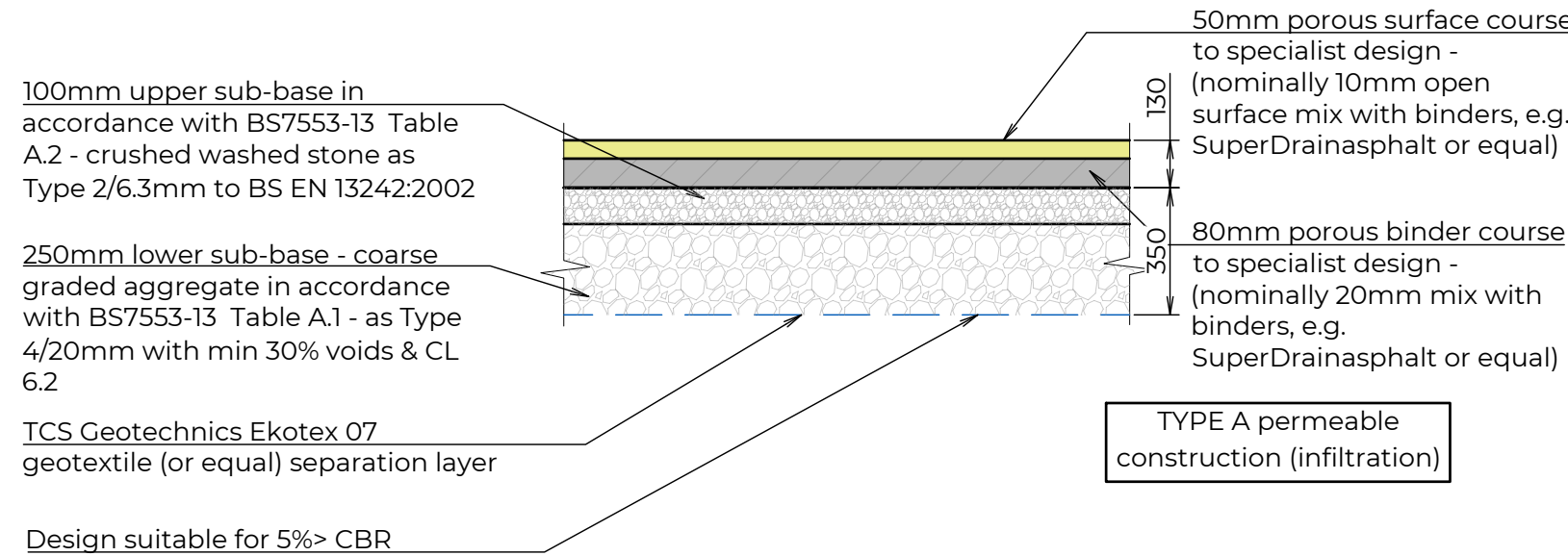
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T2	28/1/25	TENDER ISSUE	CW	CJB
		Tender revisions to suit latest scheme		
		TENDER ISSUE	CMD	SW
REV	DATE	REVISIONS	REV BY	CHK BY
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ARCHITECT Studio Four Architects				
CLIENT InstaVolt				
JOB TITLE CHICKLADE SERVICES				
DWG TITLE EXTERNAL WORKS LAYOUT PLAN				
STATUS TENDER				
DWG NO 12718-200			REV T3	
SCALE 1:250 @ A1 uno		DATE SEPT 2025	DRAWN BY CMD	CHECKED BY SW



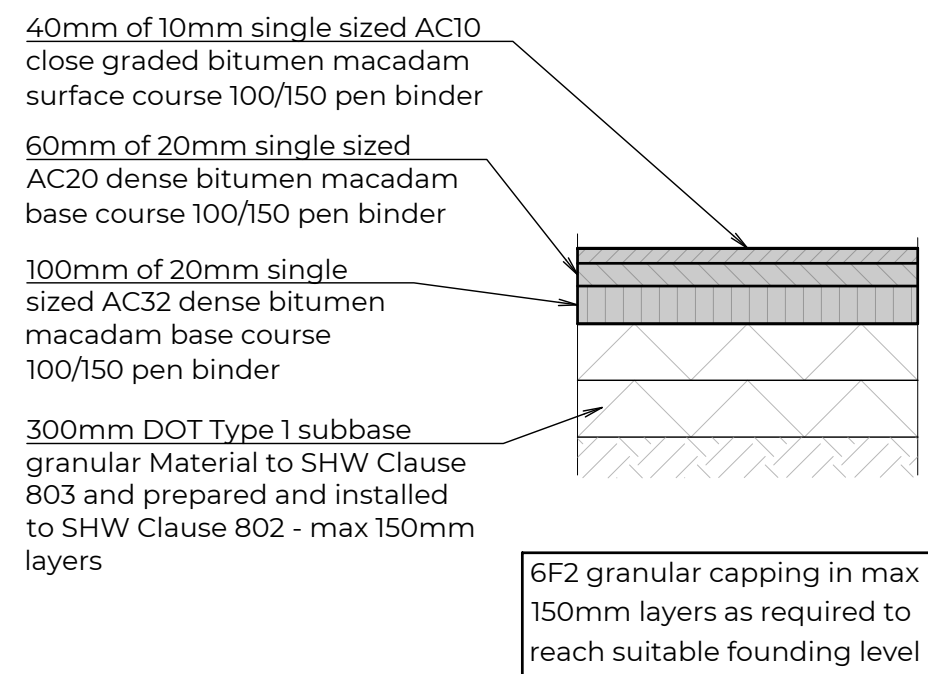
PERMEABLE BLOCK PAVING
- PEDESTRIAN LOADING - E1
1:20



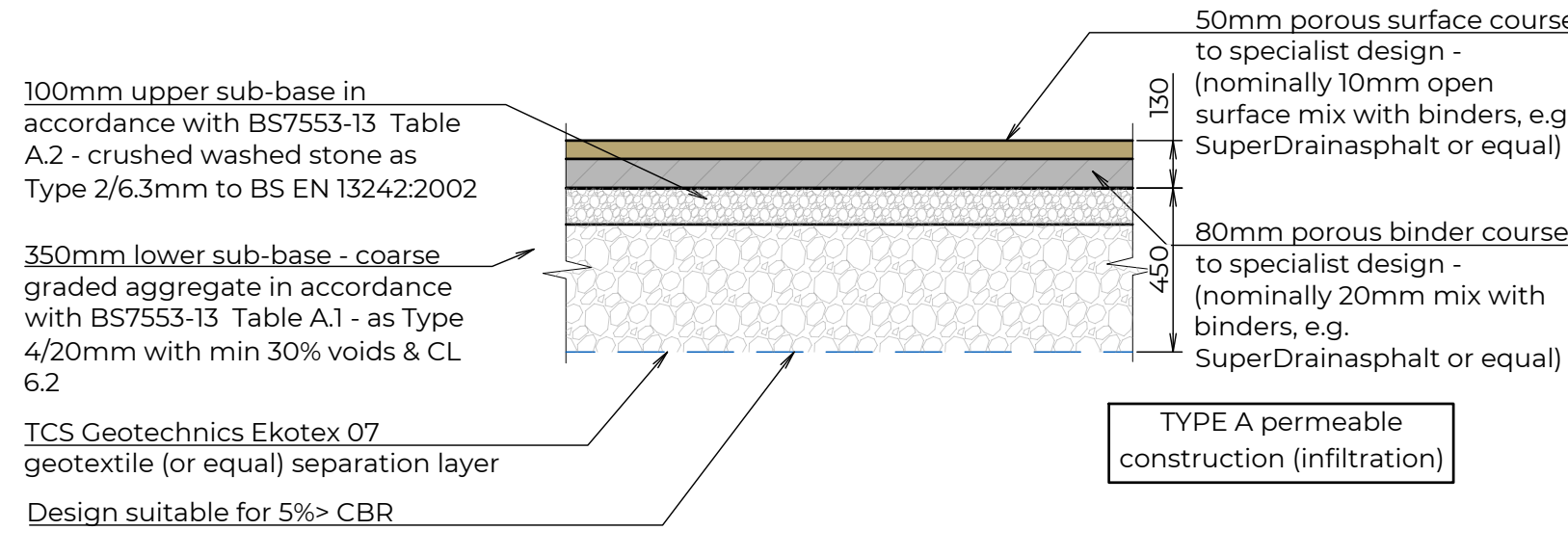
PERMEABLE FLAG PAVING -
PEDESTRIAN LOADING - E1
1:20



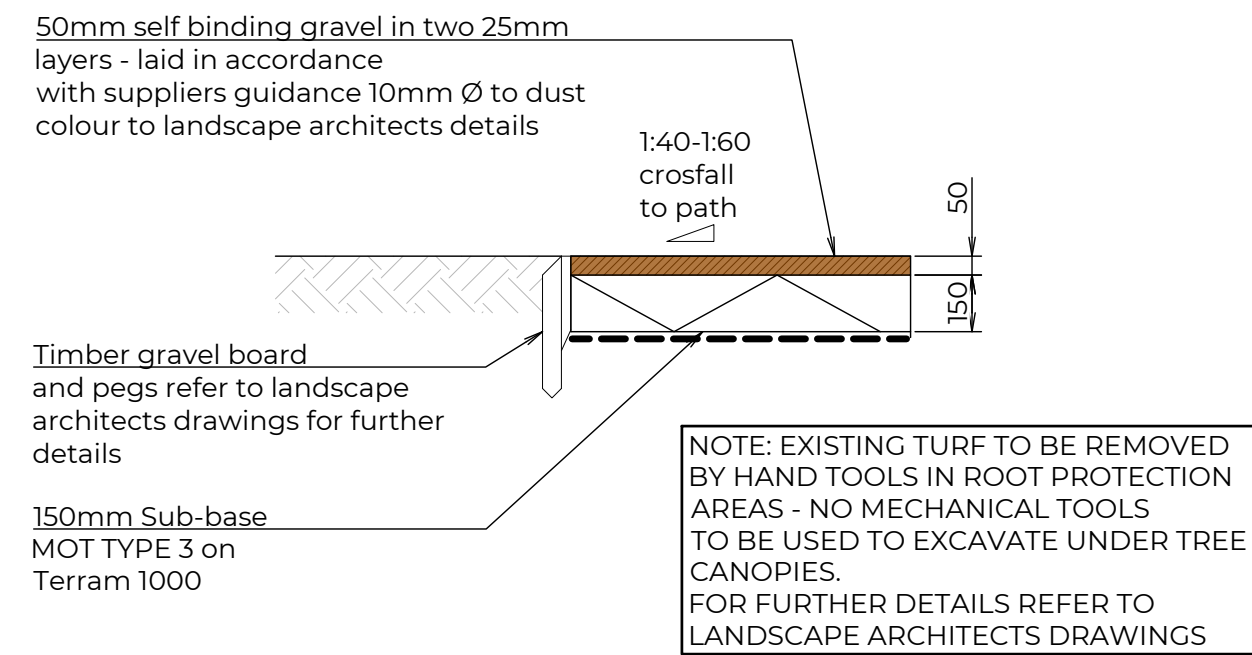
POROUS ASPHALT PERMEABLE PAVING
PARKING BAYS - E2
1:20



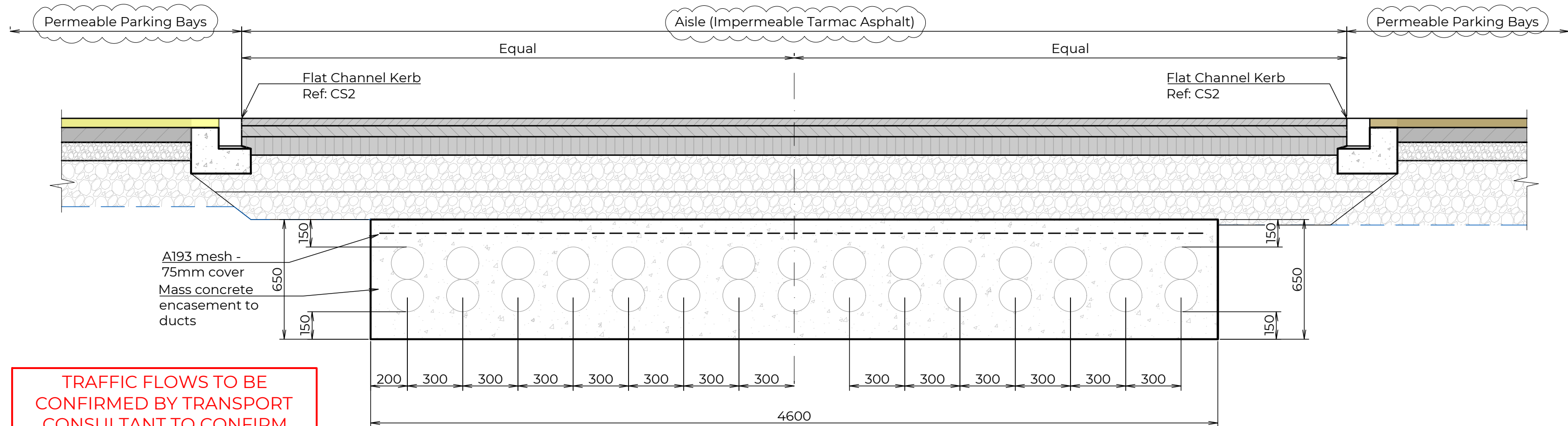
LOOSE SHALE ON POROUS SUB-BASE
1:20



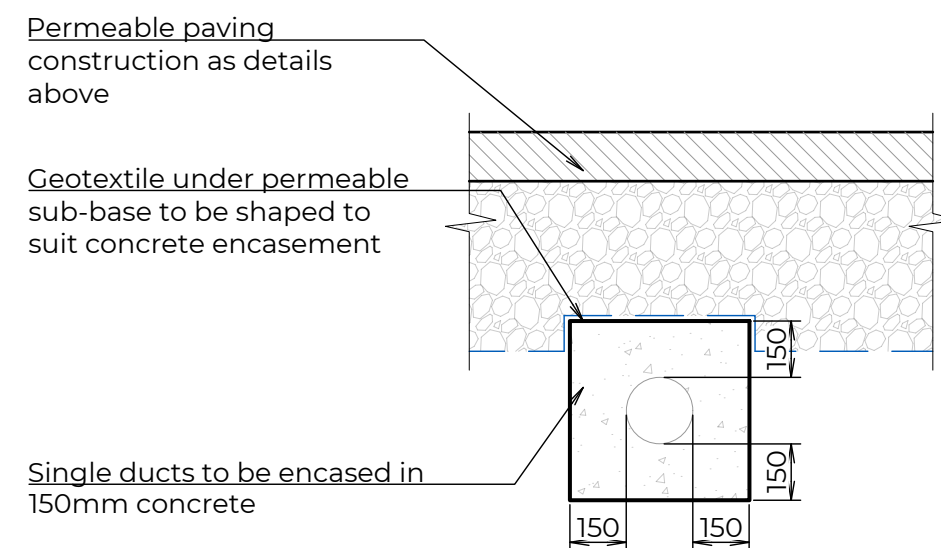
POROUS ASPHALT PERMEABLE PAVING
PARKING BAYS - E3
1:20



GRAVEL PATHWAY
1:20

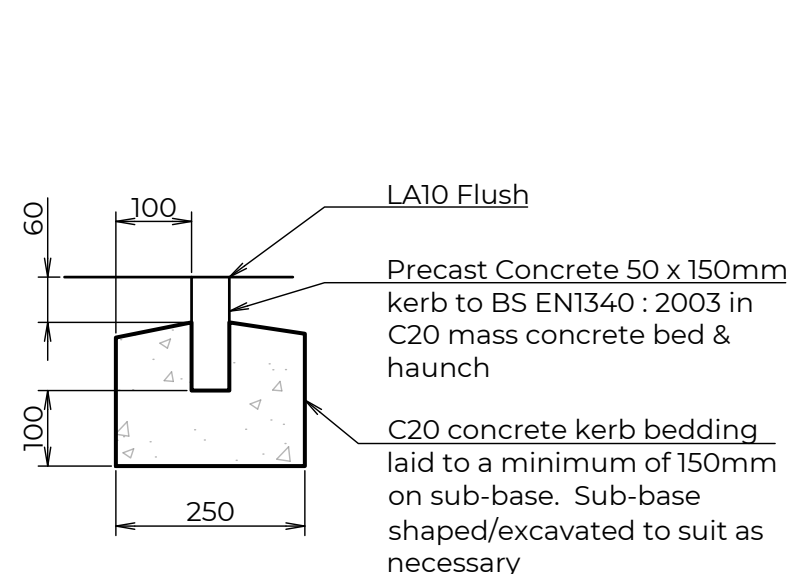


EV DUCT ARRANGEMENT UNDER PARKING AISLE (FULL SECTION)
1:20

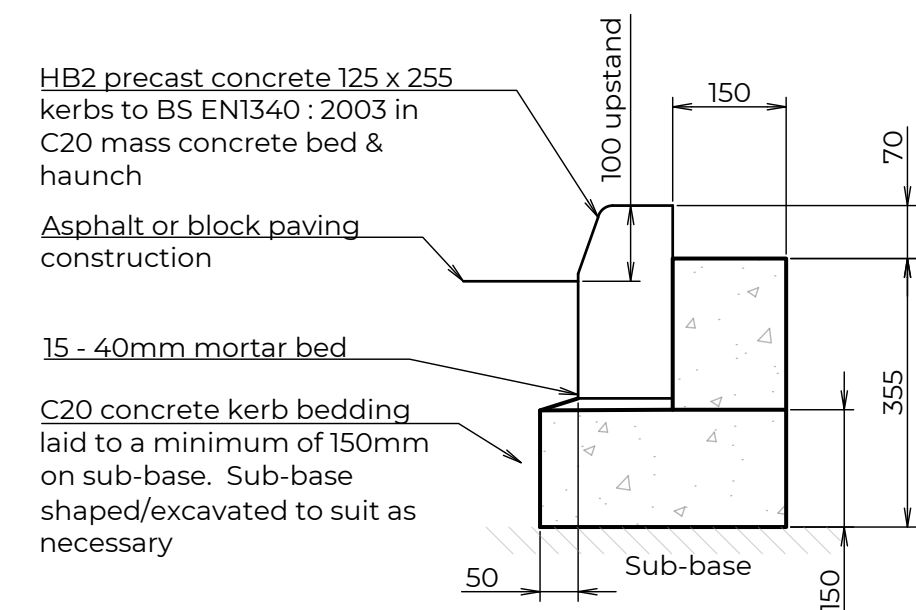


EV DUCT DISTRIBUTION SPURS
UNDER PARKING BAYS
1:20

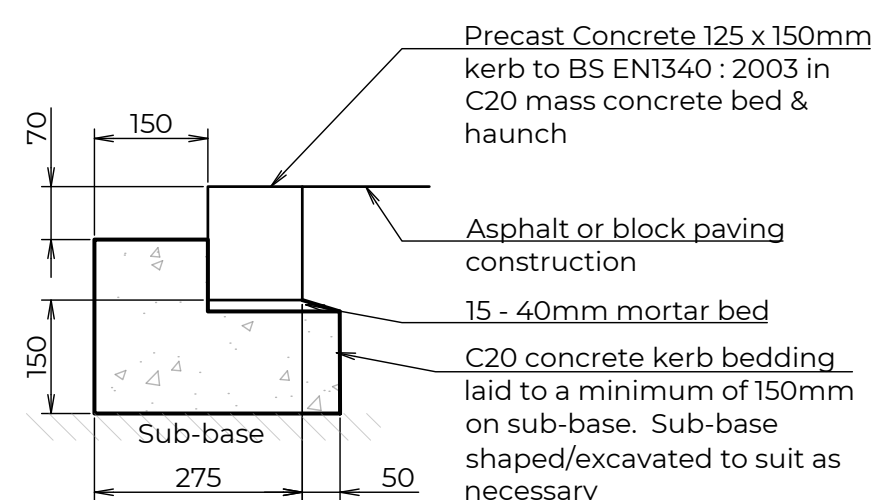
TRAFFIC FLOWS TO BE
CONFIRMED BY TRANSPORT
CONSULTANT TO CONFIRM
ROAD CONSTRUCTION DEPTHS



50 x 150 FLAT TOP EDGING EF1
1:10



125 x 255 HALF BATTER KERB DETAIL - HB2
1:10



125 x 150 FLAT CHANNEL - CS2
1:10

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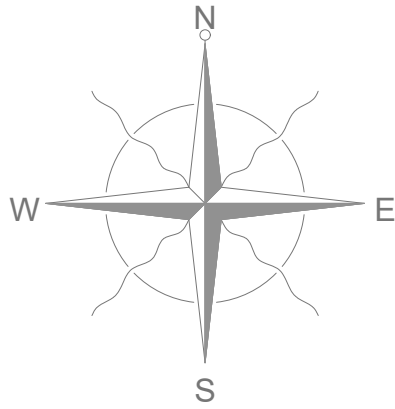
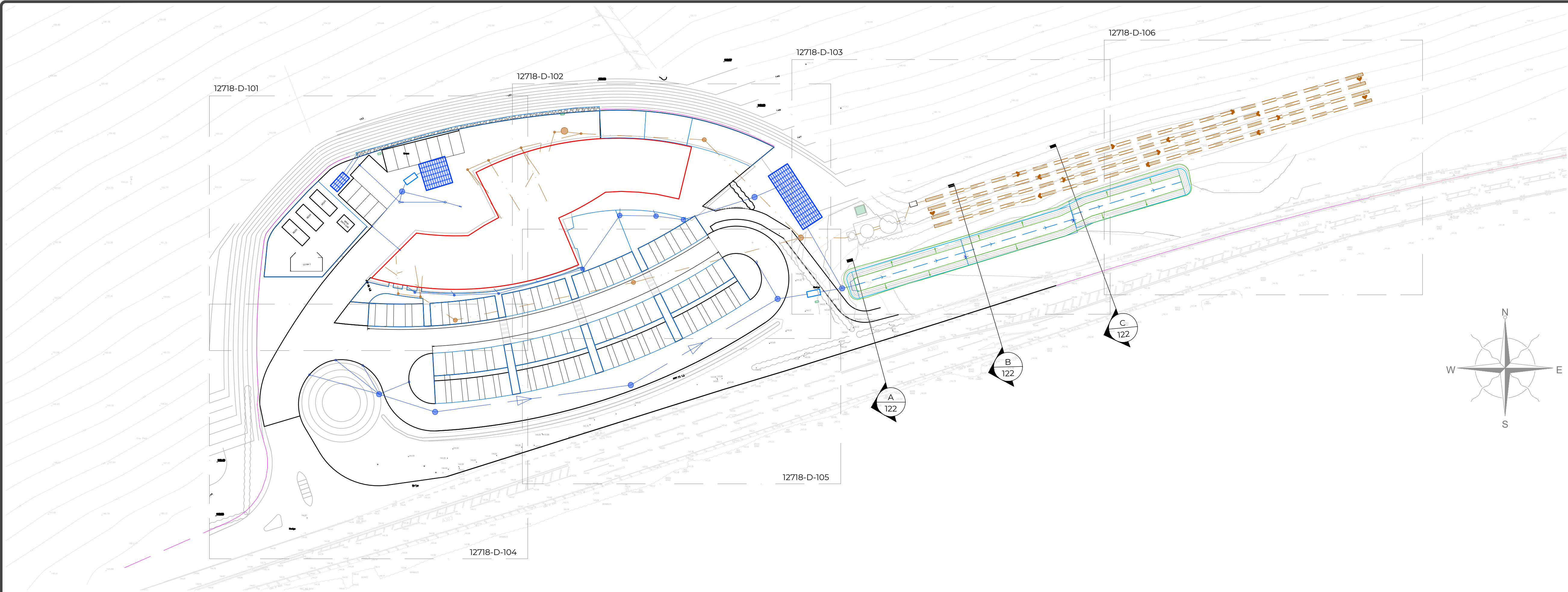
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FOR EXTERNAL WORKS LAYOUT
SEE AWA DRAWING 12718-200

Indicative external finishes	
	Loose shale & concrete plinths on Porous Sub-Base (See 12718-201 for Details)
	Impermeable Asphalt (See 12718-201 for Details)
	Permeable Block Paving - E1 (See 12718-201 for Details)
	Porous Asphalt Permeable Paving Parking Bays - E2 (See 12718-201 for Details)
	Porous Asphalt Permeable Paving Parking Bays - E3 (See 12718-201 for Details)
	Permeable Flag Paving - E1 (See 12718-201 for Details)
	Self-binding Gravel Pathway (See 12718-201 for Details)

T3	8/12/25	Permeable/impermeable finishes clarified	C3B	CB
T2	28/11/25	TENDER ISSUE	CW	C3B
T1	26/9/25	Tender revisions to suit latest scheme	CMD	SW
REV	DATE	REV/ISSUES	REV BY	CHK BY
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CLIENT		InstaVolt		
JOB TITLE		CHICKLADE SERVICES		
DWG TITLE		EXTERNAL WORKS DETAILS		
STATUS		TENDER		
DWG NO		12718-201	REV	T3
SCALE	DATE	DRAWN BY	CHECKED BY	
1:20 @ A1 uno	SEPT 2025	CMD	SW	



DRAINAGE OVERVIEW PLAN
1:500

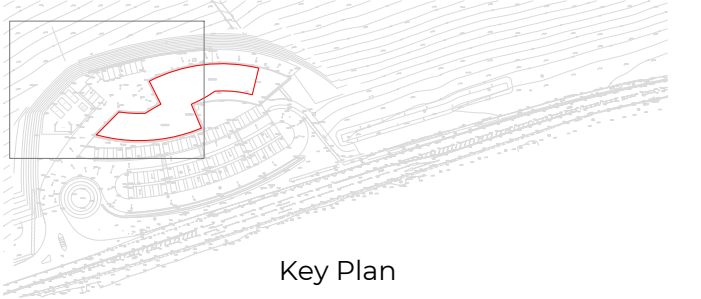
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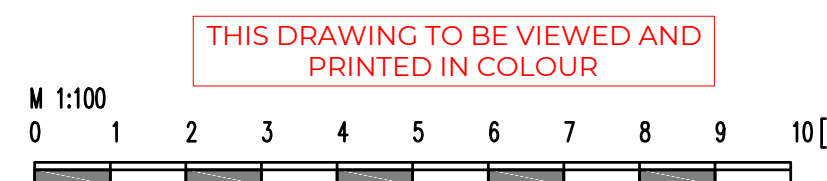
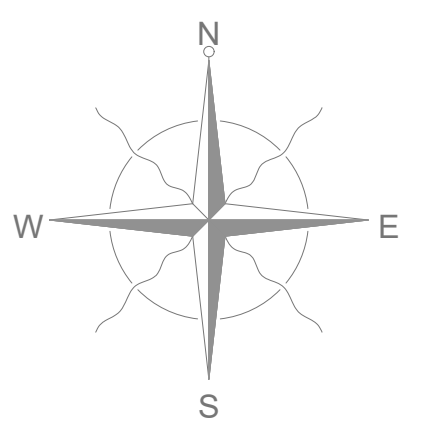
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T2	28/11/25	TENDER REVISIONS	CJB	SW
T1	26/9/25	TENDER ISSUE	CJB	SW
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CLIENT	InstaVolt			
JOB TITLE	CHICKLADE SERVICES			
DRG TITLE	DRAINAGE OVERVIEW PLAN			
STATUS	TENDER			
DRG NO	12718-D-100			REV T2
SCALE	1:500 @ A1 uno	DATE	SEPTEMBER 2025	DRAWN BY CJB CHECKED BY SW

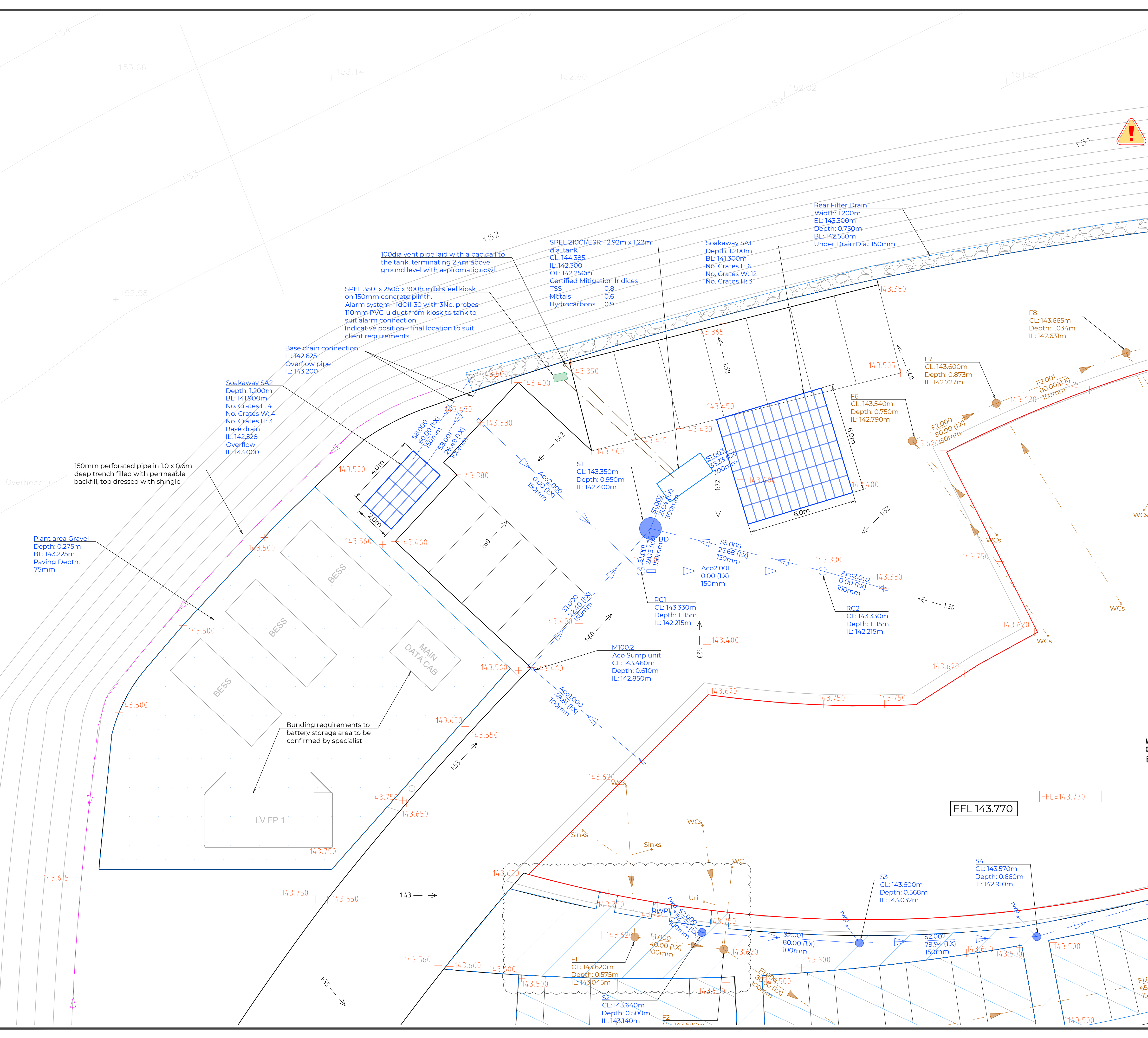


Drainage Legend

- New foul water
- New storm water
- Land drainage
- Pumped rising main - foul
- RWP rainwater pipe
- SS sinks
- WC toilet connection
- URI urinal connection
- FG floor gully
- YG yard gully in pedestrian areas
- RG road gully
- ACO channel drainage with ductile iron grating
- Existing levels (topographical survey)
- Proposed levels
- 1:20 Fall of surfacing
- Soakaway - geocellular crates wrapped in geotextile
- E1 Permeable paving Pedestrian - 250mm sub-base Type A Infiltration
- E2 Permeable paving Parking bays - 350mm sub-base Type A Infiltration
- E3 Permeable paving Parking bays - 450mm sub-base, Type A Infiltration



T2	10/12/25	South path paving amended	CJB	SW
T2	28/11/25	TENDER REVISIONS	CJB	SW
T1	26/9/25	TENDER ISSUE	CJB	SW
REV	DATE	REVISIONS	REV BY	CHK BY
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JOB TITLE		CHICKLADE SERVICES		
DWG TITLE		LOCAL DRAINAGE PLAN 1		
STATUS		TENDER		
DWG NO		12718-D-101	REV	T3
SCALE	DATE	DRAWN BY	CHECKED BY	
1:100 @ A1 uno	SEPTEMBER 2025	CJB	SW	





NOTE: Grease separator currently sized as indicative, due to limited usage data. Design is subject to review following fit out requirements

ACO Lipumax P-DM-NS-8.5 grease separator
CL: 143.550
IL: 142.940
OL: 142.870

SPEL 350l x 250d x 900h mild steel kiosk on 150mm concrete plinth.
Alarm system - GA-1 control unit with GA-SG1 sensor, 110mm PVC-u duct from kiosk to tank to suit alarm connection
Indicative position - final location to suit client requirements

100dia vent pipe laid with a backfall to the tank, terminating 2.4m above ground level with aspiromatic cowl

Permeable paving
Ref: Perm North 1-3
Depth: 0.365m
BL: 143.335m
Paving Depth: 115mm

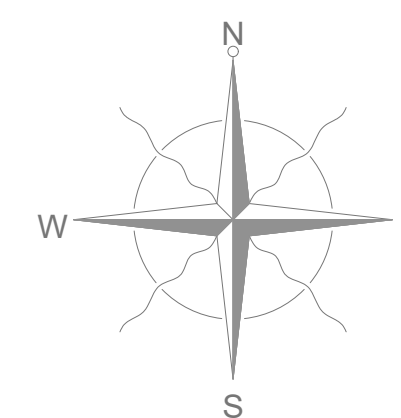
150mm perforated pipe in 1.0 x 0.6m deep trench filled with permeable backfill, top dressed with shingle

150mm perforated pipe in 1.0 x 0.6m deep trench filled with permeable backfill, top dressed with shingle

Drainage Legend

- New foul water
- New storm water
- Land drainage
- Pumped rising main - foul
- RWP rainwater pipe sinks
- SS toilet connection
- WC urinal connection
- URI floor gully
- FG yard gully in pedestrian areas
- YG road gully
- RG channel drainage with ductile iron grating
- ACO
- Existing levels (topographical survey)
- Proposed levels
- 1:20 Fall of surfacing
- Soakaway - geocellular crates wrapped in geotextile
- Permeable paving
Pedestrian - 250mm sub-base
Type A Infiltration
- Permeable paving
Parking bays - 350mm sub-base
Type A Infiltration
- Permeable paving
Parking bays - 450mm sub-base,
Type A Infiltration

BioBu design to act BOD: SS: 20 NH3: 3m di 4m di CL: 14 Refer provic

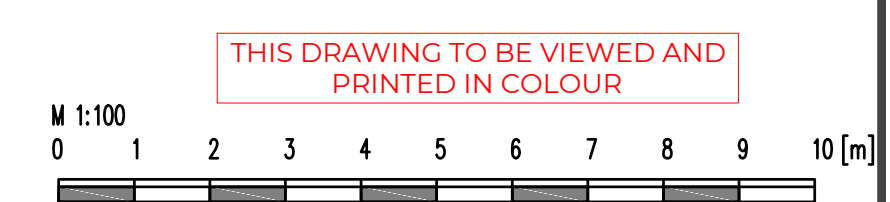
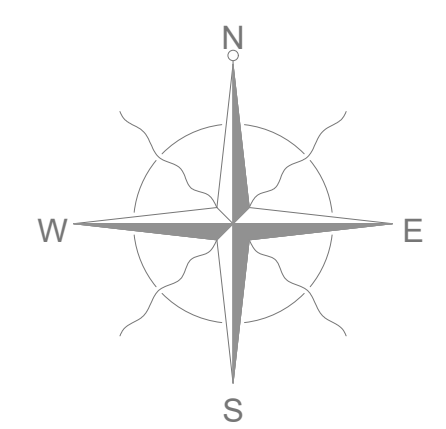
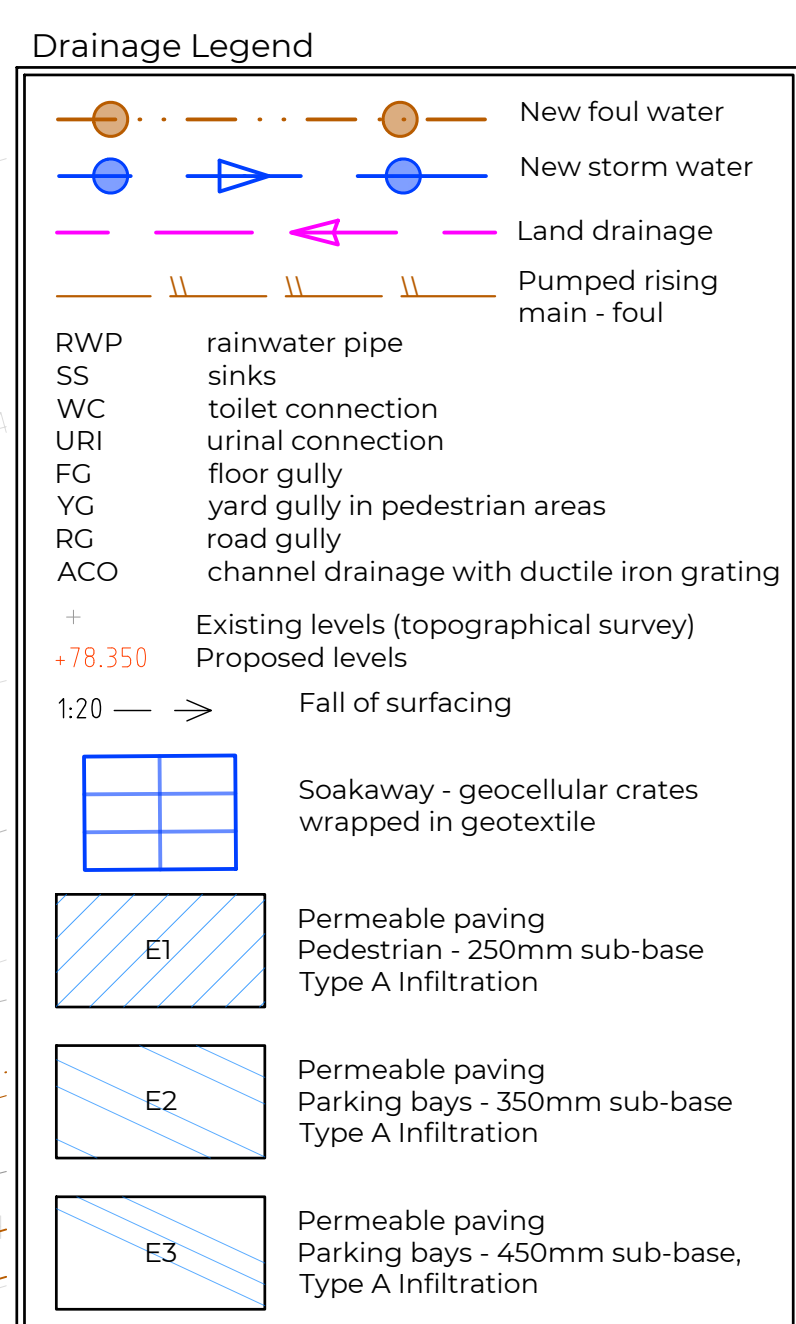
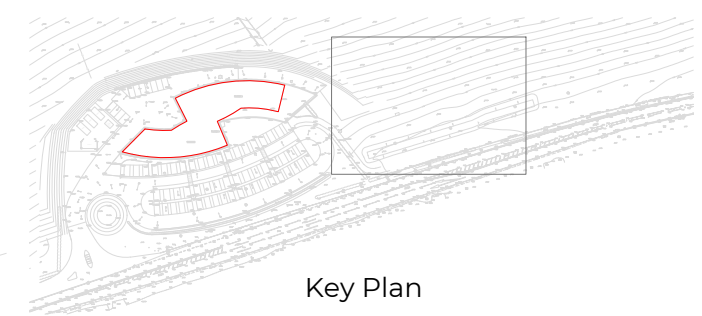


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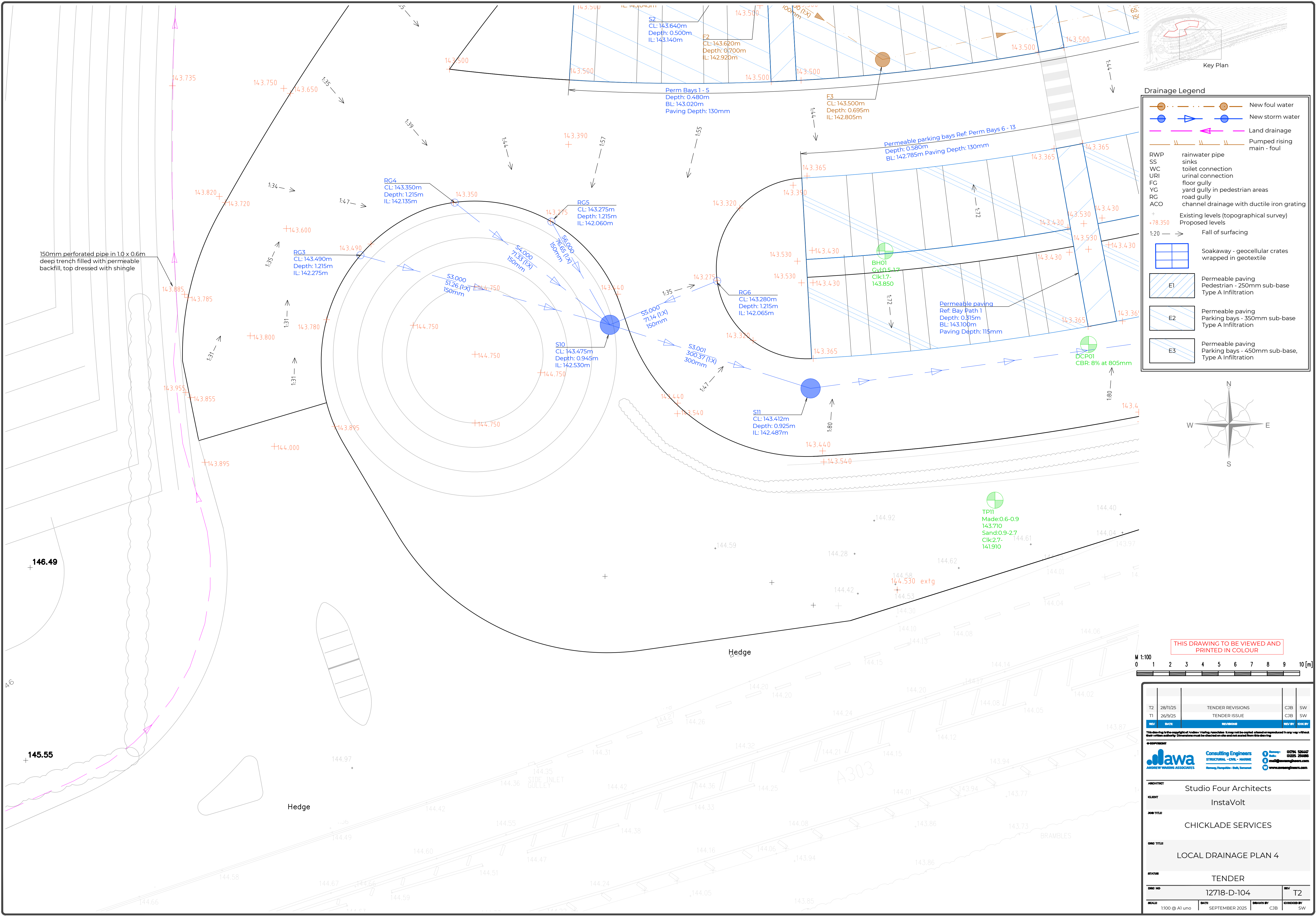
REV	DATE	REVISIONS	REV BY	CHK BY
T3	10/12/25	Permeable paving under canopy	CJB	SW
T2	28/11/25	TENDER REVISIONS	CJB	SW
T1	26/9/25	TENDER ISSUE	CJB	SW

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ARCHITECT	Studio Four Architects
CLIENT	InstaVolt
JOB TITLE	CHICKLADE SERVICES
DWG TITLE	LOCAL DRAINAGE PLAN 2
STATUS	TENDER
DWG NO	12718-D-102
SCALE	1:100 @ A1 uno
DATE	SEPTEMBER 2025
DRAWN BY	CJB
CHECKED BY	SW
REV	T3



T2	28/11/25	TENDER REVISIONS	CJB	SW																																			
T1	26/9/25	TENDER ISSUE	CJB	SW																																			
REV	DATE	REVISION	REV BY	CHK BY																																			
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ARCHITECT Studio Four Architects																																							
CLIENT InstaVolt																																							
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DRAW TITLE LOCAL DRAINAGE PLAN 3																																							
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Dwg NO 12718-D-103			REV T2																																				
SCALE 1:100 @ A1 uno	DATE SEPTEMBER 2025	DRAWN BY CJB	CHECKED BY SW																																				



Drainage Legend

- New foul water
- New storm water
- Land drainage
- Pumped rising main - foul

RWP rainwater pipe
SS sinks
WC toilet connection
URI urinal connection
FG floor gully
YG yard gully in pedestrian areas
RG road gully
ACO channel drainage with ductile iron grating

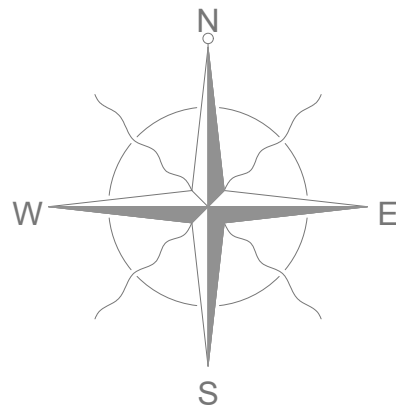
+ Existing levels (topographical survey)
+ Proposed levels

1:20 Fall of surfacing

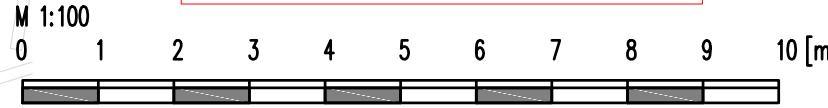
E1 Soakaway - geocellular crates wrapped in geotextile

E2 Permeable paving
Pedestrian - 250mm sub-base
Type A Infiltration

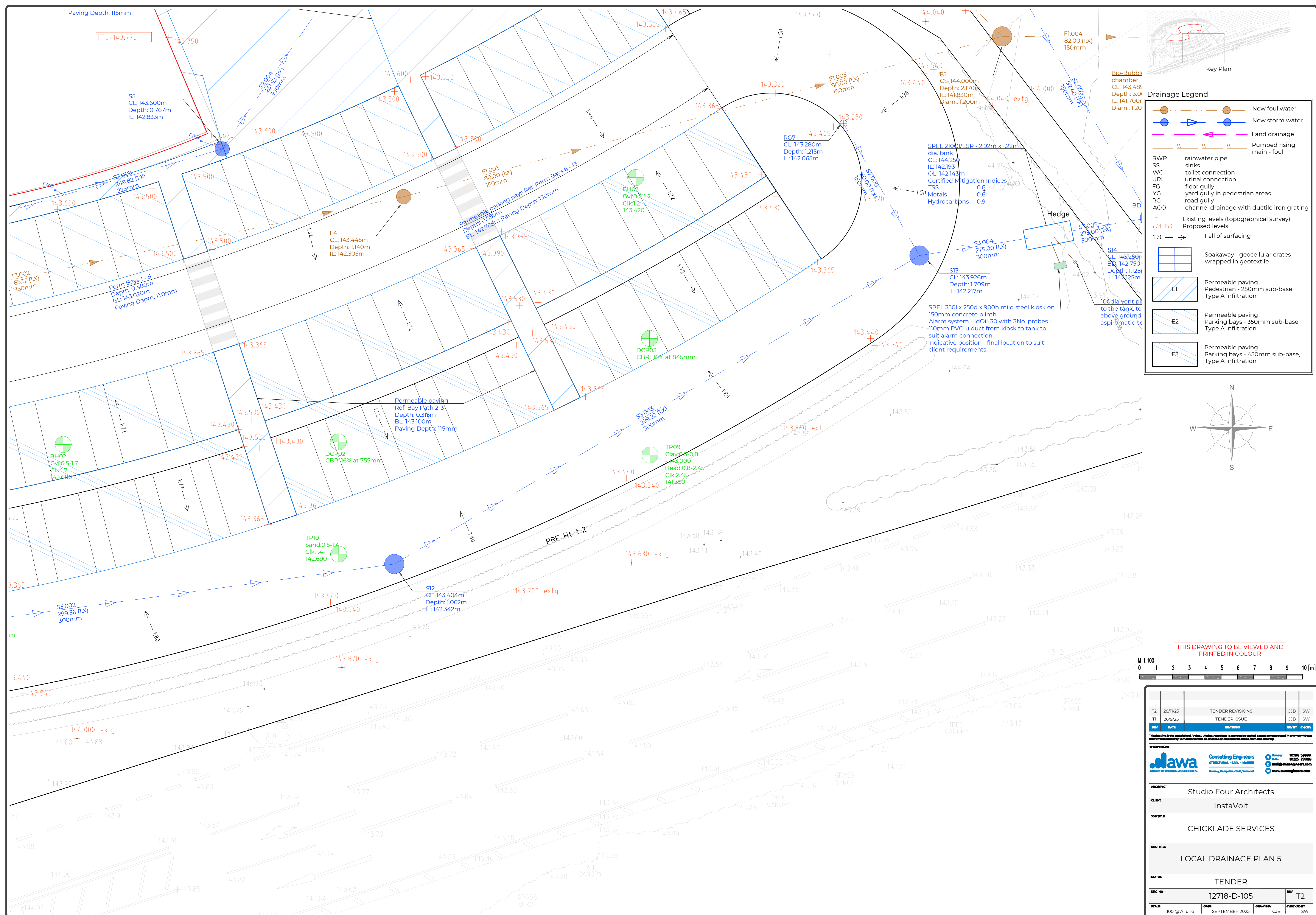
E3 Permeable paving
Parking bays - 450mm sub-base,
Type A Infiltration

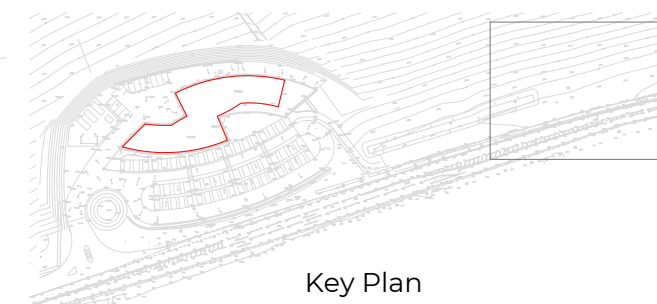


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T2	28/11/25	TENDER REVISIONS	CJB	SW
T1	26/9/25	TENDER ISSUE	CJB	SW
REV	DATE	REVISIONS	REV BY	CHK BY
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DWG TITLE		LOCAL DRAINAGE PLAN 4		
STATUS		TENDER		
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1:100 @ A1 uno	SEPTEMBER 2025	CJB	SW	

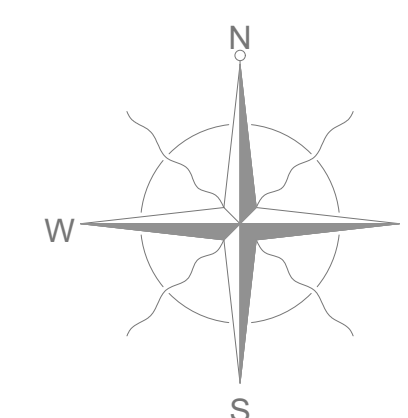
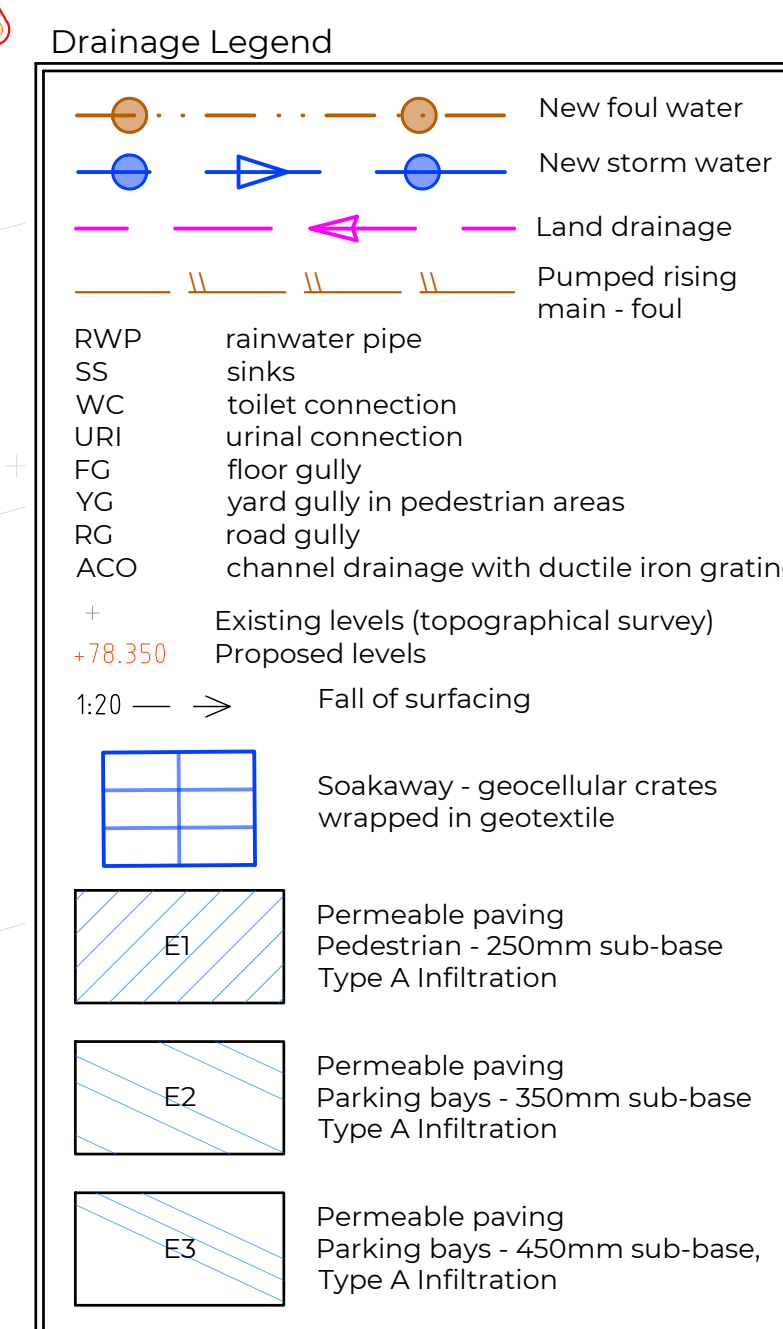




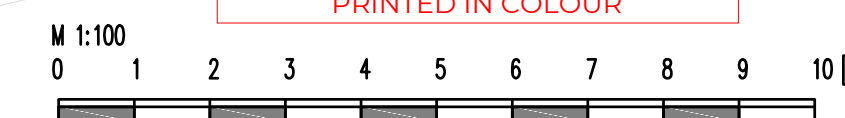
Approx 400m of drainage field formed using 100dia. perforated Hepworth HEPLINE vitrified CLAY pipes laid not steeper than 1 : 200 in 20dia. single size aggregate bed and surround, over 600mm of medium/fine inert washed sand to attenuate infiltration. Link pipe from sample chamber to be un-perforated as shown

The drainage field forms part of the foul drainage treatment system serving the property - the land used for the drainage field is to be protected from trafficking and right of access must be ensured, for maintenance and any remediation of foul treatment system.

Unperforated
100mm link pipe
(invert to invert)



THIS DRAWING TO BE VIEWED AND
PRINTED IN COLOUR



T2	28/11/25	TENDER REVISIONS	CJB	SW
T1	26/9/25	TENDER ISSUE	CJB	SW
REV	DATE	REVISIONS	REV BY	CHECK BY
<i>This drawing is the copyright of Andrew Warring Associates. It may not be copied, altered or reproduced in any way without their written authority. Dimensions must be checked on site and not relied from this drawing</i> © COPYRIGHT  Consulting Engineers STRUCTURAL - CIVIL - MARINE <i>Birmm, Harrogate - Bath, Somerset</i>  01796 366666  mail@awarings.com  www.awarings.com				
ARCHITECT		Studio Four Architects		
CLIENT		InstaVolt		
JOB TITLE		CHICKLADE SERVICES		
DRAW TITLE		LOCAL DRAINAGE PLAN 6		
STATUS		TENDER		
DRAW NO		12718-D-106		REV T2
SCALE	1:100 @ A1 uno	DATE	SEPTEMBER 2025	DRAWN BY CJB
			CHECKED BY	SW

GENERAL NOTES:

- 1.This drawing is to be read in conjunction with all relevant Architect's, Engineer's, Specialist Sub-Contractor's drawings and the specification.
2. All setting out to be in accordance with the Architect's drawings and any discrepancies between the Engineer's and Architect's drawings to be referred to the Architect before proceeding. Drawings should not be scaled for construction and fabrication purposes.
3. All work is to comply with current requirements of the Building Regulations & allied legislation whether referred to or not.
4. All materials should be used in compliance with the appropriate manufacturers recommendations.
5. The Contractor & Sub-Contractors must ensure that they have the latest issued drawings and details before commencing the relevant work.
6. Main Contractor to provide and fit suitable bracing and propping for all elements in the temporary condition during the construction stage, such as to ensure structural stability at all times.
7. In case of any discrepancies between drawings or a lack of dimensions required AWA should be contacted before work proceeds.
8. All dimensions indicated are in millimetres and all levels are in metres (Unless noted otherwise).
9. Electronic drawing information (2D or 3D) is for information only. Whilst it may be used for expediency during the design process it shall be deemed to be unchecked even where check boxes show it as checked. Electronic drawing information does not form part of the contract drawings or documentation set. PDF drawing information always takes precedence. Electronic drawing or PDF drawing information should not be scaled; only written dimensions should be used. Electronic drawing & PDF files may contain third party information and whilst every reasonable effort is made to avoid errors AWA do not accept any liability for errors in third party information. AWA do not accept liability for setting out. All setting out must be confirmed with the architect and correct setting out is the contractor's responsibility
- DO NOT SCALE THIS DRAWING IF IN ANY DOUBT ASK

DRAINAGE NOTES:

1. All work to be in accordance with BS EN 752, BS 4660, BS EN 1401, BS 65 BS EN 124 & to be to the Local Authority approval.
2. All private drainage to comply with current Building Regulations, BS EN 752, and other relevant Eurocodes, British Standards and Codes of Practice.
3. Private inspection chambers and manholes to be constructed in accordance with Tables 11 & 12 of the Building Regulations Approved Document H.
4. Manhole covers and frames to BS EN 124 to be as follows:
D400 in Carriageway
B125/C250 in Other Trafficked Areas
A15 in Landscaped Areas
Covers lockable where noted.
5. Private drainage to be constructed using Osma Plastic Drainage System or similar approved, laid to manufacturer's instructions.
All private drainage 100mm dia. unless shown otherwise on table.
6. AWA are responsible for below ground drainage terminating at slab level. All above ground drainage is the responsibility of the architect/M&E designer, inclusive of stand alone pump units (e.g. Saniflo).
7. Private drains located adjacent to dwellings are to be constructed in accordance with Diagram 8 of the Building Regulations Approved Document H.
8. Foul pop up positions are to be checked against the Architect's drawings to ensure compatibility. The venting requirements are the responsibility of others and any notation of 'SVP' on AWA drawings does not constitute design input of vent locations.
9. Rainwater downpipes are to be connected direct to drain via suitable adaptor removable to permit access for rodding.
10. Rainwater downpipe positions are to be checked against Architect's drawings to ensure compatibility (any discrepancies to be referred to the Architect).
11. Any external linear channels shall have their grating style and material choice agreed by the Architect/Landscape Architect to suit the client's aesthetic preference. Loading categories to be in accordance with Note 4. In hygiene sensitive environments such as commercial kitchens, hospitals etc, the material, finish and grating performance requirements are to be specified by the Architect/M&E designer. AWA input is strictly limited to the hydraulic performance of channels.
12. The Main Contractor is to provide all necessary sleeves or lintels where drainage pipes pass through walls or foundations.
13. Drainage runs adjacent to or through foundations may result in deepening the foundations locally. Where pipelines pass within 1m of buildings or walls the foundations are to be taken down below the bottom of the trench.
14. The back filling of drainage trenches which are in the proximity of foundations must be in accordance with any special requirements as set out or requested by the Structural Engineer and the Building Regulations.
15. Use of this drawing does not absolve the Client or Contractor from their responsibilities under Health and Safety: The Construction (Design & Management) Regulations 2015.
16. Unless noted otherwise all levels are in metres.
17. Unless noted otherwise, this drawing including the existing site levels, foul and surface water invert levels, have been produced with reference to survey information compiled by others and supplied to AWA. No responsibility is taken for any inaccuracies and/or omissions in the information as supplied

18. Where new connections are to be made to existing manholes/sewers, the invert levels should be checked prior to commencement of works and any variance reported to the Engineer immediately.
19. This drawing is to be read in conjunction with all relevant Architect's, Engineer's and Specialist Sub-contractor's drawings and The Specification.
20. All setting-out is to be in accordance with the Architects drawings. Any discrepancies between the Engineer's and Architect's drawings to be referred to the Architect before proceeding. Dimensions must not be scaled.
21. Where drains pass through foundations or connect to manholes, flexible pipe joints are to be provided within 150mm of the of the face of the structure and within a further 600mm to form a rocker pipe.
22. Where depth to invert does not exceed 600mm and the pipe size does not exceed 100mm diameter, 300mm dia. polypropylene mini access chambers (MACs) may be used. Elsewhere, proprietary polypropylene or precast concrete manholes are to be used. Refer to manhole schedule for full details.
23. Where pipelines cross, each is to be surrounded with grade C16/20 mass concrete for a distance not less than 1m centred on the crossing point. Length of surround to be extended as necessary to within150mm of the next nearest flexible joint.
24. All pipework with less than 600mm of effective cover is to be surrounded with grade C16/20 mass concrete as follows:
100mm dia. = 100mm thick surround
150mm dia. = 150mm thick surround
Flexible joints are to be provided at all pipe joints.
25. Effective cover' is the minimum depth of cover over the pipe crown at any time during the construction process.
26. The Contractor is to ensure that protective measurers are taken to ensure that drainage pipework and fittings are not damaged by site traffic prior to oversite filling operations being completed around buildings.
27. The top run of each foul private network is to be laid no slacker than 1:60.
28. All surface water drainage to be 100Ø and all foul water drainage to be 100Ø U.N.O
29. Pipeline arrangements shown are indicative only, Contractor is to ensure all pipework connections are arranged to ensure flows are directed down or into the main channel in the direction of the main flow. Where necessary3#4bends are to be used on oblique connections inside the manhole benching where sufficient room exists or the pipelines on oblique connections are arranged outside the chamber to be able to divert flows down the main channel. Connection bought in perpendicular to the main channel are not acceptable. Where possible the main channel flow shall be from any connections with WCs to ensure a flush through the main channel is achieved.
30. The Contractor's attention is drawn to the need to ensure any trenches excavated through previously compacted filled areas in particular under the building footprint and immediately around the outside are re-compacted to ensure localised differential settlement does not occur.
31. Unless noted otherwise, the services indicated are taken from information supplied by the relevant statutory authority or groundscan survey. No guarantee is given as to their accuracy and the Contractor is responsible for locating all existing services prior to the commencement of the works.

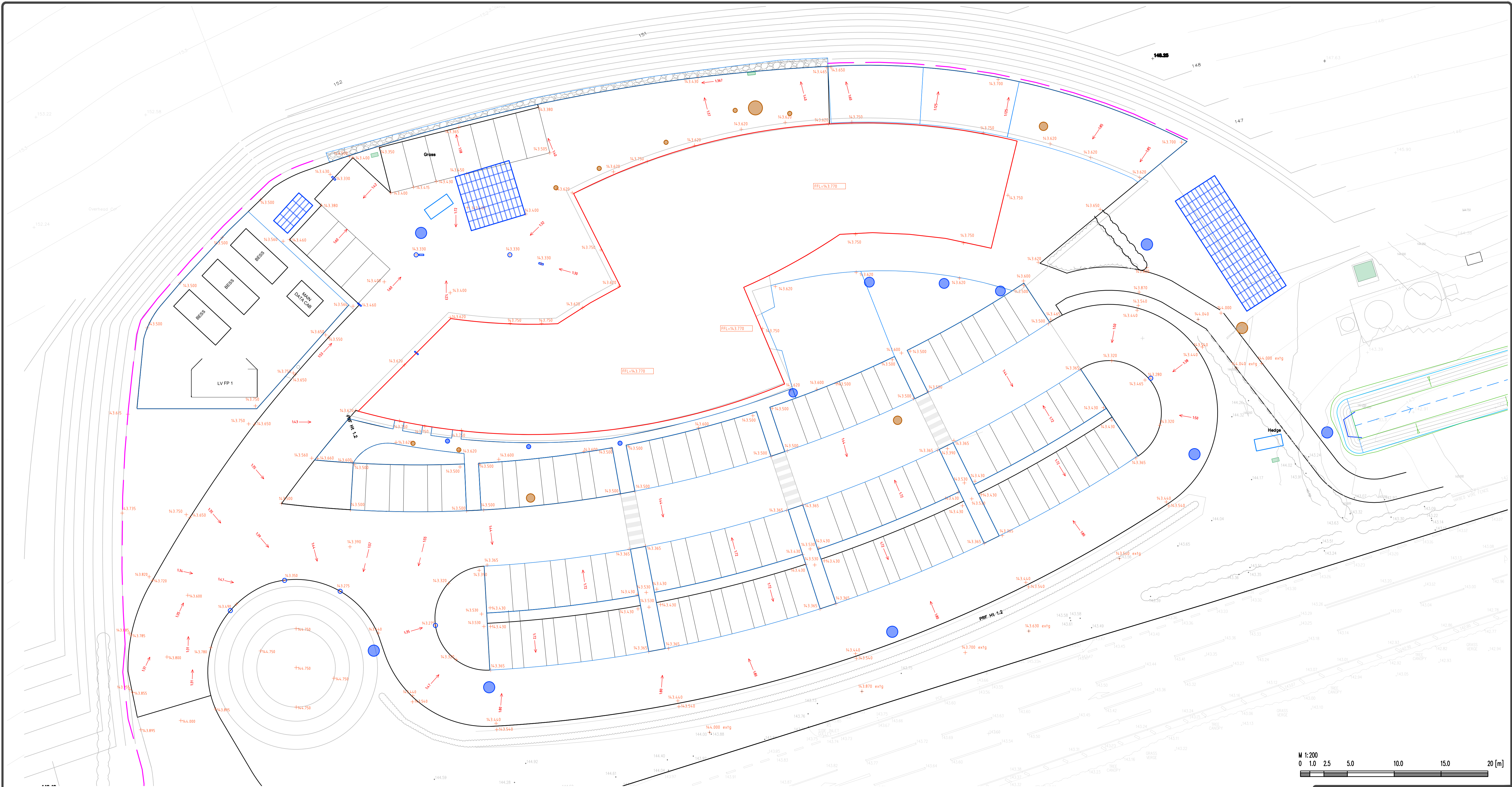
STORM WATER MANHOLES								
Node	Cover Level (m)	Invert Level (m)	Depth (m)	Diameter (m)	Junction Type	Cover size (mm)	Cover Type	Cover Class
RG1	143.330	142.680	1.215	0.450	Road gully	420 x 420	Gully grating	C250
RG2	143.330	142.680	1.215	0.450	Road gully	420 x 420	Gully grating	C250
RG3	143.490	142.840	1.215	0.450	Road gully	420 x 420	Gully grating	C250
RG4	143.350	142.800	1.115	2 No 0.45	Road gully	420 x 420	Gully grating	C250
RG5	143.275	142.625	1.215	0.450	Road gully	420 x 420	Gully grating	C250
RG6	143.280	142.630	1.215	2 No 0.45	Road gully	420 x 420	Gully grating	C250
RG7	143.280	142.630	1.215	0.450	Road gully	420 x 420	Gully grating	C250
S1	143.350	142.400	0.600	1.200	1200Ø conc	600 x 600	Cast iron solid	C250
S2	143.640	143.140	0.573	0.450	450Ø poly	600 x 600	Steel Recessed	B125
S3	143.600	143.032	0.664	0.450	450Ø poly	600 x 600	Steel Recessed	B125
S4	143.570	142.910	0.932	0.600	600Ø poly	750 x 750	Steel Recessed	B125
S5	143.600	142.833	0.972	0.900	900Ø conc	600 x 600	Steel Recessed	B125
S6	143.621	142.776	1.078	1.050	1050Ø conc	750 x 750	Steel Recessed	B125
S7	143.620	142.744	0.700	1.050	1050Ø conc	600 x 600	Steel Recessed	B125
S8	143.600	142.717	1.050	1.050	1050Ø conc	600 x 600	Steel Recessed	B125
S9	143.801	142.635	1.898	1.225	Smartceptor 200	750Ø	Cast iron solid	B125
S10	143.475	142.530	0.783	1.200	1200Ø conc	600 x 600	Cast iron solid	B125
S11	143.412	142.487	1.125	1.200	1200Ø conc	600 x 600	Cast iron solid	C250
S12	143.404	142.342	1.247	1.200	1200Ø conc	600 x 600	Cast iron solid	C250
S13	143.926	142.217	0.719	1.200	1200Ø conc	600 x 600	Cast iron solid	C250
S14	143.250	142.125	0.836	1.200	1200Ø conc	600 x 600	Cast iron solid	C250
M100.2	143.460	142.850	0.610	ACO	Sump Unit	500 x 100	Cast iron grate	D400
All surface water pipes to be min 100 dia. laid min 1 : 100 unless noted otherwise All cover levels are approximate. Cover classes to be in accordance with BS EN 124. Cover types assumed: Recessed in paved landscape, solid in soft, solid in gravel drives (all subject to final design by landscape architect) Poly = Polypropylene manhole Conc = Precast concrete box/ring as appropriate								

SURFACE WATER PIPES						
Name	Type	Incoming Item(s)	Outgoing Item	Length (m)	Diameter (mm)	Slope (1:X)
S1.000	Pipe	M100.2	S1	10.080	150	22
S1.001	Pipe	RG1	S1	2.399	150	40
S1.002	Pipe	S1	SPEL ESR Staff	2.194	300	22
S1.003	Pipe	SPEL ESR Staff	Soakaway SA1	1.666	300	33
S2.000	Pipe	RWP1	S2	2.227	100	74
S2.001	Pipe	S2	S3	8.663	100	80
S2.002	Pipe	S3	S4	9.753	150	80
S2.003	Pipe	S4	S5	19.236	225	250
S2.004	Pipe	S5	S6	14.337	300	252
S2.005	Pipe	S6	S7	7.976	300	249
S2.006	Pipe	S7	S8	6.026	300	225
S2.007	Pipe	S8	S9	16.322	300	200
S2.008	Pipe	S9	Soakaway SA3	5.589	300	149
S2.009	Pipe	Soakaway SA3	S14	16.378	150	100
S3.000	Pipe	RG3	S10	15.889	150	51
S3.001	Pipe	S10	S11	12.916	300	300
S3.002	Pipe	S11	S12	43.407	300	299
S3.003	Pipe	S12	S13	37.402	300	299
S3.004	Pipe	S13	SPEL ESR Public	6.733	300	275
S3.005	Pipe	SPEL ESR Public	S14	5.038	300	275
S3.006	Pipe	S14	Swale 1	3.590	300	29
S4.000	Pipe	RG4	S10	12.119	150	71
S5.000	Pipe	RG6	S10	7.114	150	71
S5.006	Pipe	RG2	S1	9.760	150	26
S6.000	Pipe	RG5	S10	7.282	150	77
S7.000	Pipe	RG7	S13	9.349	150	80
S8.000	Pipe	Rear Filter Drain: underdrain	Soakaway SA2	5.833	150	60
S8.001	Pipe	Rear Filter Drain: overflow	Soakaway SA2	5.698	100	28
Aco1.000	AcoM100D	M100.1	M100.2	7.970	100	50
Aco2.000	AcoM150D	M100.3	RG1	12.000	150	0
Aco2.001	AcoM150D	M100.4	RG2	9.437	150	0
Aco2.002	AcoM150D	M100.5	RG2	3.463	150	0

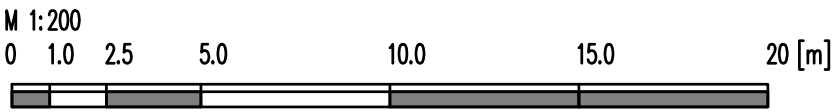
FOUL WATER MANHOLES								
Node	Cover Level (m)	Invert Level (m)	Depth (m)	Diameter (m)	Junction Type	Cover size (mm)	Cover Type	Cover Class
F1	143.620	143.045	0.575	0.450	450Ø poly	600 x 600	Steel Recessed	B125
F2	143.620	142.920	0.700	0.450	450Ø poly	600 x 600	Steel Recessed	B125
F3	143.493	142.805	0.687	0.900	900Ø conc	600 x 600	Cast iron solid	C250
F4	143.445	142.191	1.254	0.900	900Ø conc	600 x 600	Cast iron solid	C250
F6	144.103	141.716	2.387	1.200	1200Ø conc	600 x 600	Cast iron solid	C250
F7	143.540	142.790	0.750	0.450	450Ø poly	450Ø	Cast iron solid	B125
F8	143.596	142.727	0.869	0.450	450Ø poly	450Ø	Cast iron solid	B125
F9	143.664	142.631	1.033	0.450	450Ø poly	450Ø	Cast iron solid	B125
F10	143.593	142.462	1.132	0.450	450Ø poly	450Ø	Cast iron solid	B125
F11	143.646	142.123	1.523	0.900	900Ø conc	600 x 600	Cast iron solid	B125
F12	144.250	143.250	1.000	12 x 0.6	Sample Chamber	1220 x 675	Cast iron solid	B125
All foul pipes to be 100 dia. laid 1 : 40 unless noted otherwise All cover levels are approximate. Cover classes to be in accordance with BS EN 124. Cover types assumed: Recessed in paved landscape, solid in soft, solid in gravel drives (all subject to final design by landscape architect) Poly = Polypropylene manhole Conc = Precast concrete box/ring as appropriate								

FOUL WATER PIPES						
Name	Type	Incoming Item(s)	Outgoing Item	Length (m)	Diameter (mm)	Slope (1:X)
F1.000	Pipe	F1	F2	4.932	100	40
F1.001	Pipe	F2	F3	9.223	100	80
F1.002	Pipe	F3	F4	40.027	150	65
F1.003	Pipe	F4	F5	38.051	150	80
F1.004	Pipe	F5	Screen	10.675	150	100
F2.000	Pipe	F6	F7	5.055	150	80
F2.001	Pipe	F7	F8	7.658	150	80
F2.002	Pipe	F8	F9	13.550	150	80
F2.003	Pipe	F9	F10	27.110	150	80
F2.004	Pipe	F10	F5	30.196	150	74
F3.000	Pipe	F11	Grease Trap	1.452	150	40
F3001	Pipe	Grease Trap	F9	2.972	100	25

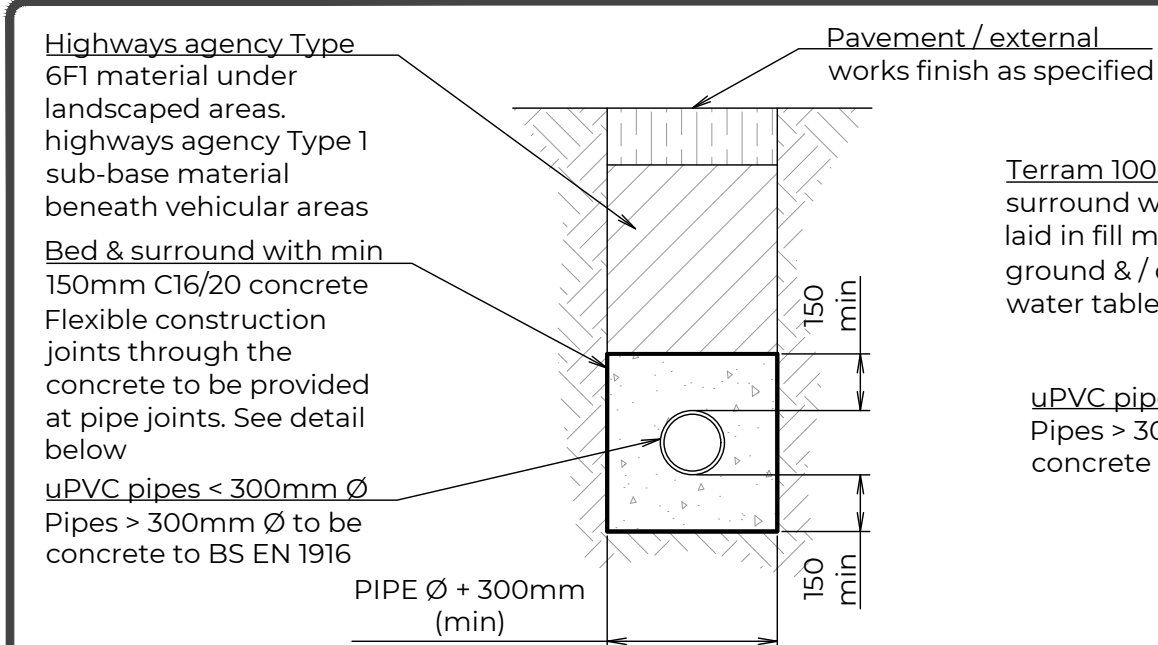
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T1	26/9/25	TENDER ISSUE	CJB	SW		
REV	DATE	REV/ISSUE	REV BY	CHK BY		
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		Consulting Engineers STRUCTURAL - CIVIL - MARINE <i>Survey, Transport - Drain, Tunnel</i>		 02784 136427 01225 250886 mail@awarings.com www.awarings.com		
ARCHITECT	Studio Four Architects					
CLIENT	InstaVolt					
JOB TITLE	CHICKLADE SERVICES					
DWG TITLE	DRAINAGE TABLES AND NOTES					
STATUS	TENDER					
DWG NO	12718-D-111			REV T2		
SCALE	N/A	DATE	SEPTEMBER 2025	DRAWN BY CJB CHECKED BY SW		



SPOT GRADIENTS & SITE FALLS
1:200

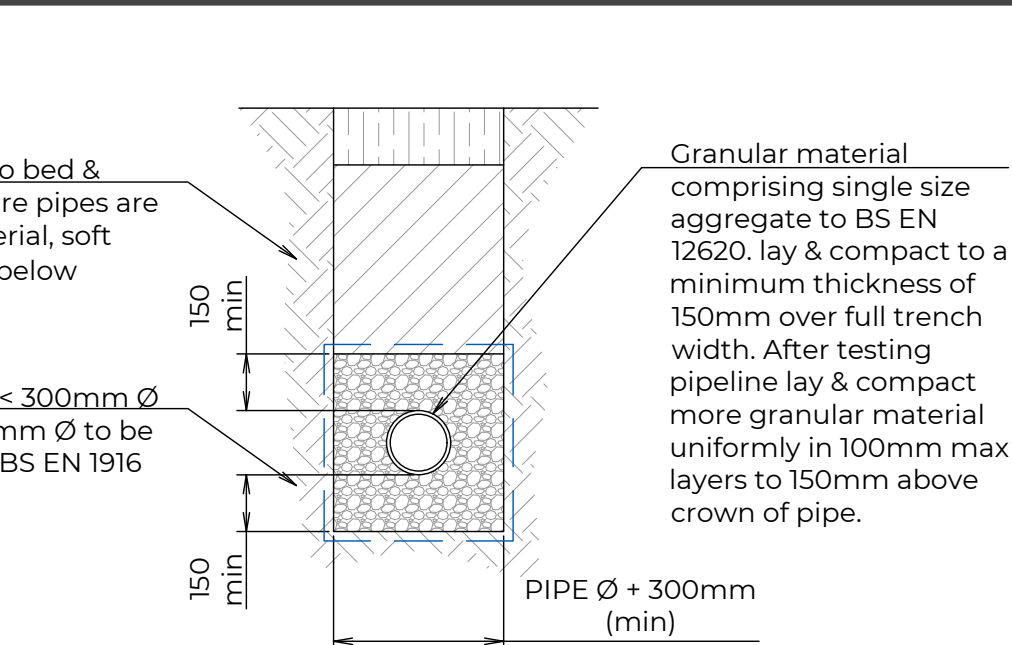


T2	28/11/25	TENDER REVISIONS	CJB	SW
T1	26/9/25	TENDER ISSUE	CJB	SW
REV	DATE	REVISIONS	REV BY	CHK BY
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lawa ANDREW WARING ASSOCIATES Consulting Engineers STRUCTURAL - CIVIL - PLUMBING Barnes, Hampshire - Dorset, Somerset  01754 524427 01225 250888 mail@awarings.com www.awarings.com				
ARCHITECT	Studio Four Architects			
CLIENT	InstaVolt			
JOB TITLE	CHICKLADE SERVICES			
DRG TITLE	GRADIENTS & FALLS PLAN			
STATUS	TENDER			
DRG NO	12718-D-115			REV T2
SCALE 1:200 @ A1 uno	DATE SEPT 2025	DRAWN BY CJB	CHECKED BY SW	



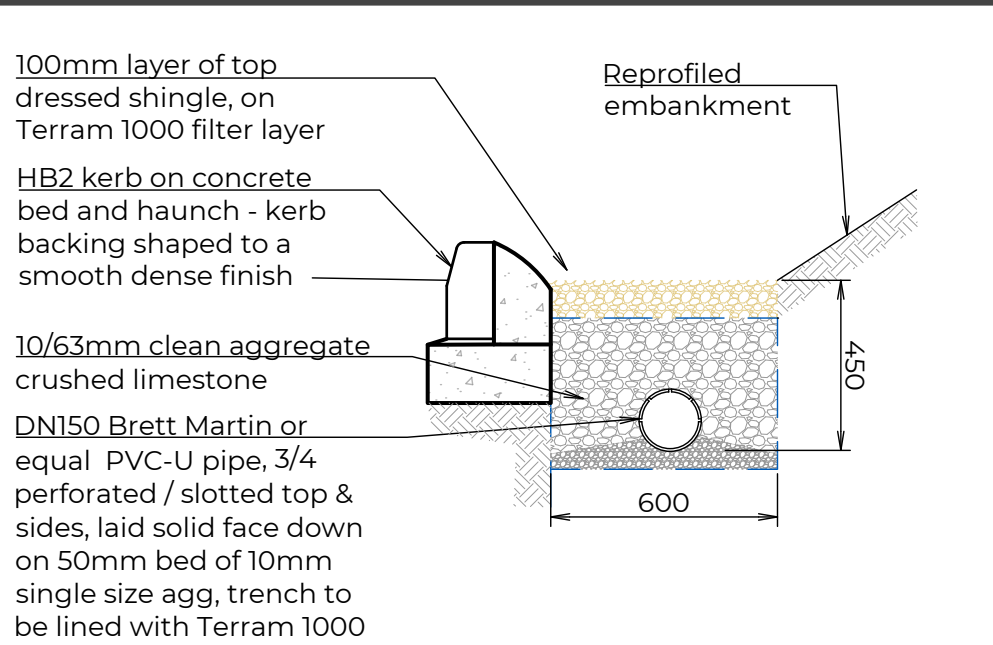
CLASS Z PIPE BEDDING
DETAIL
1:20

For pipes with cover from finished surface to crown less than 0.9m in vehicular areas or less than 0.6m cover in landscaped areas or beneath buildings

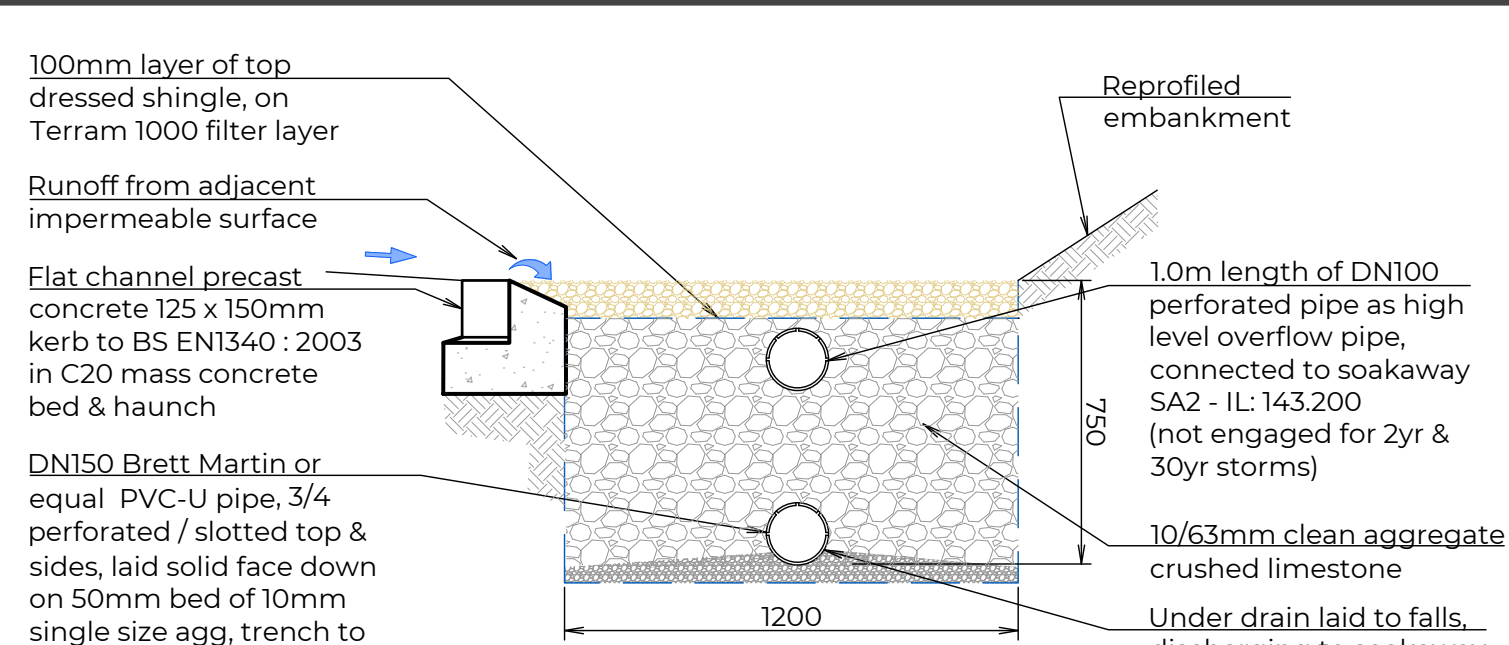


CLASS S PIPE BEDDING
DETAIL
1:20

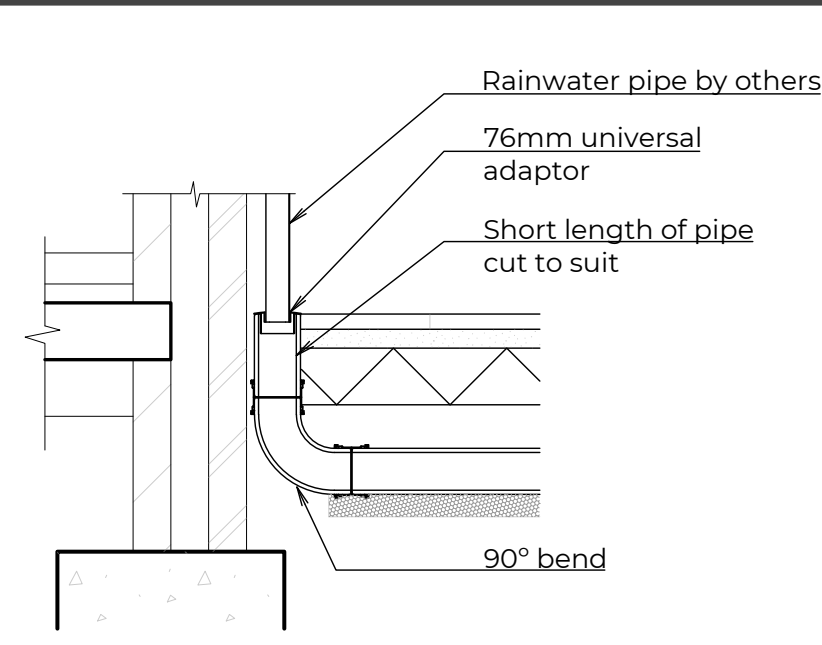
For pipes with cover from finished surface to crown less than 0.9m in vehicular areas or less than 0.6m cover in landscaped areas or beneath buildings



LAND DRAIN AT BASE OF EMBANKMENT
1:20



REAR FILTER DRAIN ADJACENT SERVICE AREA
1:20

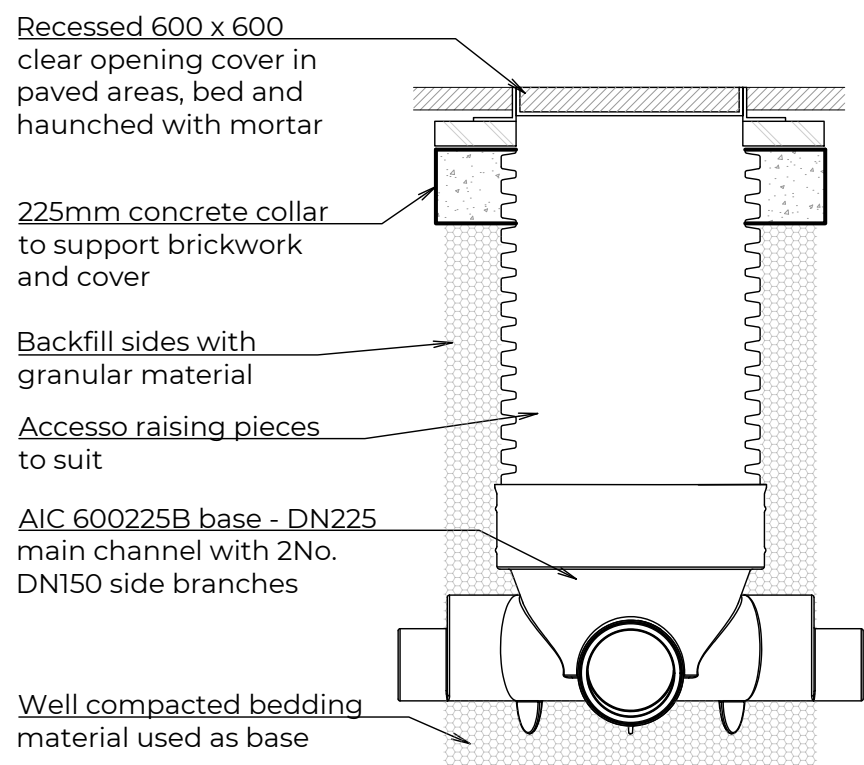


RWP DETAIL
1:20

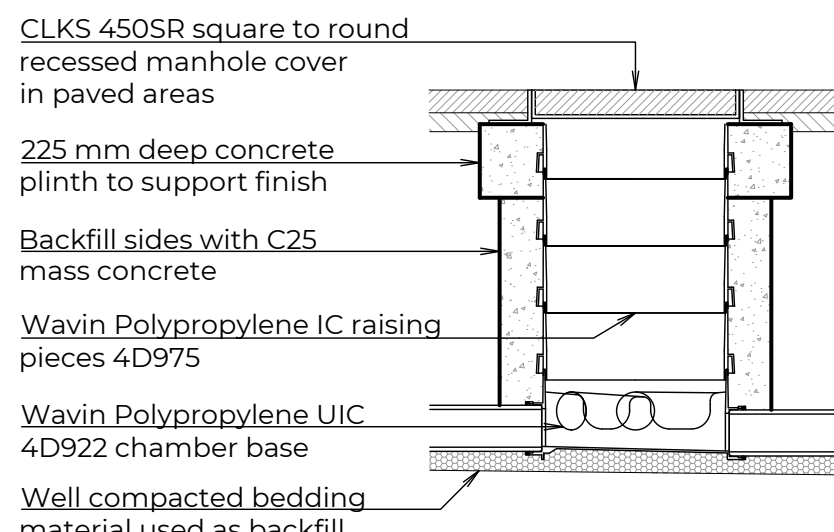
- uPVC / THERMOPLASTIC PIPE NOTES**
1. Pipes less than or equal to 500mm Ø to have a nominal short-term ring stiffness of not less than 8 kN/m² (SN8).
 2. Pipes greater than 500mm Ø to have nominal short-term ring stiffness of not less than 2 kN/m² (SN2), where accompanied by manufacturer's design load calculations for the proposed use.
 3. uPVC pipework to BS EN 13476 parts 1, 2 & 3 & WIS 4-35-01.
 4. uPVC pipework to be BSI kitemarked or have equivalent third party certification.
 5. Pipes must be capable of withstanding 4000 psi jetting pressure, with evidence supplied to the engineer prior to procurement.

Notation as Class Z unless otherwise noted

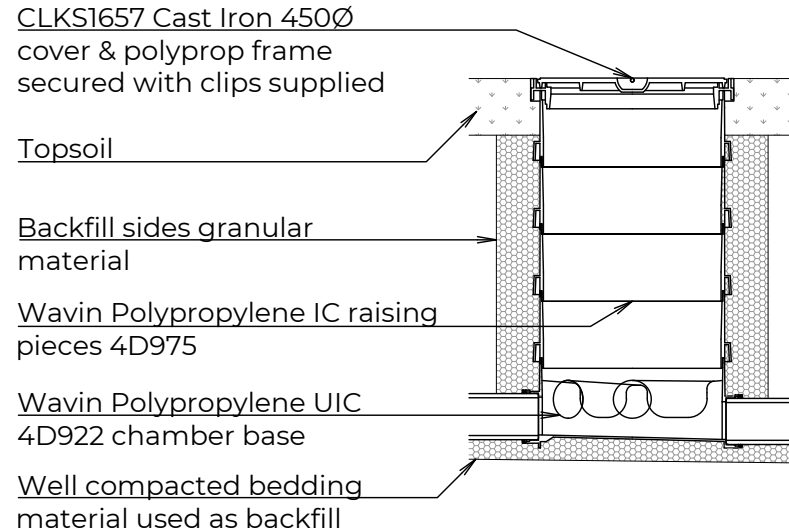
GRANULAR MATERIAL	
PIPE SIZE	AGGREGATE
100mm	10mm Single size
150mm	10 OR 14mm Single size of 14-15mm graded
150-500mm	10,14,20mm Single size or 20-25mm graded
600mm	10,14,20 OR 40mm Single crushed rock or 40-50mm graded



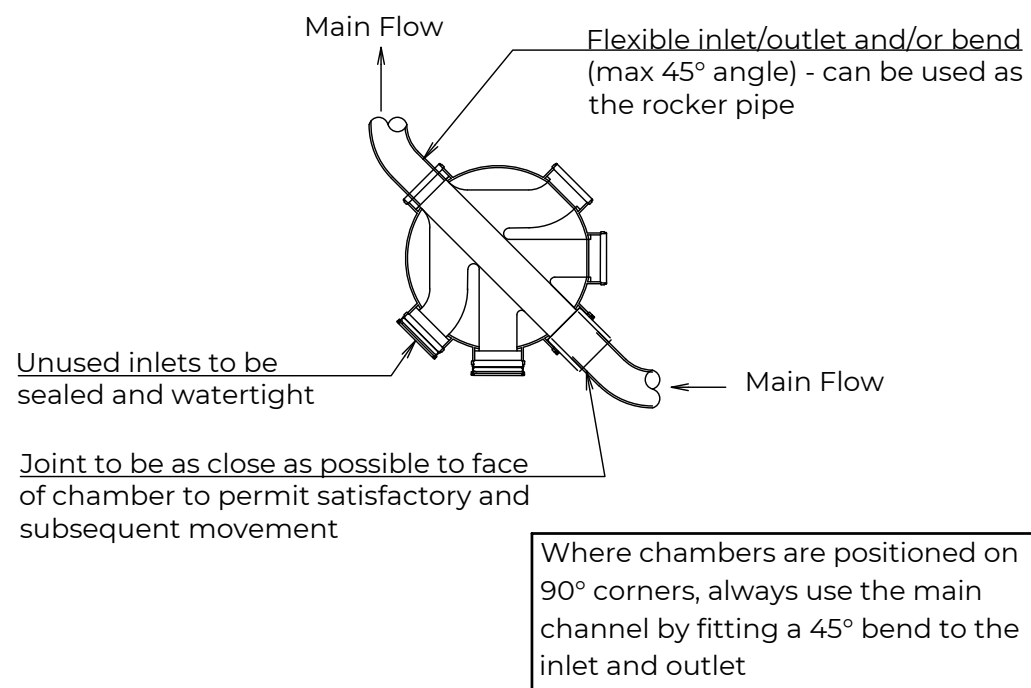
600 POLY IC - TURTLE ENVIRO
AIC600225150
1:20



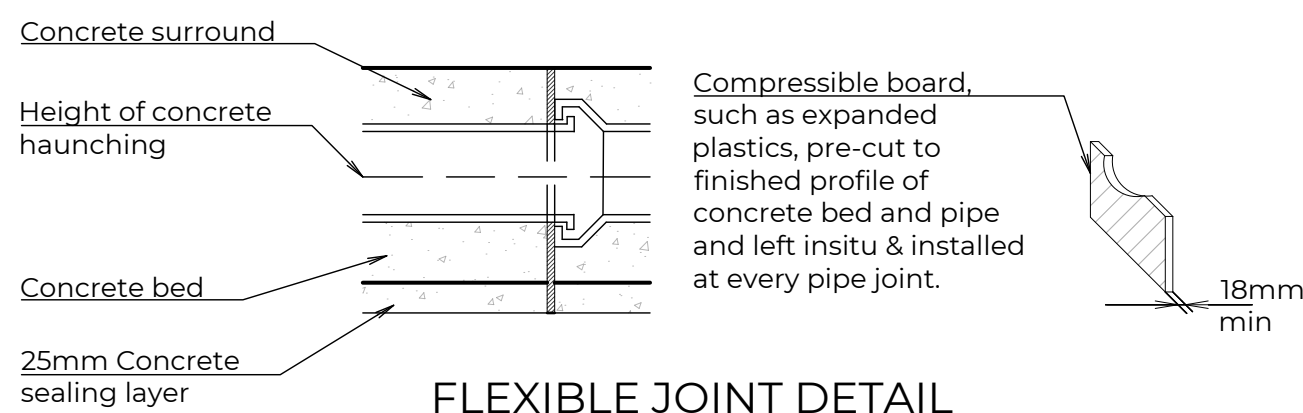
POLYPROPYLENE IC
450Ø IN TRAFFICKED DRIVE
1:20



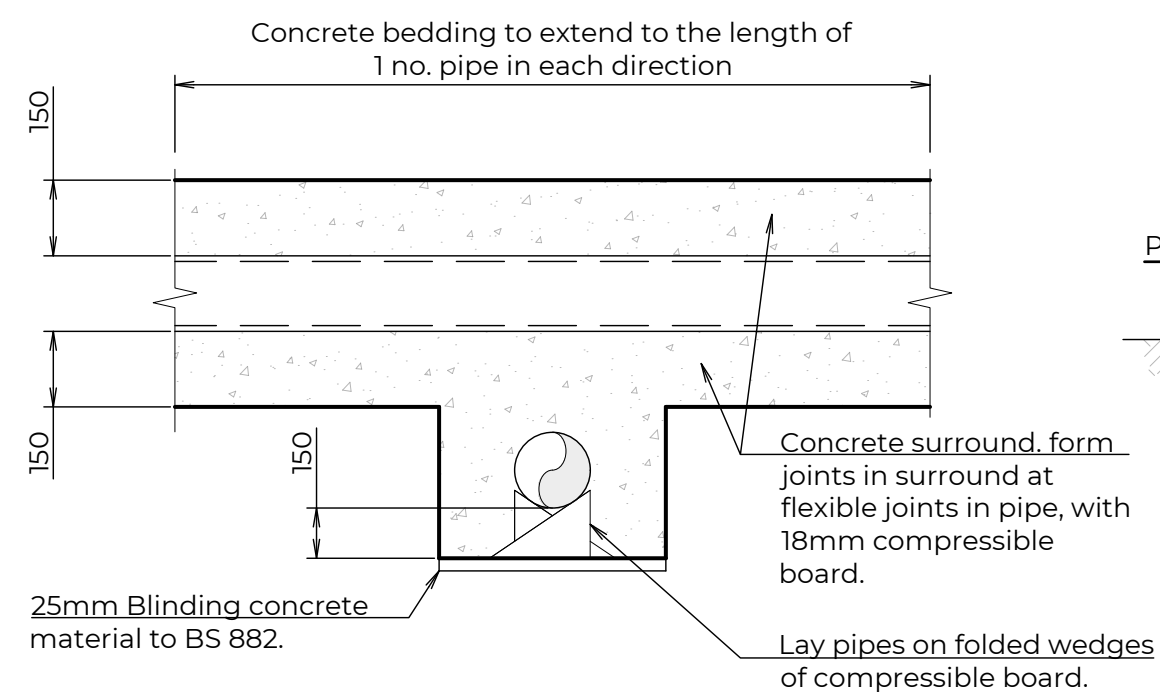
POLYPROPYLENE IC
450Ø IN SOFT LANDSCAPE
1:20



PLASTIC IC BASE LAYOUT PRICIPLES
1:20

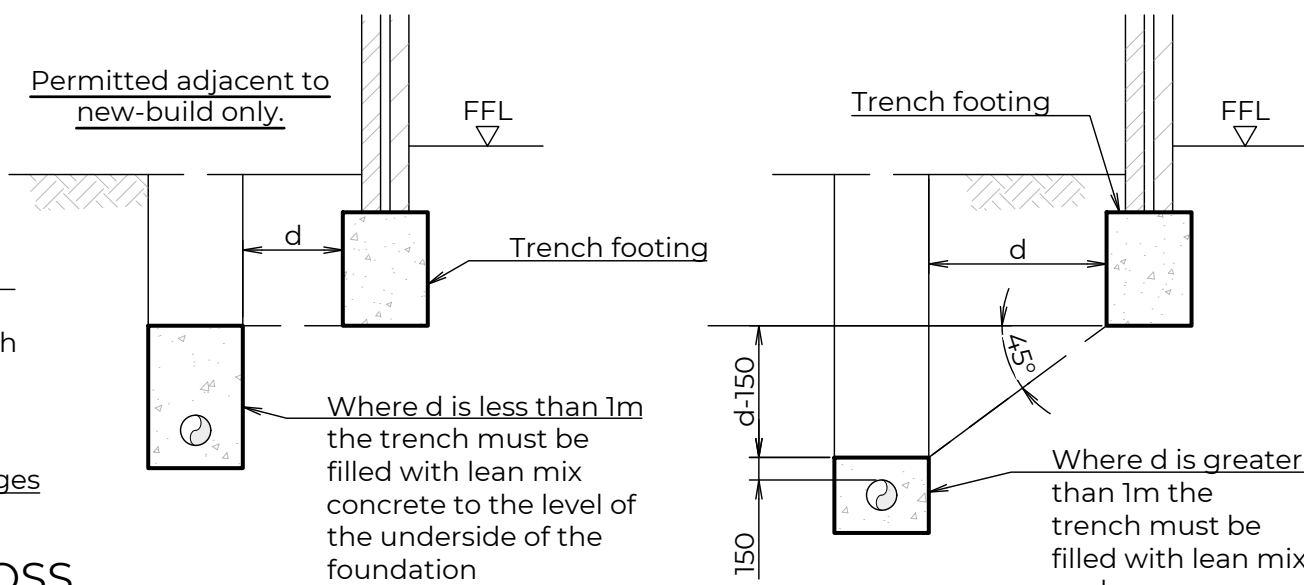


FLEXIBLE JOINT DETAIL



Where a trench excavation is less than 1m from a wall foundation, or more than 1m but within a 45° spread line then a concrete bed and surround, and concrete trench backfill will be required to comply with the following details:

the concrete filling must have movement joints at a maximum of 5m centres, and preferably every pipe joint.

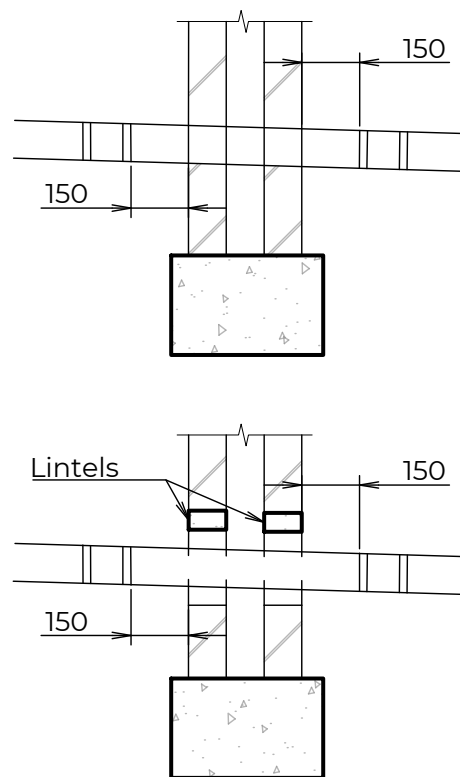


TRENCHES ADJACENT TO, OR
BELOW NEARBY FOUNDATIONS
1:20

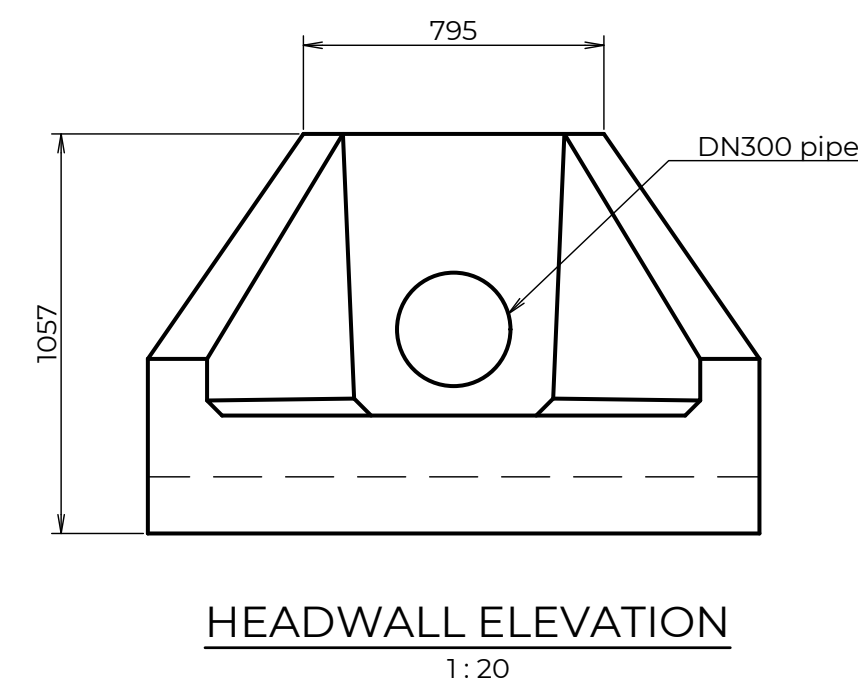
(a) Short length of pipe bedded in wall, joints formed within 150mm of either wallface. Adjacent rocker pipes of max. length 600mm with flexible joints

(b) Arch or lintelled opening to give 50mm space all round the pipe. Mask opening both sides with rigid sheet material to prevent entry of fill or vermin

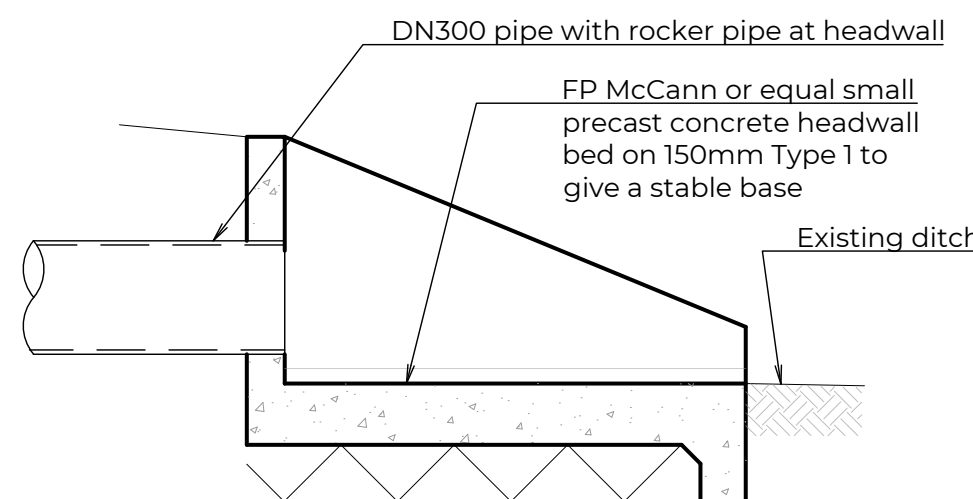
Important:
Fill void with compressible sealant to prevent entry of gas



PIPES PASSING THROUGH STRUCTURES
1:20



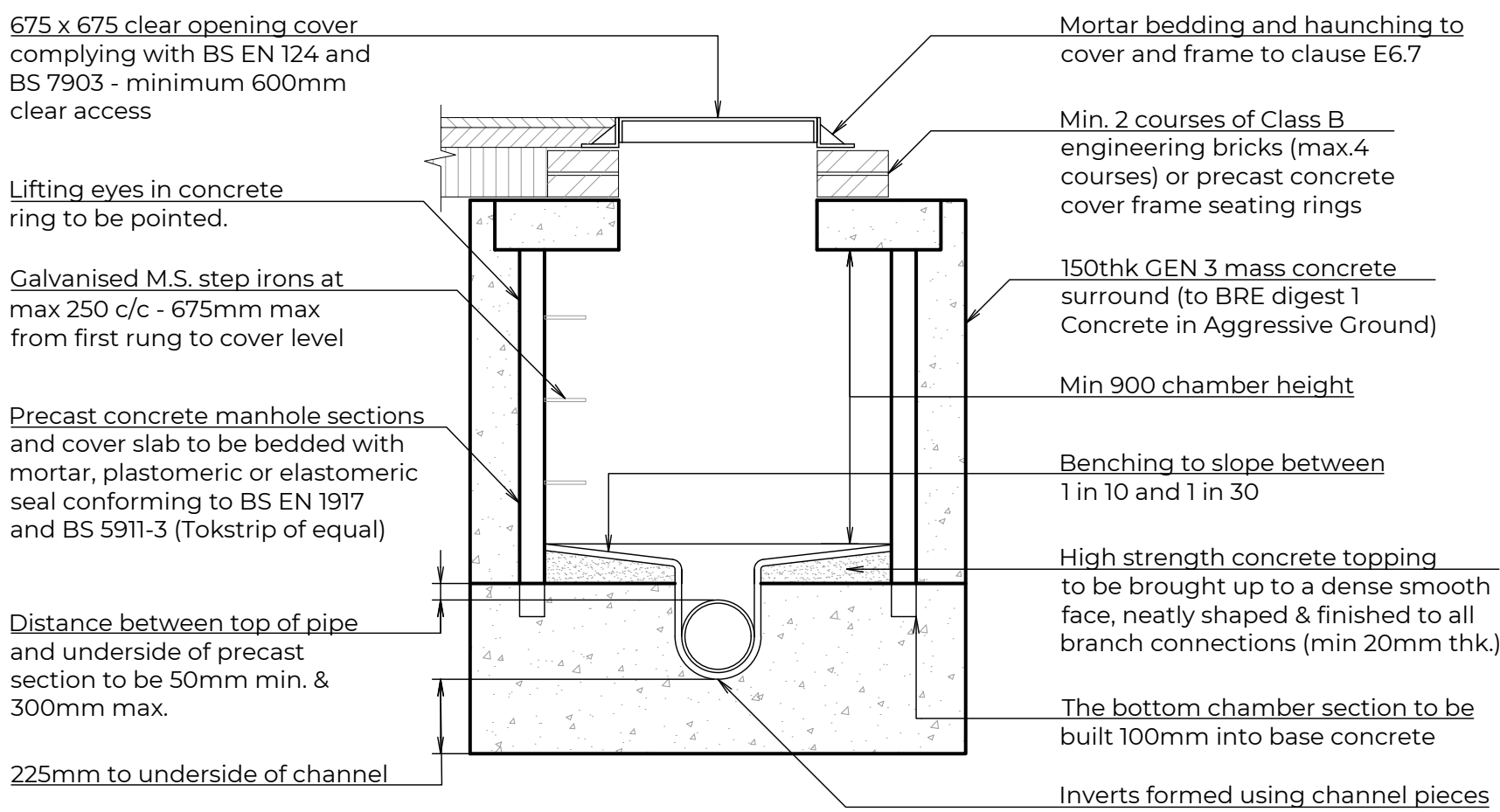
HEADWALL ELEVATION
1:20



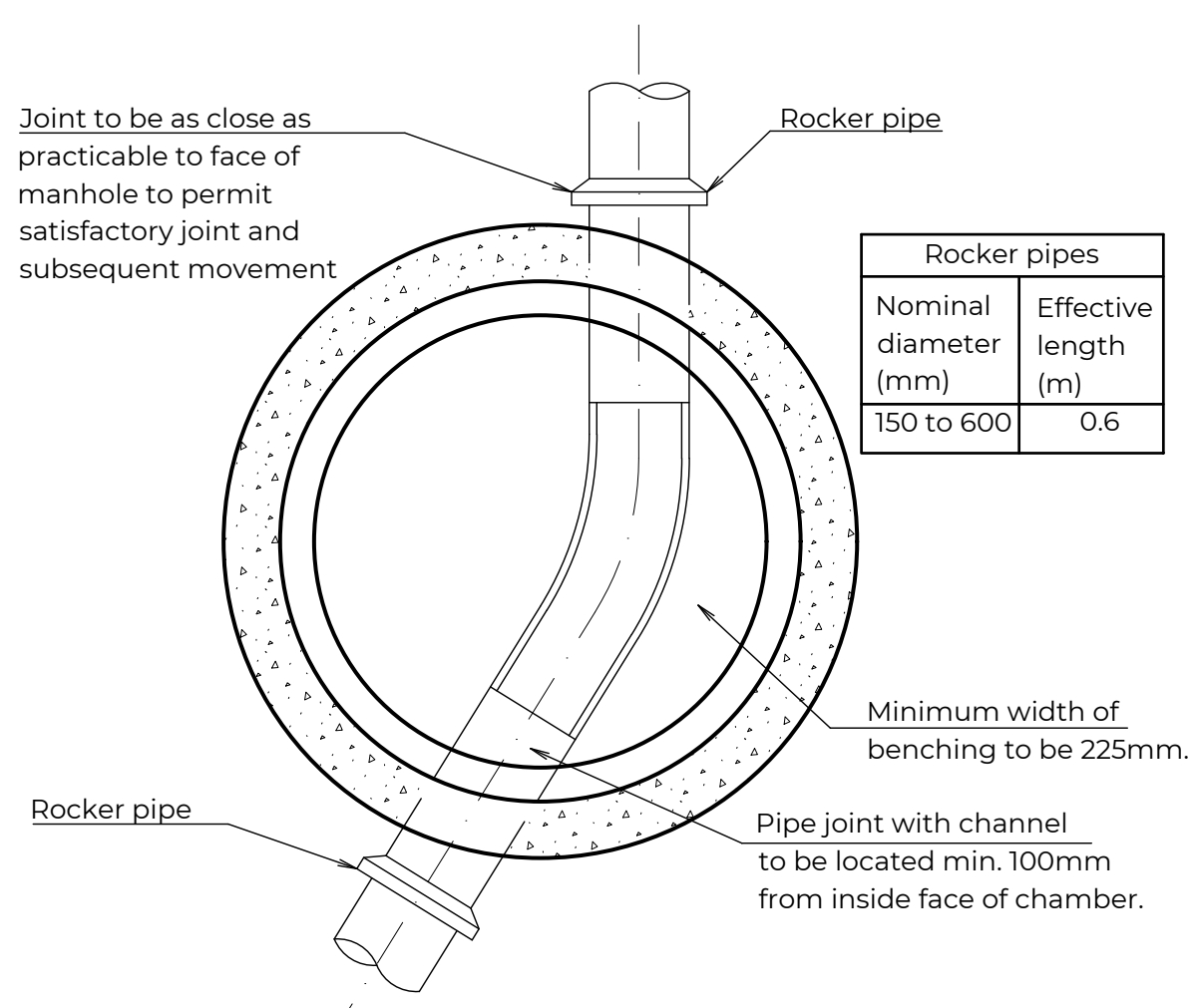
HEADWALL SECTION
1:20

PIPE BEDDING AND SURROUND WHERE PIPES CROSS

NOTE: This detail is to be used where pipes cross with less than 300mm clear distance, where clear distance is greater than 300mm use standard beddings & surrounds as shown above.



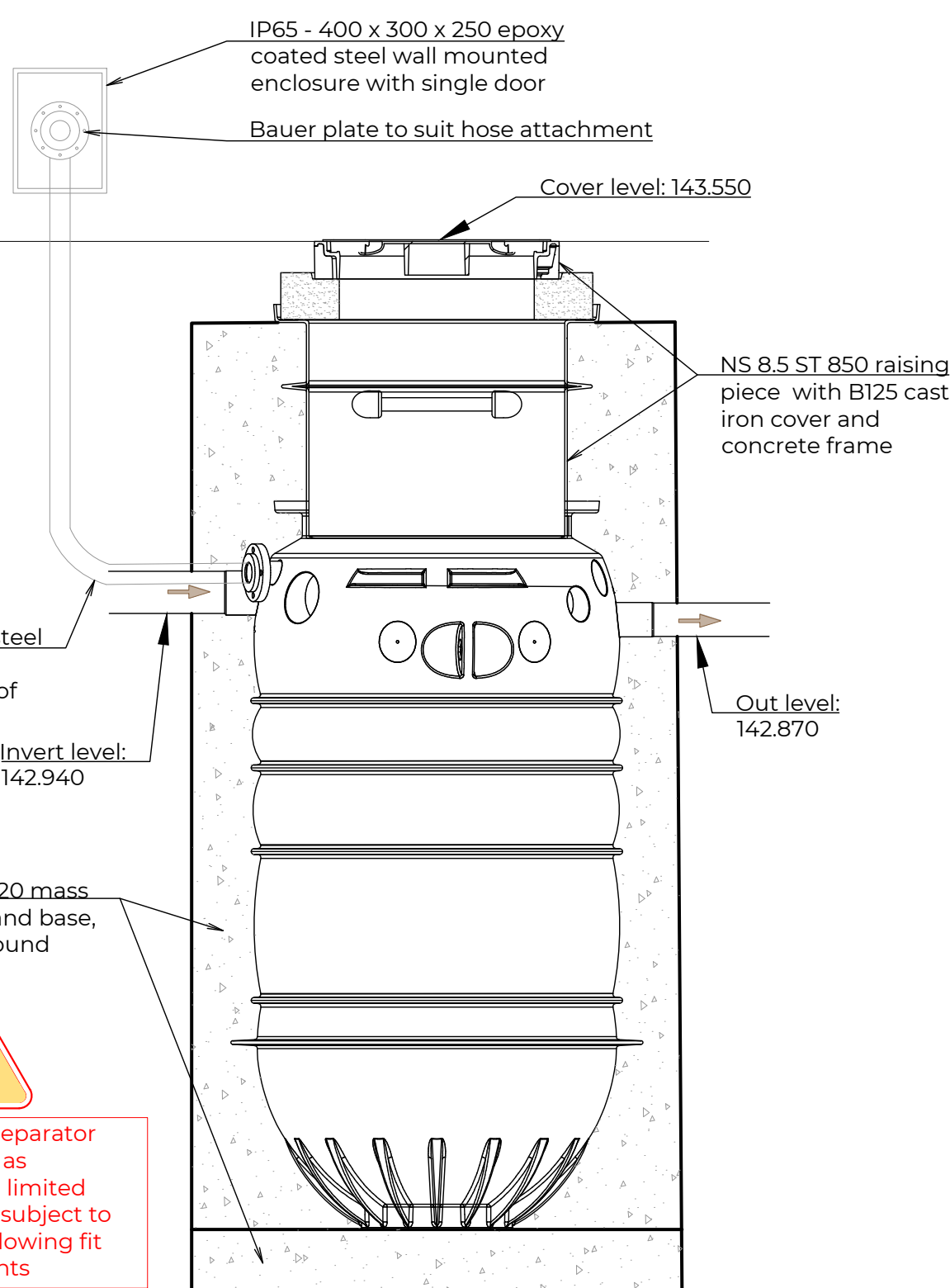
TYPE 2 MANHOLE - PC RINGS
max depth 3.0m CL to pipe sofit
1:20



PLAN ON CONCRETE MANHOLE BASE
1:20

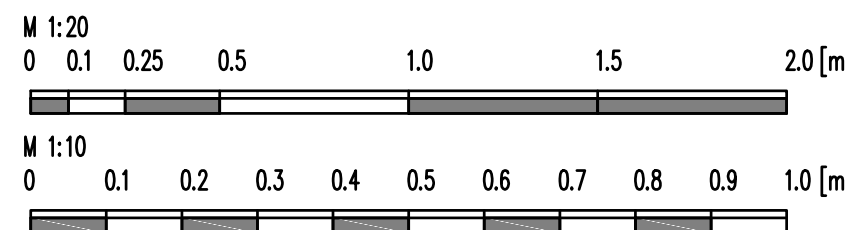
Rocker pipes	
Nominal diameter (mm)	Effective length (m)
150 to 600	0.6

75mm stainless steel pipe for remote suction removal of grease

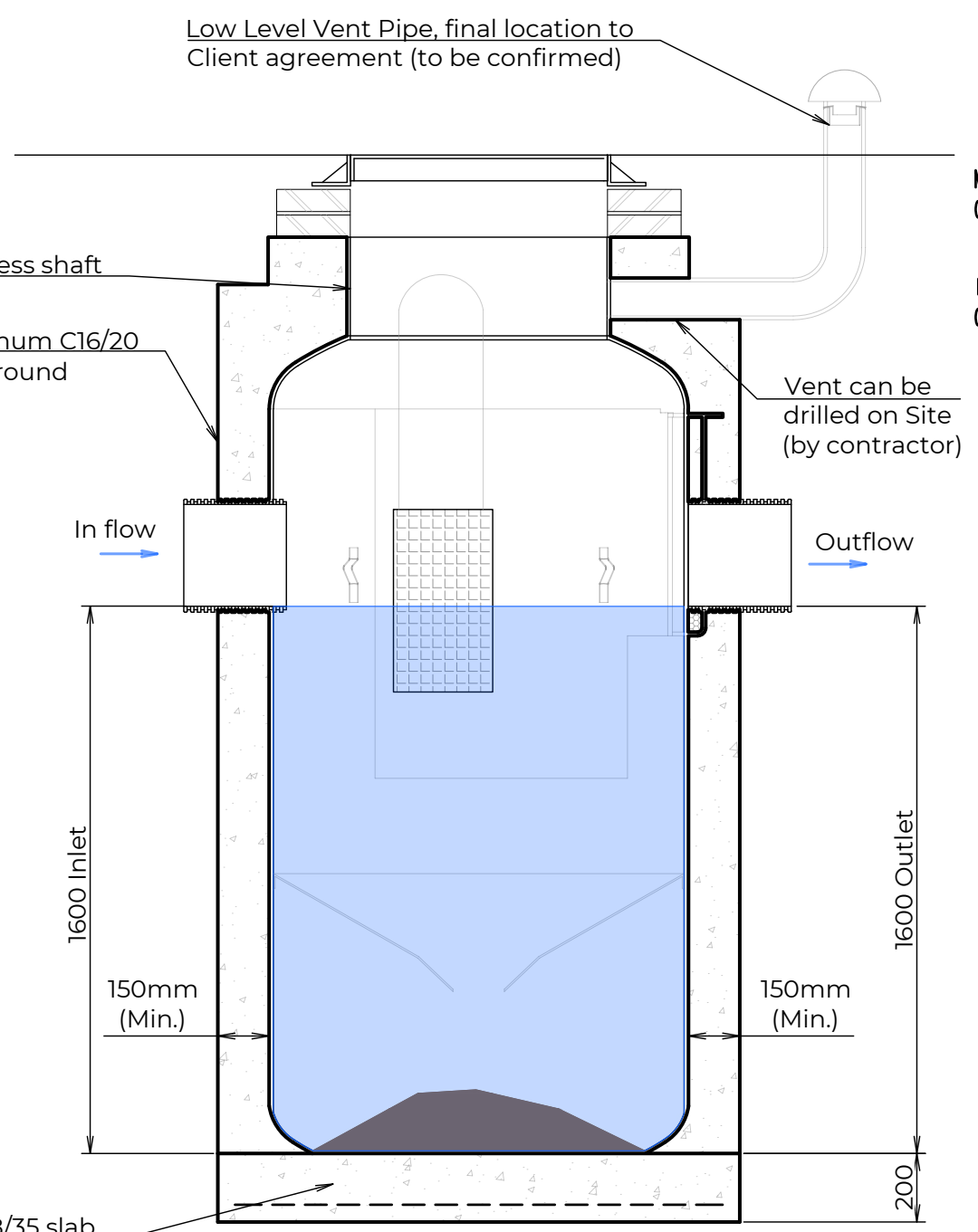
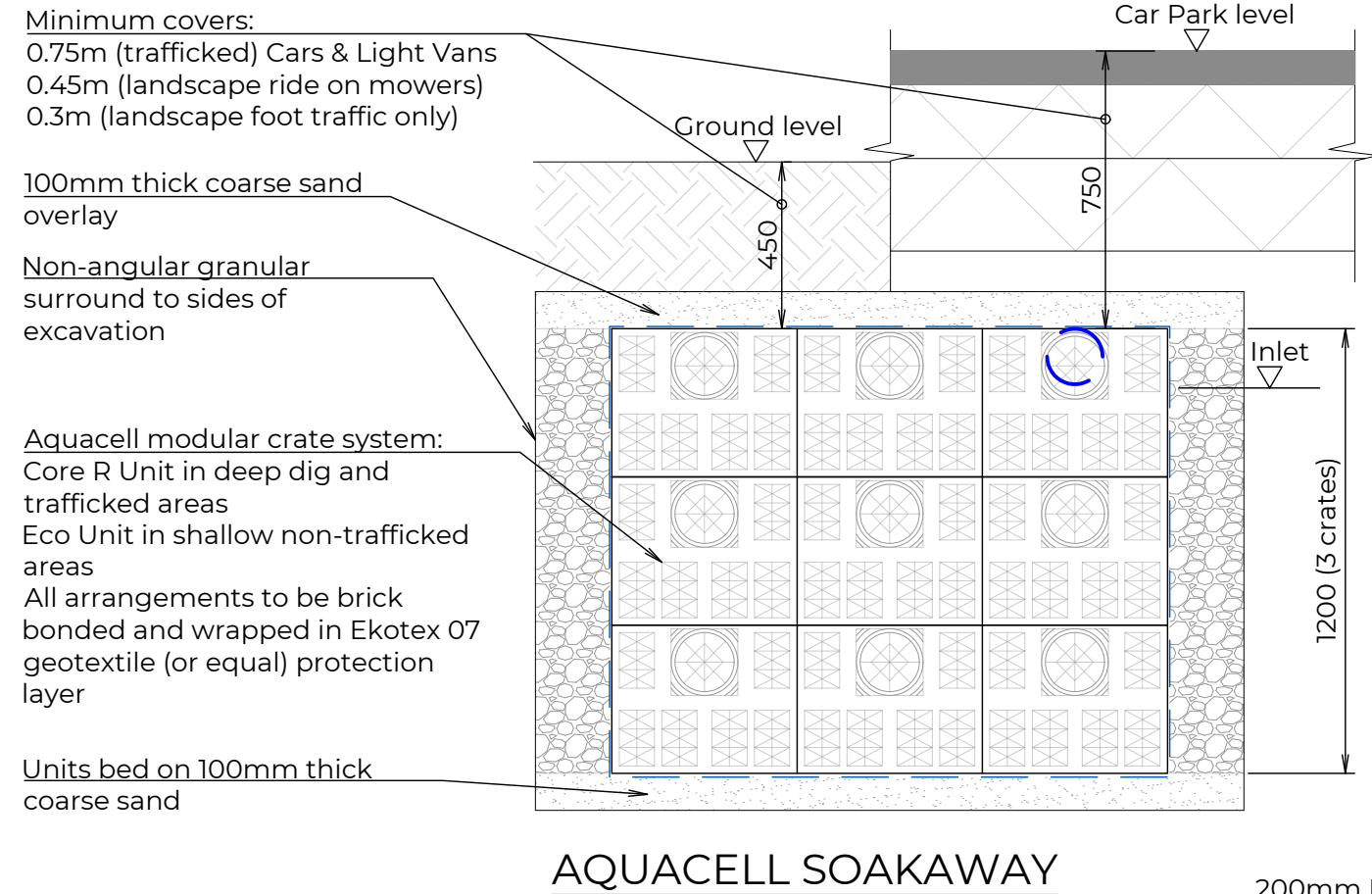
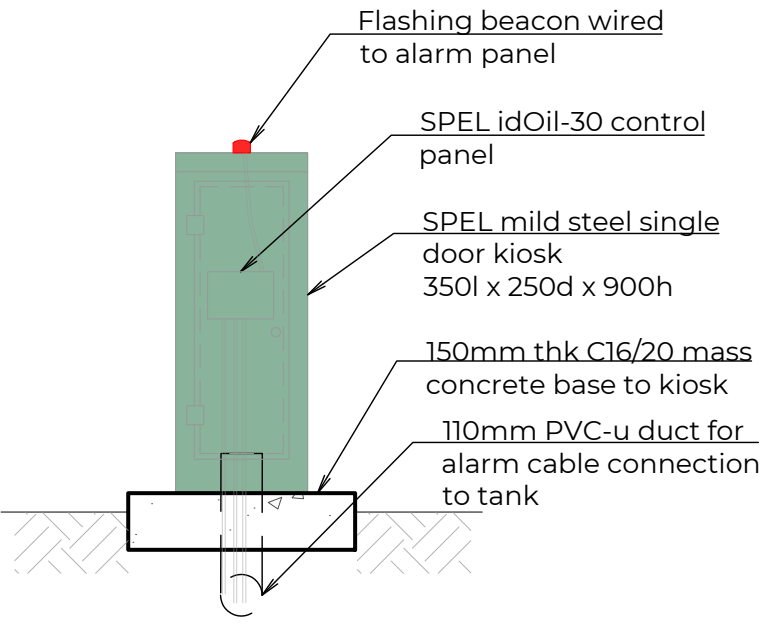
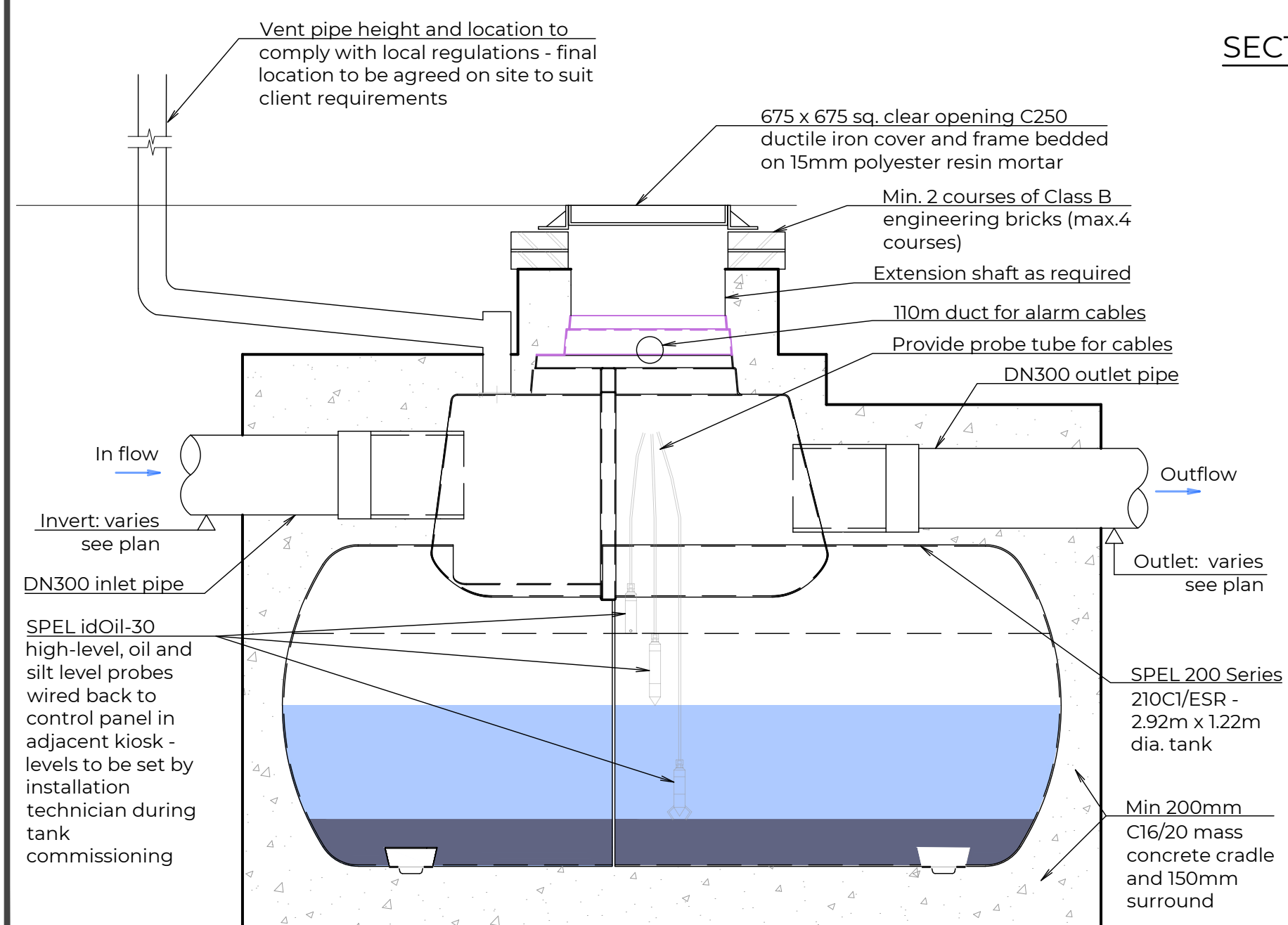
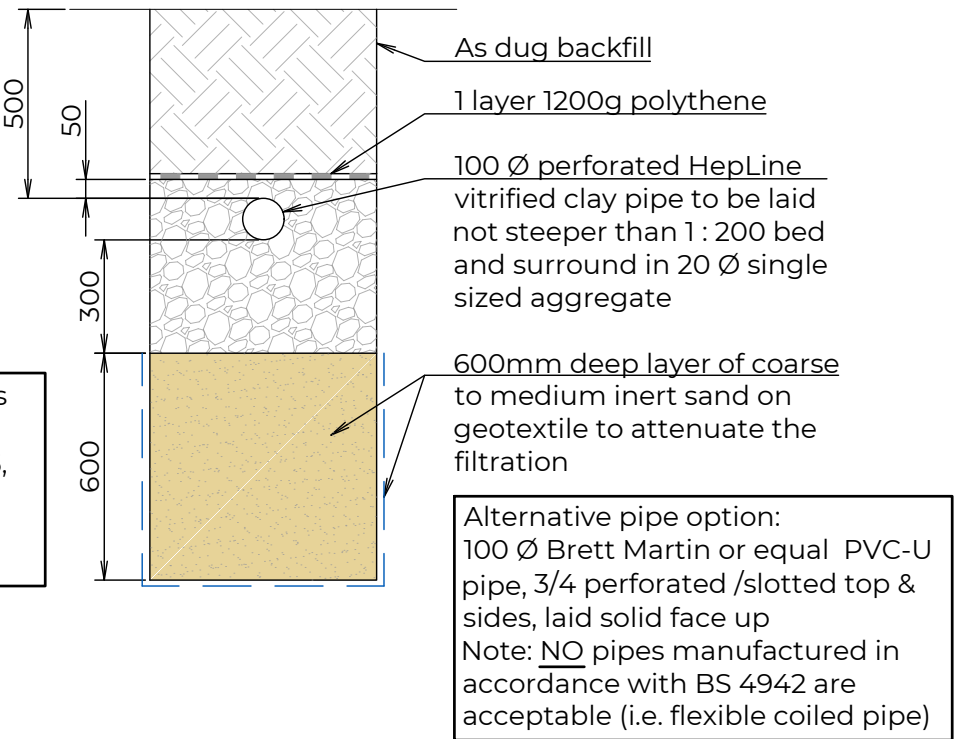
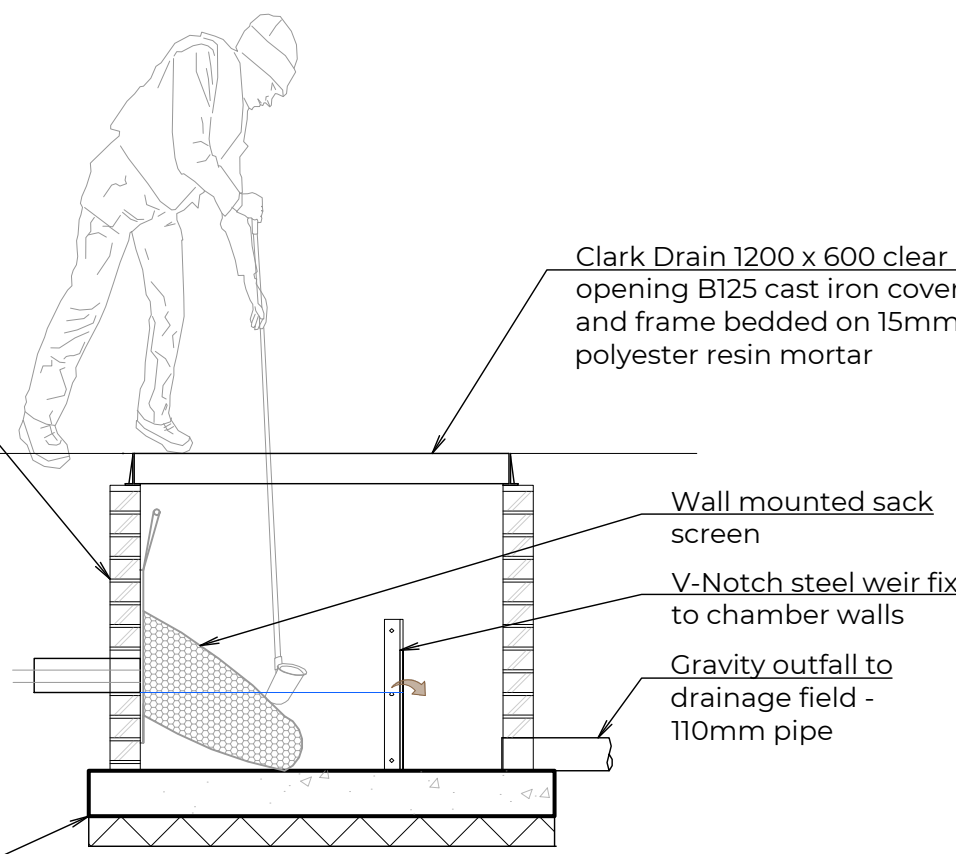
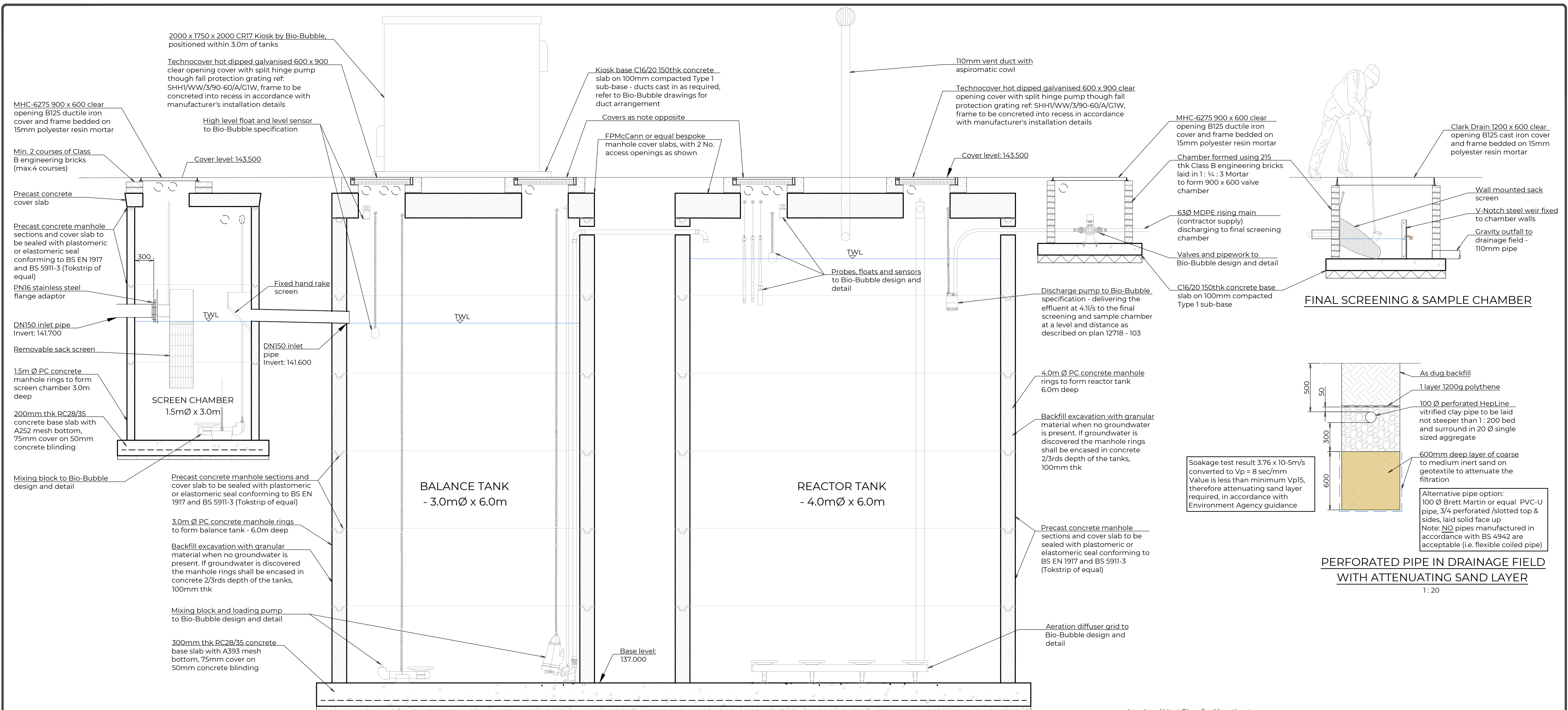


NOTE: Grease separator currently sized as indicative, with limited usage data. All subject to assessment following fit out requirements

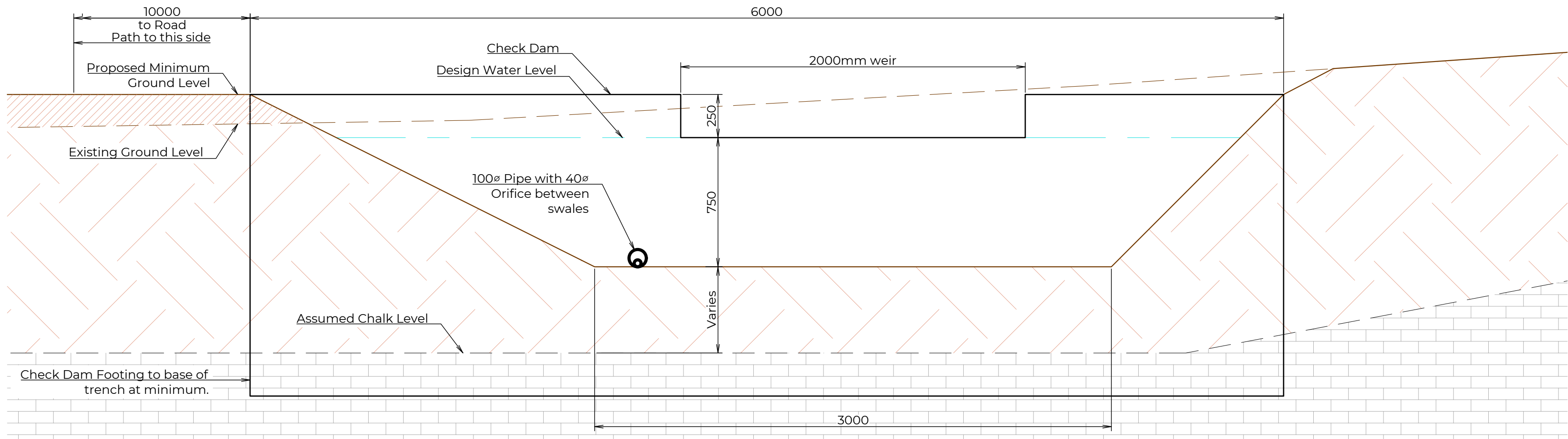
ACO LIPUMAX P- D NS 8.5 GREASE SEPARATOR
1:20



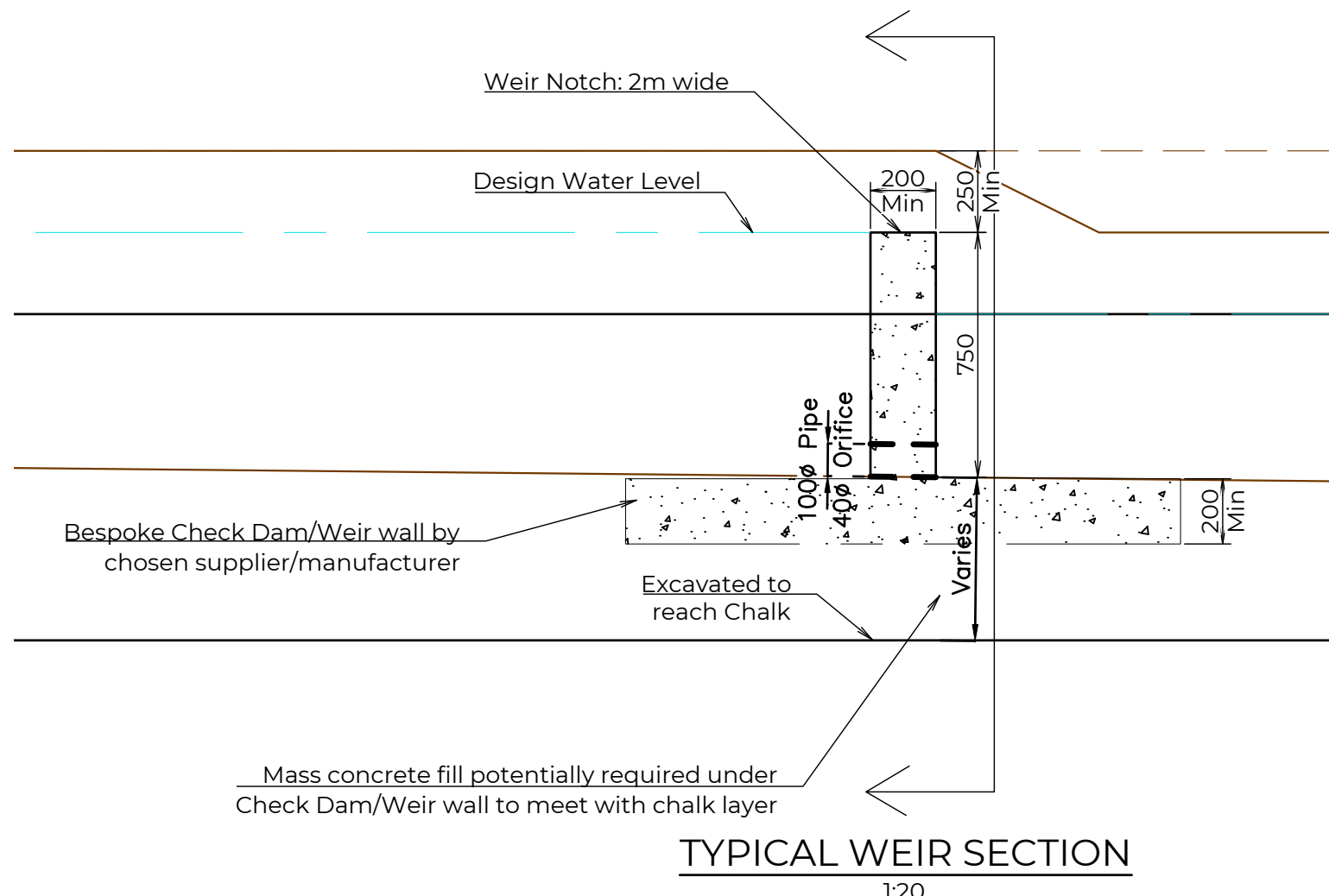
T2	28/11/25	TENDER REVISIONS		CJB	SW
T1	26/9/25	TENDER ISSUE		CJB	SW
REV	DATE	REVISIONS		REV BY	CHK BY
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a-commissioner					
		Consulting Engineers STRUCTURAL - CIVIL - MARINE <i>Planning, Designing - Safe, Sound</i>		 03756 55644  01295 25068  0811 011 011 011  www.aawarings.com.au	
ARCHITECT		Studio Four Architects			
CLIENT		InstaVolt			
JOB TITLE		CHICKLADE SERVICES			
DWG TITLE		DRAINAGE DETAILS 1			
STATUS		TENDER			
DWG NO		12718-D-120			REV
SCALE		1:20 & 1:10 @ A1 up to		T2	
DATE		SEPTEMBER 2025		CHKD BY	
DRAWN BY		CJB		SW	



M 1:20		0	0.1	0.25	0.5	1.0	1.5	2.0 [m]
M 1:25		0	0.25	0.50	0.75	1.0	1.5	2.0 2.5 [m]
T2	28/1/25	TENDER REVISIONS				CJB	SW	
T1	26/9/25	TENDER ISSUE				CJB	SW	
REV	DATE	REV/ISSUES				REV BY	CHK BY	
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ARCHITECT		Studio Four Architects						
CLIENT		InstaVolt						
JOB TITLE		CHICKLADE SERVICES						
DWG TITLE		DRAINAGE DETAILS 2						
STATUS		TENDER						
DWG NO		12718-D-121				REV	T2	
SCALE		1:25 & 1:20 @ A1 un	DATE	SEPTEMBER 2025	DRAWN BY	CJB	CHECKED BY	SW



TRANSVERSE SECTION OF A-A OF TYPICAL SWALE & WEIR
DESIGN
1:20



TYPICAL WEIR SECTION
1:20

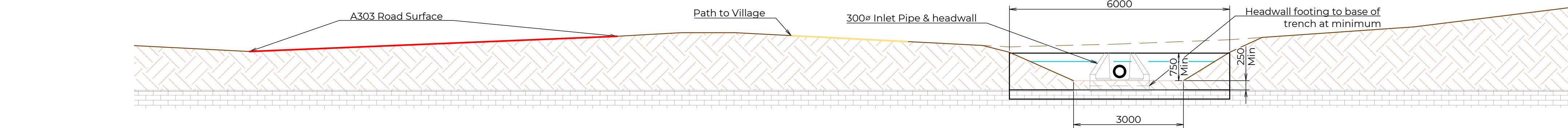
GENERAL NOTES:

1. This drawing is to be read in conjunction with all relevant Architect's, Engineer's, Specialist Sub-Contractor's drawings and the specification.
2. All setting out to be in accordance with the Architect's drawings and any discrepancies between the Engineer's and Architect's drawings to be referred to the Architect before proceeding. Drawings should not be scaled for construction and fabrication purposes.
3. All work is to comply with current requirements of the Building Regulations & allied legislation whether referred to or not.
4. All materials should be used in compliance with the appropriate manufacturers recommendations.
5. The Contractor & Sub-Contractors must ensure that they have the latest issued drawings and details before commencing the relevant work.
6. Main Contractor to provide and fit suitable bracing and propping for all elements in the temporary condition during the construction stage, such as to ensure structural stability at all times.
7. In case of any discrepancies between drawings or a lack of dimensions required AWA should be contacted before work proceeds.
8. All dimensions indicated are in millimetres and all levels are in metres (Unless noted otherwise).
9. Electronic drawing information (2D or 3D) is for information only. Whilst it may be used for expediency during the design process it shall be deemed to be unchecked even where check boxes show it as checked. Electronic drawing information does not form part of the contract drawings or documentation set. PDF drawing information always takes precedence. Electronic drawing or PDF drawing information should not be scaled; only written dimensions should be used. Electronic drawing & PDF files may contain third party information and whilst every reasonable effort is made to avoid errors AWA do not accept any liability for errors in third party information. AWA do not accept liability for setting out. All setting out must be confirmed with the architect and correct setting out is the contractor's responsibility

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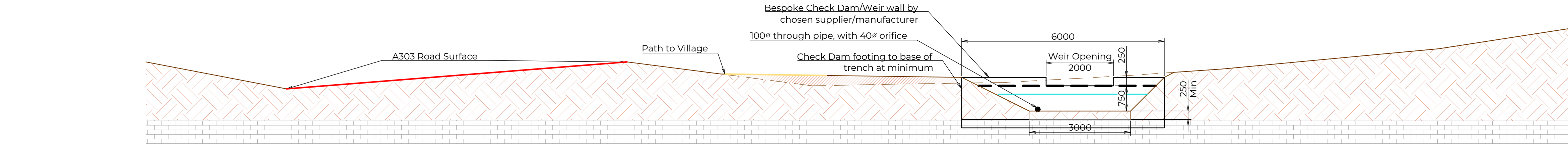
FOR SECTION LOCATIONS REFER
TO AWA DRAWING 12718-D-100

THIS DRAWING IS FOR TENDER
PURPOSES ONLY. UNDER NO
CIRCUMSTANCES IS IT TO BE
USED FOR CONSTRUCTION



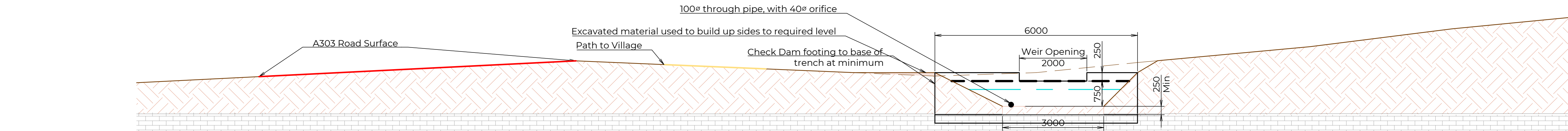
Chainage (m)	0.00	3.14	13.17	14.93	16.37	23.87	26.87	29.87	34.9	39.12
Existing GL	142.99	142.83	143.20	143.30	143.30	142.92	143.00	143.15	143.50	144.02
Proposed GL	142.99	142.83	143.20	143.30	143.30	142.75	142.00	142.75	143.50	144.02
Prop. Gradient	1/20	1/27	1/18	0	1/20	1/2	1/1	1/14	1/8	

TRANSVERSE SECTION A SHOWING SWALE No. 1 - LOOKING
UPSTREAM



Chainage (m)	0.00	4.18	14.26	16.74	24.24	26.24	27.24	29.24	30.24	35.16	38.37	42.16
Existing GL	142.86	142.27	143.07	142.65	142.55	142.50	142.60	142.70	142.80	143.30	143.60	144.20
Proposed GL	142.86	142.27	143.07	142.65	142.75	141.75	141.75	141.75	142.75	143.30	143.60	144.20
Prop. Gradient	1/7	1/13	1/6	1/75	1/2	0	0	1/1	1/9	1/11	1/6	

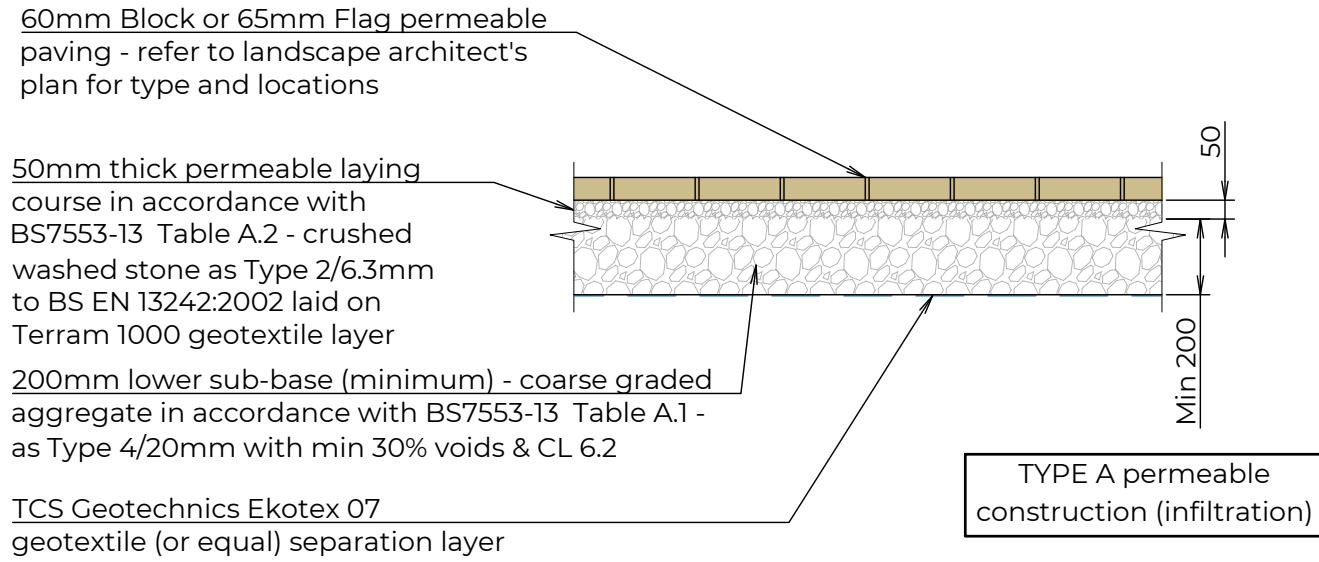
TRANSVERSE SECTION B SHOWING SWALE No. 2 - LOOKING
UPSTREAM



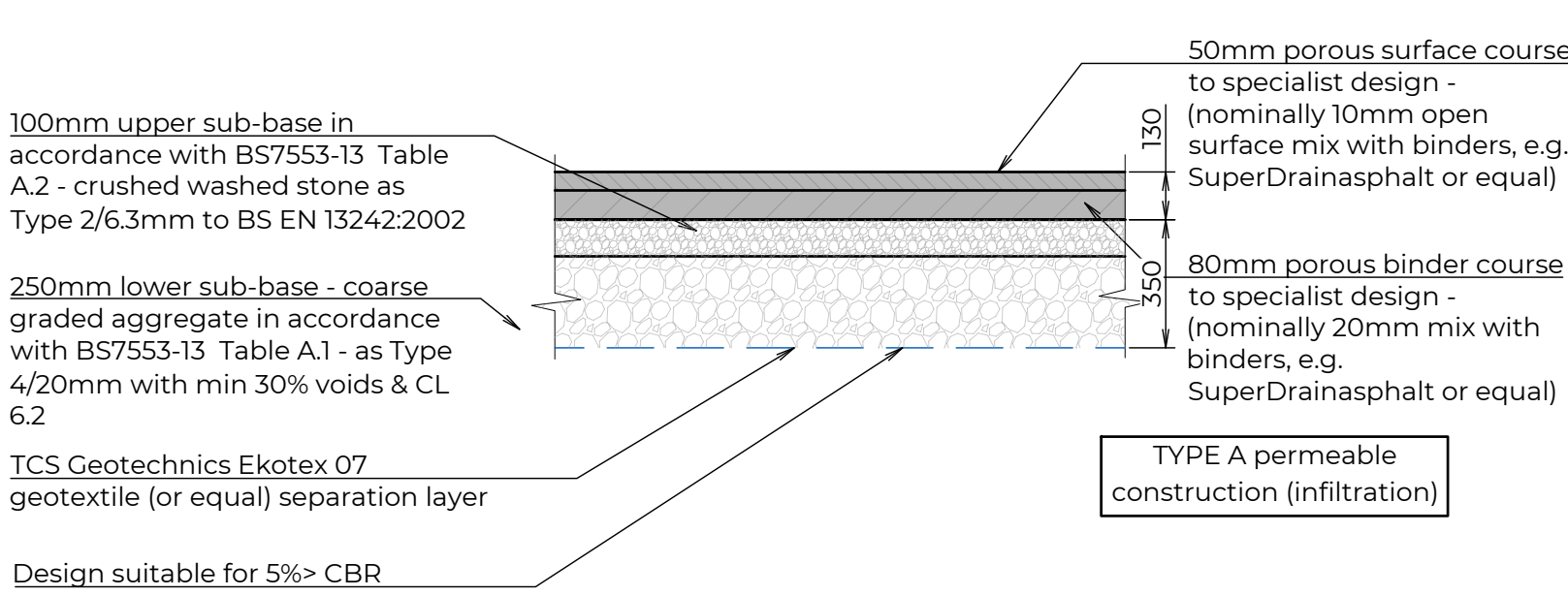
Chainage (m)	0.00	13.01	23.64	25.64	26.64	28.64	29.64	34.75	38.96	43.07
Existing GL	142.20	142.85	142.40	142.46	142.50	142.70	142.80	143.27	143.80	144.20
Proposed GL	142.20	142.85	142.50	141.50	141.50	141.50	142.50	143.27	143.80	144.20
Prop. Gradient	1/20	1/30	1/2	0	0	1/1	1/6.6	1/8	1/10	

TRANSVERSE SECTION C SHOWING SWALE No. 3 - LOOKING
UPSTREAM

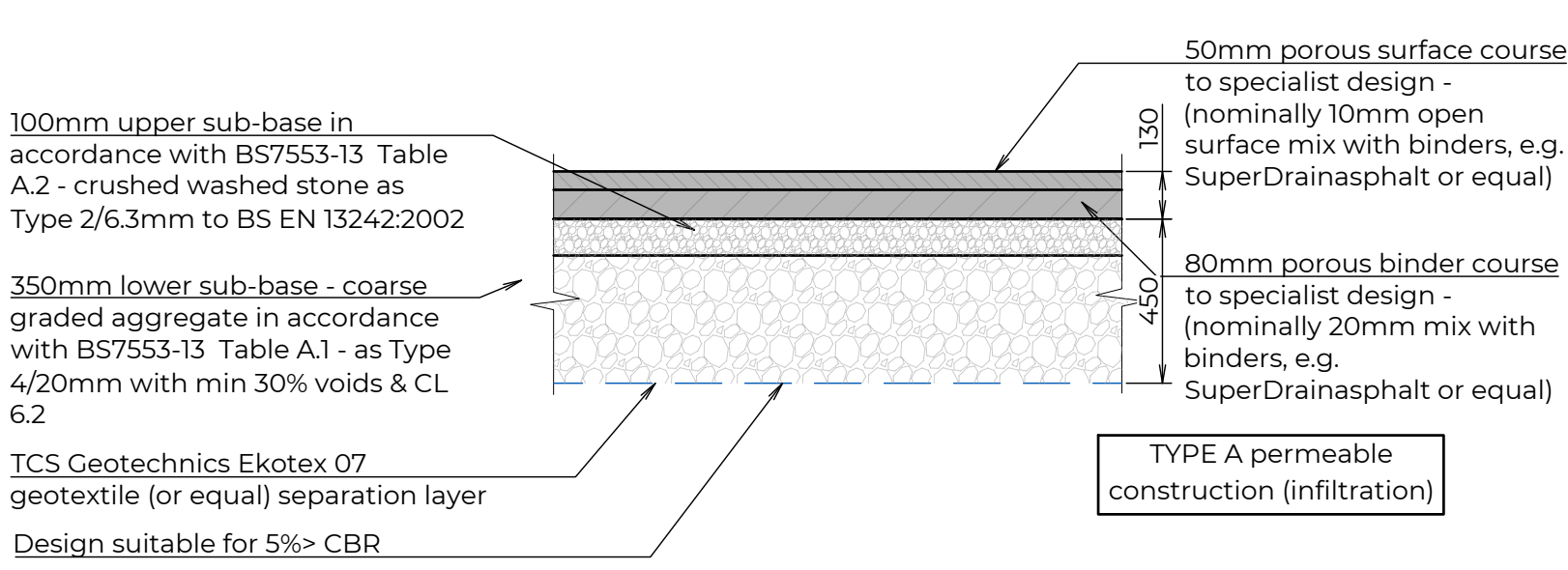
T2	28/1/25	TENDER UPDATES	C3B	SW
T1	26/9/25	TENDER ISSUE	CMD	SW
REV	DATE	REVISED	REV BY	CHK BY
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ARCHITECT				
Studio Four Architects				
CLIENT				
InstaVolt				
JOB TITLE				
CHICKLADE SERVICES				
DWG TITLE				
DRAINAGE SWALE SECTIONS				
STATUS				
TENDER				
DWG NO			REV	
12718-D-122				T2
SCALE	DATE	DRAWN BY	CHECKED BY	
1/75 @ A1 uno	SEPT 2025	CMD	SW	



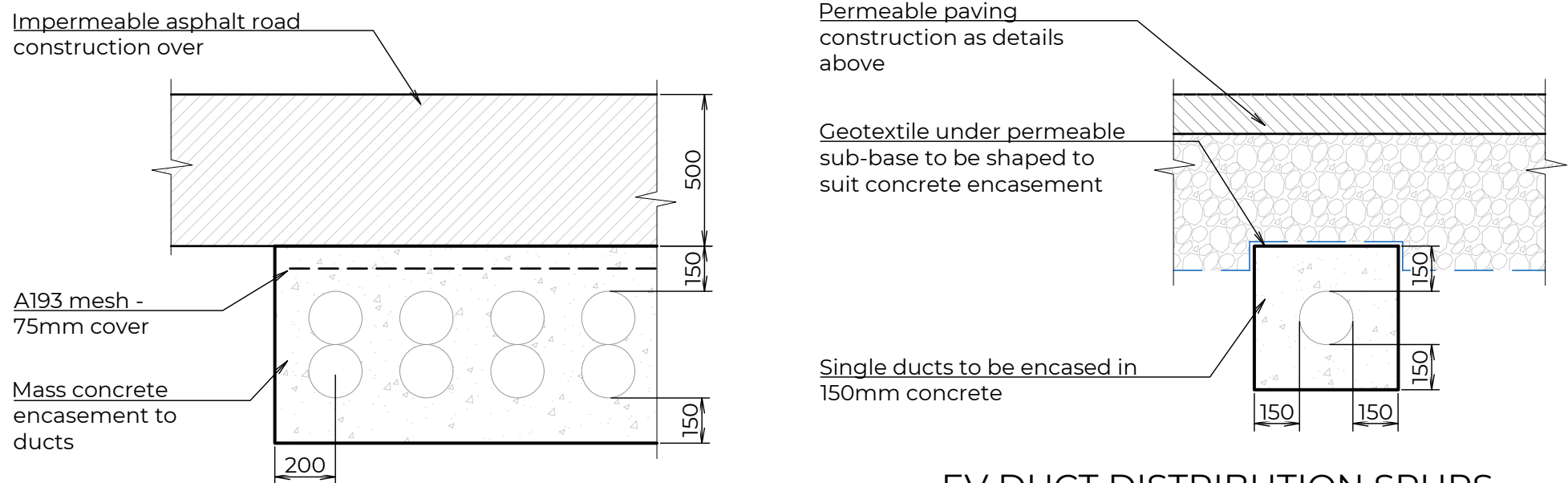
PERMEABLE BLOCK PAVING
- PEDESTRIAN LOADING - E1
1:20



POROUS ASPHALT PERMEABLE PAVING
PARKING BAYS - E2
1:20



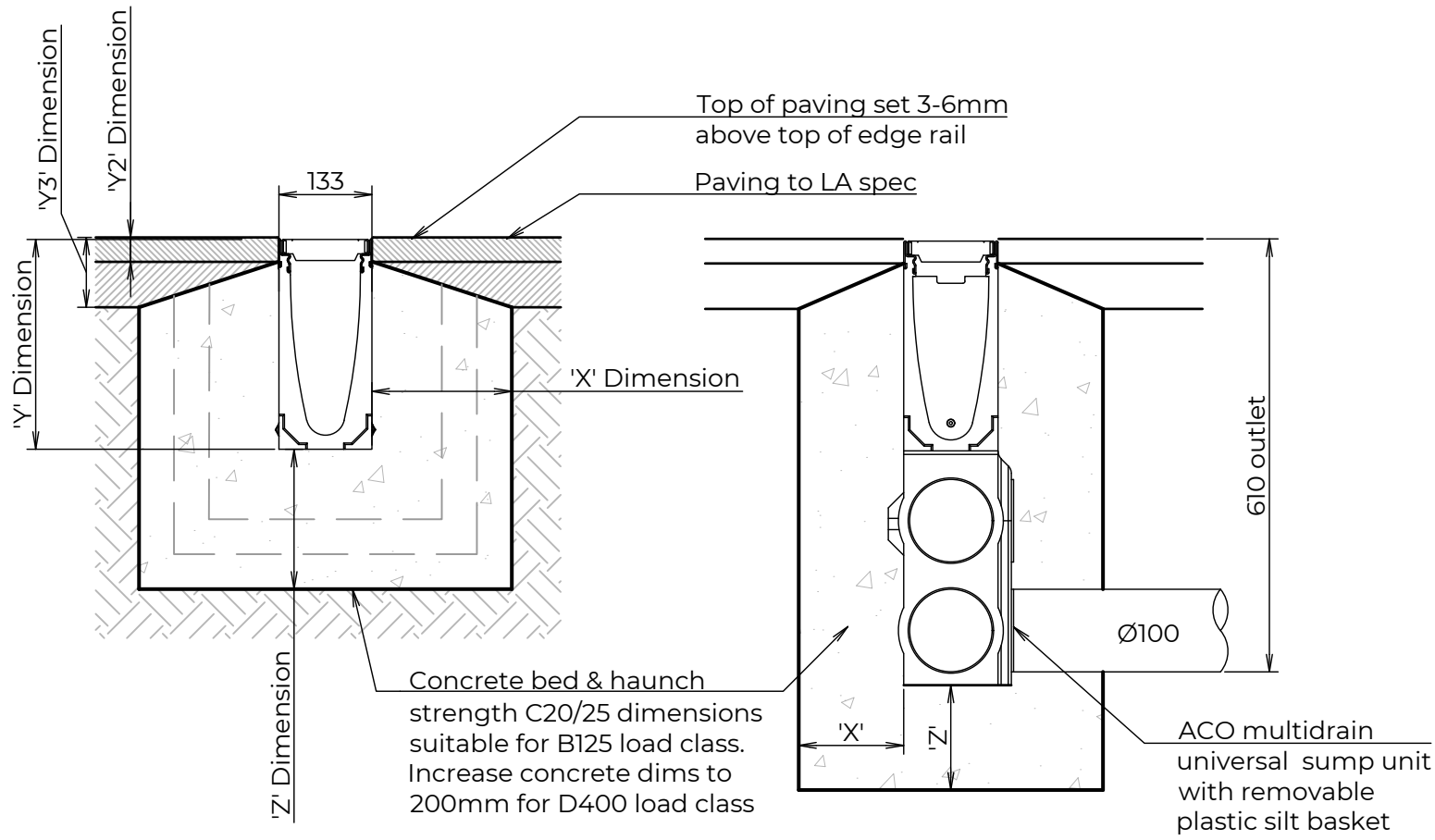
POROUS ASPHALT PERMEABLE PAVING
PARKING BAYS - E3
1:20



EV DUCT ARRANGEMENT
UNDER PARKING AISLE
1:20

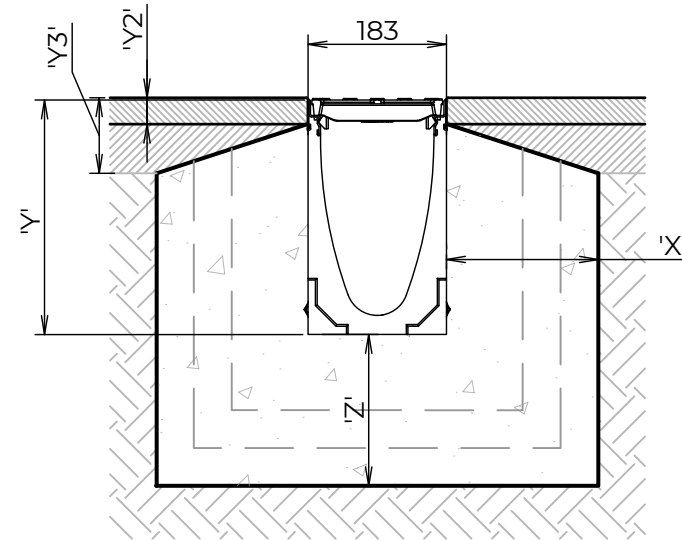
EV DUCT DISTRIBUTION SPURS
UNDER PARKING BAYS
1:20

Capping and sub-base adjustments for PERMEABLE PAVING systems		
CBR of subgrade	Adjustment to thickness of coarse graded aggregate in the case of Type A and Type B (infiltrating) pavements (mm)	Total thickness of capping material in the case of Type C (attenuation) pavements (mm)
1%	300	600
2%	175	350
3%	125	250
4%	100	200
5%	Use thicknesses in Design Chart	150
8%		
10%		
15%		
Note that the additional coarse graded aggregate values shown in the middle column can be applied, in the case of Type C pavements, instead of the enhanced capping thickness.		

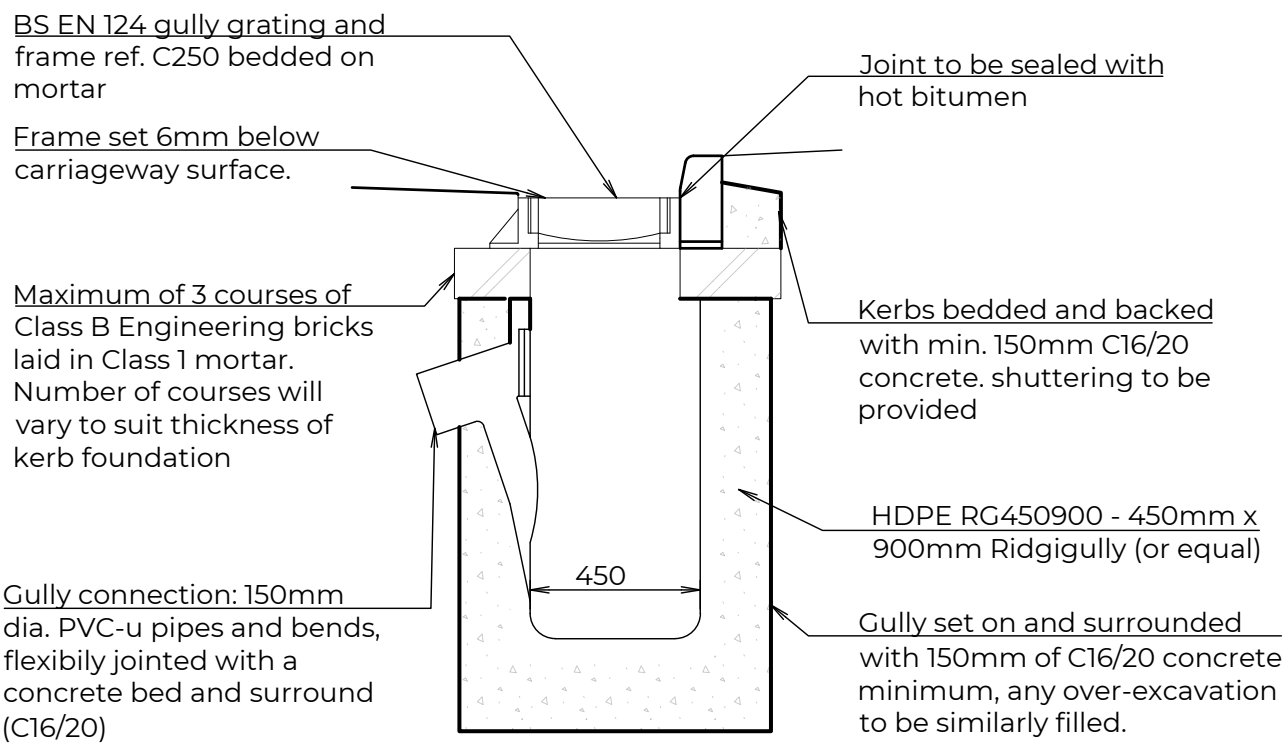


ACO MULTIDRAIN M100D30
1:10

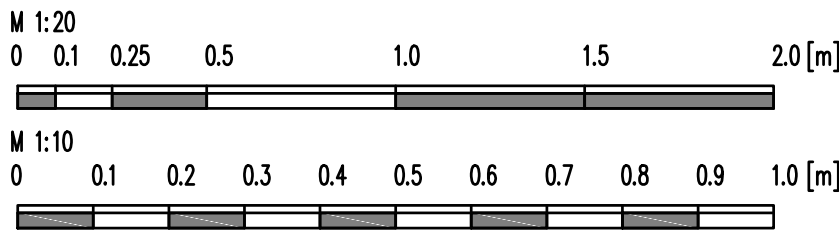
ACO MULTIDRAIN M100D
UNIVERSAL SUMP
1:10



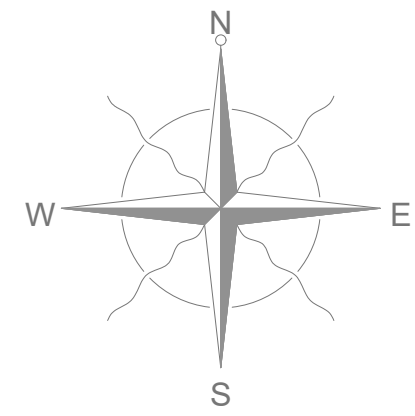
ACO MULTIDRAIN CHANNEL CONCRETE DEPTHS					
	Load Class	A15	B125	C250	D400
Minimum Dimensions (mm)	X	100	150	150	200
	Y	Full channel height (less Y2 where applicable)			
	Z	100	150	150	200
Maximum Dimensions (mm)	Y2	35	35	35	35
	Y3	100	60	60	60



HDPE PLASTIC - ROAD GULLY DETAIL
1:20



T2	28/11/25	TENDER REVISIONS	CJB	SW			
T1	28/11/25	TENDER ISSUE	CJB	SW			
REV	DATE	REVISIONS	REV BY	CHK BY			
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		 Consulting Engineers STRUCTURAL - CIVIL - MARINE Barnes, Warrington - Derby, Telford		 02794 524427			
ARCHITECT				 01295 250888			
				 mail@awengineering.com			
				 www.awengineering.com			
				CLIENT		Studio Four Architects	
						InstaVolt	
JOB TITLE		CHICKLADE SERVICES					
DWG TITLE		DRAINAGE DETAILS 3					
STATUS		TENDER					
DWG NO		12718-D-127		REV	T1		
SCALE		1:20 & 1:10 @ A1 up to	DATE	NOVEMBER 2025	DRAWN BY	CJB	
					CHECKED BY	SW	



1:250

STORMWATER CONTROL - OUTLET SUMMARY				
Location	Connection Name	Outlet Invert Level (m)	Weir Width (mm)	Pipe & Orifice Dia (mm)
Swale 1	Orifice 1	141.75	-	100/40
Swale 2	Orifice 2	141.50	-	100/40
Swale 1	Weir 1	142.50	2.0	
Swale 2	Weir 2	142.25	2.0	

M 1:250

0 1.0 2.5 5.0 10.0 15.0 25 [m]



P3	10/2/25	South Path area amended	CJB	SW
P2	28/11/25	Layout revised - Calculation pack	CJB	SW
P1	26/9/25	Calculation pack	CJB	SW
REV	DATE	REVISED	REV BY	CHK BY

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#COMPANIES



Andrew Wainwright Associates

Consulting Engineers

STRUCTURAL - CIVIL - MARINE

Shipping, Pipelines - Docks, Dredging

Summary: 00796 126477

Ref: 00255 25908

Email: mail@awainwright.com

Website: www.awainwright.com

ARCHITECT

STUDIO FOUR ARCHITECTS

CLIENT

INSTAVOLT

JOB TITLE

CHICKLADE SERVICES

DWG TITLE

CATCHMENT PLAN

STATUS

INFORMATIVE

DWG NO	12718-Z-1	REV	P3
SCALE	1:250 @ A1 uno	DATE	SEPT 2025
DESIGNED BY	CJB	CHECKED BY	SW

**Non Adoptable
PROPOSAL FOR
CHICKLADE SERVICE STATION
241 pe SEWAGE TREATMENT PLANT**

C/O Andrew Waring Associates

BRITISH WATER TABLE 4 FLOWS AND LOADS

Bio Screen upstream of the Balance Tank.

Advanced Aeration Ltd
Unit L
Fishers Grove
Farlington
Portsmouth
PO6 1RN

Tel: 02392 200669
Fax: 02392 387460
Email: gmccormick@bio-bubble.com
Web: <http://www.bio-bubble.com>



Date: 30-10-25

BIO-BUBBLE SBR WASTEWATER TREATMENT PLANT

DESIGN PARAMETERS

The new treatment plant design loading has been based on the following flows and loads:-
400 toilet uses and 400 fast food meals and 20 full time staff, AWA applied a 40% factor of safety due to some unknown issues with actual attendance and growth.

1) Loadings - Design Data		Flows & Loads 4					
Source	No. of People or Meals	Flow per person [l/day]	Total Flow [l/day]	Organic Load per person [gBOD5/day]	Total Organic Load [gBOD5/day]	Ammonia Load per person [gNH4-N/day]	Total Ammonia Load [gNH4-N/day]
* Day Staff	20	90	1800	38	760	5	100
* Part Time Staff (4 hr Shift)	0	45	0	25	0	3	0
Fast food i.e Little Chef	400	12	4800	12	4800	2.5	1000
Toilet Blocks (per use)	0	10	0	12	0	2.5	0
Toilet (WC)	400	10	4000	12	4800	2.5	1000
Toilet (Urinal)	0	5	0	12	0	2.5	0
2) Loadings - Summary		3) Discharge Consent					
Total Daily Flow	10600 l/day	71 PE	BOD:	10 mg/L			
Total Daily Organic Load	10360 gBOD ₅ /day	173 PE	SS:	20 mg/L			
Organic Concentration	977 mg/l BOD ₅		Ammonia:	<2 mg/L or better			
Total Daily Ammonia Load	2100 gNH ₄ -N/day						
Ammonia Concentration	198 mg/l NH ₄ -N						
Factor of Safety 1.4							
Hydraulic	14840 l/day	99 PE					
Organic	14504 gBOD ₅ /day	242 PE					
Ammonia	2940 gNH ₄ -N/day						

Design Flows		
Population Equivalent (organic)	241	PE
Influent BOD Concentration	977	mg/l
Maximum Organic Loading	14.5	kg BOD/d ^{*1}
Maximum Ammonia Load	2.94	kg NH ³ /d
Maximum Hydraulic Flow	14.8	m ³ /day ^{*2}
Final Effluent Quality Standards		
Biological Oxygen Demand (BOD)	10	mg/l ^{*3}
Suspended Solids 105°C (SS)	20	mg/l
Amm.N	2	mg/l
To Consent Compliance	95	%

*1 kilograms

*2 cubic metres per day

*3 milligrams per litre

BIO-BUBBLE SBR WASTEWATER TREATMENT PLANT

The influent to the works is assumed to have a treatable consistency of domestic sewage with no uncharacteristic inhibition or toxicity to biochemical carbonaceous oxidation and nitrification. Sufficient alkalinity, and a pH of between 7 – 7.5 is required. A pH probe has been allowed for to monitor the pH and temperature of the effluent.

Please be advised that we have based the following equipment selection generally on a duty only basis, loading pumps are quoted as duty standby, additional equipment is available on a standby basis please ask for separate quotations. The hydraulic load to the plant is based on Dry Weather Flow (DWF) only, infiltration / ground water is assumed to be taken elsewhere.

The Bio-Bubble SBR has 2 modes of operation: Sleep Mode &, normal mode with 1 Discharge cycle per 24 hours from the Reactor with this application.

INLET FLOWS

We assume that the total DWF to the works are received into our below ground Bio Screen Tank. Tank via gravity pipe work, where it is stored ready for treatment. A drainage depth of up to 1.8 m from ground level at the Balance Tank has been allowed for as shown on our typical layout sketch attached.

Bio Screen Tank

Gravity flows are passed through an aerated tank with a 12 mm rake screen assists with retention of unwanted rag within this chamber for periodic removal by vacuum tanker.

PROCESS BALANCE TANK

A single Balance Tank is proposed with a gross volume of 42 m³ constructed from pre-cast concrete rings with a heavy duty cover slab with two 900 mm x 600 mm clear opening. Under normal flow conditions, twin Nopol KKI 215 membrane diffuser within the Balance Tank will intermittently mix the sewage to prevent settlement and alleviate variations in the incoming influent strength. The membrane diffuser receives air via a Becker Rotary Vane Blower housed in the GRP control kiosk. There is just over 48 hours of storage space within this tank below the inlet to enable breakdowns or loss of power supply to be resolved.

The Balance tank can be used to tanker from in emergency situations.

Sewage will be retained ready for transfer into the Bio-Bubble Sequencing Batch Reactor on demand from the PLC program.

PROCESS BALANCE TANK MONITORING

Once a day the level of the balance tank is monitored to be sure there is enough waste to initiate a treatment cycle. The PLC control checks the level status at data window via the ultra sonic level detector. As a back up to the Vega Radar level control a float will indicate a high level.

REACTOR LOADING PUMPS

Wastewater will automatically be transferred into the Reactor from the Balance Tank by initiation of the duty SEG 40 or similar submersible loading pump. The Pumps situated in the base of the balance tank mounted on a galvanised lifting chain and guide rails will provide duty/standby operation and will be controlled by the level controller and Bio-Bubble SBRs patented "Intelligent Reaction" system to determine the volume of transfer. Simultaneous backup protection has also been incorporated with timed fill and discharge cycles to ensure continuous operation during wastewater transfer.

BIO-BUBBLE SBR WASTEWATER TREATMENT PLANT

BIO-BUBBLE SBR REACTOR

A single Reactor of Gross volume 75m³ constructed from pre-cast concrete rings is proposed. The tank supply and sealer to provide a water-tight Reactor are not included in our scope of supply, nor are the costs associated with the tank base, off loading and ancillary installation works are all by others. See the list of our exclusions to be quoted by the appointed groundworks company.

REACTOR AERATION GRID

A programmed cycle of biological treatment through a sequence of aerobic cycles utilising membrane diffusers and anoxic phases during quiescent phases will provide high quality treatment for BOD removal and nitrification will be undertaken within the Reactor. Once the process cycle is complete the liquor undergoes settlement prior to decanting of the final effluent.

REACTOR AERATION BLOWER

Twin Becker 4.40 rotary vane compressor located in the GRP control kiosk will provide the duty duty assist aeration to the Reactor. The blower will be controlled by ***"Intelligent Reaction"*** operating to the required cycle of events. Dependant on the level within the Balance Tank, the required cycle will be selected. By directly relating the treatment cycles to the level of flow to the plant minimizes energy usage and optimizes efficiency. Subject to actual organic load the blower will run duty assist controlled by a dissolved oxygen probe therefore reducing energy consumption at times of lighter loading.

DISCHARGE PUMP

Treated effluent will eventually be discharged from the Reactor through a single AP35 40.06 pump or similar on a duty only basis. The pump is suspended on a galvanised lifting chain within the decant zone of the reactor. The pump will be controlled by ***"Intelligent Reaction"*** operating to the required cycle of events. The first portion of the discharge will be returned to the Balance tank to clear the pump jacket.

REACTOR SURPLUS SLUDGE REMOVAL

The surplus sludge will require removing from the system on a periodic basis and will be removed by suction tanker and disposed of off site, in this respect access should be provided for small tankers. Sludge levels will be monitored by a MLSS probe.

REACTOR FINAL EFFLUENT DISCHARGE

The effluent from the reactor discharges once a day to the receiving point, which is a combine sample chamber /attenuation chamber at the head of the drain field, the waste will be pumped via a 63 mm rising main north from the 3 way valve chamber to a break manhole. A sample of the final Effluent can be taken from this Chamber which will hold a sample of the last discharge at any given time.

MAINS FEED

We have assumed that an adequate three phase supply will be laid to the kiosk base by others with at least 1.5m of spare cable at the kiosk end for us to connect to our distribution board housed within the control kiosk. In the event 3 phase is not feasible we would need to confirm possible additional cost of single phase system

ALARM SYSTEM

The provision of a broad band connection by the management company will allow remote monitoring and reporting to be provided along with a robust support package. Alternatively we can use a contracted 4 G connection if there is coverage.



BIO-BUBBLE SBR WASTEWATER TREATMENT PLANT

TANK SIZES

Bio Screen Tank (Below Ground)		
Number of Balance Tanks	1	
Tank Internal Diameter	1.5	metres
Freeboard	1.8	metre
Depth Including Freeboard	3.0	metres
Gross Capacity	5.3	Cubic metres
Balance Tank Size (Below Ground)		
Tank Internal Diameter	3.0	metres
Freeboard	1.85	metre
Depth Including Freeboard	6.0	metres
Gross Capacity	42.0	Cubic metres
Reactor Tank Size (Below Ground)		
Tank Internal Diameter	4.0	metres
Depth Including Freeboard	6.0	metres
Gross Capacity	75	Cubic metres

GUIDE ENERGY UTILISATION

@ Maximum load 37 kwh per day

@ Minimum load 5.5 kwh per day

BIO-BUBBLE SLUDGE PRODUCTION

Waste sludge production is approximately 85% less than conventional treatment systems.

Estimated at 18 m³ per year at 3% ds (At max load ie every day worst case loading; we would expect this to be less than stated however it is possible lightly loaded the humus could be at 1.5% ds)

Bio-Bubble's treatment philosophy positively stimulates biological reaction and can combine the processes of carbonaceous oxidation, nitrification, denitrification and phosphate removal, in addition to settlement within a single reactor. The Bio-Bubble rationale pursues the natural qualities of extended sludge age and proliferation of higher life organisms. This approach yields a high-density floc contributing to significant improvements in sludge stability. Results are reflected by a superior



Sleep mode and *IR* are covered under international patents exclusive to BIO-BUBBLE.

Form 88

BIO-BUBBLE SBR WASTEWATER TREATMENT PLANT

quality final effluent and low but concentrated sludge production; typically 0.05 kg/kg BOD removed per day, less than half produced by other treatment processes with annual surpluses greater than 0.2 kg/kg BOD/d. The stability of the sludge yields SBR humus concentrations of 3 % dry.

Humus is a bi-product of the Bio-Bubble process and is stable, inert, odourless substance that has a water content of approximately 85%.

ONGOING SERVICING / MAINTENANCE

A service agreement is available. Signing to the maintenance / service agreement will enable you to have your plant maintained and service by an approved Bio-Bubble engineer. Maintenance ensures an emergency response to breakdowns where required with no emergency call-out fees.

For emergency situations ie where use of facilities would be limited or a pollution incident could occur, our engineers aim to respond within 24 hours of a report of a failure. Each plant has an amount of storage space which can be used in emergency conditions to enable an extended response time if necessary and therefore out of hours / weekend hours are not normally required.

Free telephone technical support is available during office hours. In the event that the Broadband option remote link is taken up, then the level of monitoring required by the client needs to be determined then we can offer the price for this extended service providing status reports or whatever is required.

WARRANTY

All Bio-Bubble installations are guaranteed against faulty component parts and workmanship for 12 months from the date of commissioning recorded on the Bio-Bubble completion certificate (See warranty exclusions / conditions below).

The warranty on the installation covers replacement of failed components and the labour involved to replace that failed component. Any failures / alarms must be reported to Bio-Bubble within 24 hours. The labour cost attributed to a warranty claim is subject to the installation of the specific Bio-Bubble alarm and monitoring system as agreed. It should be noted that failure of component parts of the alarm system supplied under the contract is covered however the client must take steps to ensure alarm system does not become disconnected or remain non-operational for a duration no longer than 24 hours prior to the failure being reported.

Effluent Quality - The quality of the effluent is guaranteed to be within compliance of the standard set out above. In the event the Environment Agency require a more onerous quality we may need to provide additional treatment capacity at extra cost depending upon the determination of the Bespoke Environmental Permit.

Bio-Bubble reserves the right to pass on costs to the client attributed to failures that result as a direct consequence of any delay or lack of warning to Advanced Aeration Ltd of such a failure that is not a direct fault of Advanced Aeration Ltd. These include but are not limited to inorganic materials being disposed of down the system, lightning strikes, flooding and interference by non-approved personnel. There is no warranty on Effluent Quality for operating the plant outside the design loading conditions.

TREATMENT PLANT SIZING TO FLOWS AND LOADS 4

TP1

Job Name:	Chicklade Services	Job No.	12718	By:	CJB
Element:	Treatment Plant Flow Sizing	Date:	29/11/2025	Chk:	
Site Address:	51.10926618566098, -2.1374827929736573	Link:	Click for Google Map		
		BGS	Click for BGS Viewer		

Type	Flow (litres)	BOD (grams)	Ammonia as N
Toilet (WC) (per use)	10	12.00	2.5
Fast food (i.e. roadside restaurants)	12	12.00	2.5
Full time day staff	90	38.00	5

Type	No. off	Flow (litres)	BOD (grams)	Ammonia as N
Toilet (WC) (per use)	400	4000	4800	1000.00
Fast food	400	4800	4800	1000.00
Full time day staff	20	1800	760	100.00
Site Totals		10600	10360	2100.00

Loadings calculated in accordance with British Water Flows & Loads 4

Due to unknowns around the usage numbers, a factor of safety has been applied to the flow. The treatment plant and drainage field will be sized for the factored hydraulic load (flow).

	Flow (m ³)	BOD kg	NH ₃ (kg)
Total	10.6	10.36	2.1

Factor of safety	1.4	14.84	14.504	2.94
------------------	-----	-------	--------	------

Population Equivalent	99
-----------------------	----

Is the site with Source Protection Zone 1?	No
Is the discharge to Ground or surface water?	Ground
Allowable daily discharge	2 m ³ /day

Is daily flow less than allowable?	NO, A PERMIT IS REQUIRED
------------------------------------	--------------------------

Design Values for Bio-Bubble Treatment Plant design

Design Flows		
Population Equivalent (organic)	241	PE
Influent BOD Concentration	977	mg/l
Maximum Organic Loading	14.5	kg BOD/d ^{*1}
Maximum Ammonia Load	2.94	kg NH ₃ /d
Maximum Hydraulic Flow	14.8	m ³ /day ^{*2}
Final Effluent Quality Standards		
Biological Oxygen Demand (BOD)	10	mg/l ^{*3}
Suspended Solids 105°C (SS)	20	mg/l
Amm.N	2	mg/l
To Consent Compliance	95	%

Refer to additional design document provided by Advanced Aeration Ltd for the treatment plant design

Infiltration tests to BRE365 in the head deposits returned as worst case 3.76×10^{-5} m/s (TP01)

Equivalent V_p , where $f = E-3/3V_p$ (3.28, Part H3)

$V_p =$

8

Minimum V_p as defined in BS 6927

15

USE SAND LAYER TO ATTENUATE FLOW

Site Average V_p	15.0	sec/mm
Population Equivalent	99	
$V_p \times 0.2 \times p_e$	297	m ²
Width of trench	0.75	m
Length of field	396	m

(area req'd)

(based on standard bucket width)

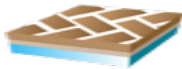
(total linear length req'd)

Max length of pipe	100	m
No. of runs	4	
Minimum gap	2	m
End lengths	6	m
Total end lengths	12	m
Minus end lengths	384	m
Iterate run length	96	m
Total Length of field	396	m

(as defined in BS 6297)

Provide: 396m drainage field comprised of 4 No. Pipe runs at 96m long, in 0.75m trenches with 2m spacings between runs

Project: Chicklade Services 12718	Date: 29/11/0025			
	Designed by: CJB	Checked by: SW	Approved By: SW	
Report Details: Type: Stormwater Controls Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey			



Perm North 1

Type : Porous Paving

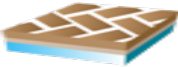
Dimensions		
Exceedance Level (m)		143.700
Depth (m)		0.365
Base Level (m)		143.335
Paving Layer Depth (mm)		115
Membrane Percolation (m/hr)		50.0
Porosity (%)		30
Length (m)		11.582
Long. Slope (1:X)		125.00
Width (m)		5.130
Total Volume (m³)		4.457

Advanced		
Base Infiltration Rate (m/hr)		0.135
Safety Factor		10.0
Conductivity (m/hr)		100.0

Pollutant Removals					
Name	Background Concentration (mg/L)	Method	Percentage Removal (%)	Δ (mins)	
TSS	0.0	Percentage Removal	70		
Heavy Metals	0.0	Percentage Removal	60		
Hydrocarbons	0.0	Percentage Removal	70		
BOD	0.0	Percentage Removal	0		
Nitrogen	0.0	Percentage Removal	0		

Project: Chicklade Services 12718	Date: 29/11/0025		
	Designed by: CJB	Checked by: SW	Approved By: SW
Report Details: Type: Stormwater Controls Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey		





Perm North 2

Type : Porous Paving

Dimensions

Exceedance Level (m)	143.700
Depth (m)	0.365
Base Level (m)	143.335
Paving Layer Depth (mm)	115
Membrane Percolation (m/hr)	50.0
Porosity (%)	30
Length (m)	11.627
Long. Slope (1:X)	125.00
Width (m)	5.135
Total Volume (m³)	4.478

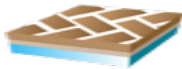
Advanced

Base Infiltration Rate (m/hr)	0.135
Safety Factor	10.0
Conductivity (m/hr)	100.0

Pollutant Removals

Name	Background Concentration (mg/L)	Method	Percentage Removal (%)	Δ (mins)
TSS	0.0	Percentage Removal	70	
Heavy Metals	0.0	Percentage Removal	60	
Hydrocarbons	0.0	Percentage Removal	70	
BOD	0.0	Percentage Removal	0	
Nitrogen	0.0	Percentage Removal	0	

Project: Chicklade Services 12718	Date: 29/11/0025			
	Designed by: CJB	Checked by: SW	Approved By: SW	
Report Details: Type: Stormwater Controls Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey			



Perm North 3

Type : Porous Paving

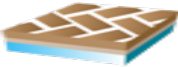
Dimensions		
Exceedance Level (m)		143.700
Depth (m)		0.365
Base Level (m)		143.335
Paving Layer Depth (mm)		115
Membrane Percolation (m/hr)		50.0
Porosity (%)		30
Length (m)		19.176
Long. Slope (1:X)		125.00
Width (m)		5.343
Total Volume (m³)		7.685

Advanced		
Base Infiltration Rate (m/hr)		0.135
Safety Factor		10.0
Conductivity (m/hr)		100.0

Pollutant Removals					
Name	Background Concentration (mg/L)	Method	Percentage Removal (%)	Δ (mins)	
TSS	0.0	Percentage Removal	70		
Heavy Metals	0.0	Percentage Removal	60		
Hydrocarbons	0.0	Percentage Removal	70		
BOD	0.0	Percentage Removal	0		
Nitrogen	0.0	Percentage Removal	0		

Project: Chicklade Services 12718	Date: 29/11/0025		
	Designed by: CJB	Checked by: SW	Approved By: SW
Report Details: Type: Stormwater Controls Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey		





Perm South 1

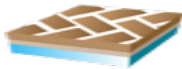
Type : Porous Paving

Dimensions		
Exceedance Level (m)		143.600
Depth (m)		0.315
Base Level (m)		143.285
Paving Layer Depth (mm)		115
Membrane Percolation (m/hr)		50.0
Porosity (%)		30
Length (m)		15.193
Long. Slope (1:X)		125.00
Width (m)		8.209
Total Volume (m³)		7.484

Advanced		
Base Infiltration Rate (m/hr)		0.135
Safety Factor		10.0
Conductivity (m/hr)		100.0

Pollutant Removals					
Name	Background Concentration (mg/L)	Method	Percentage Removal (%)	Δ (mins)	
TSS	0.0	Percentage Removal	70		
Heavy Metals	0.0	Percentage Removal	60		
Hydrocarbons	0.0	Percentage Removal	70		
BOD	0.0	Percentage Removal	0		
Nitrogen	0.0	Percentage Removal	0		

Project: Chicklade Services 12718	Date: 29/11/0025			
	Designed by: CJB	Checked by: SW	Approved By: SW	
Report Details: Type: Stormwater Controls Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey			



Perm South 2

Type : Porous Paving

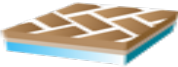
Dimensions		
Exceedance Level (m)		143.600
Depth (m)		0.315
Base Level (m)		143.285
Paving Layer Depth (mm)		115
Membrane Percolation (m/hr)		50.0
Porosity (%)		30
Length (m)		16.289
Long. Slope (1:X)		125.00
Width (m)		5.358
Total Volume (m³)		5.236

Advanced		
Base Infiltration Rate (m/hr)		0.135
Safety Factor		10.0
Conductivity (m/hr)		100.0

Pollutant Removals					
Name	Background Concentration (mg/L)	Method	Percentage Removal (%)	Δ (mins)	
TSS	0.0	Percentage Removal	70		
Heavy Metals	0.0	Percentage Removal	60		
Hydrocarbons	0.0	Percentage Removal	70		
BOD	0.0	Percentage Removal	0		
Nitrogen	0.0	Percentage Removal	0		

Project: Chicklade Services 12718	Date: 29/11/0025		
	Designed by: CJB	Checked by: SW	Approved By: SW
Report Details: Type: Stormwater Controls Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey		





Bay Path 3

Type : Porous Paving

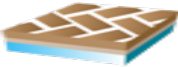
Dimensions		
Exceedance Level (m)		143.415
Depth (m)		0.315
Base Level (m)		143.100
Paving Layer Depth (mm)		115
Membrane Percolation (m/hr)		50.0
Porosity (%)		30
Length (m)		11.232
Long. Slope (1:X)		500.00
Width (m)		1.683
Total Volume (m³)		1.134

Advanced		
Base Infiltration Rate (m/hr)		0.135
Safety Factor		5.0
Conductivity (m/hr)		100.0

Pollutant Removals					
Name	Background Concentration (mg/L)	Method	Percentage Removal (%)	Δ (mins)	
TSS	0.0	Percentage Removal	70		
Heavy Metals	0.0	Percentage Removal	60		
Hydrocarbons	0.0	Percentage Removal	70		
BOD	0.0	Percentage Removal	0		
Nitrogen	0.0	Percentage Removal	0		

Project: Chicklade Services 12718	Date: 29/11/0025		
	Designed by: CJB	Checked by: SW	Approved By: SW
Report Details: Type: Stormwater Controls Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey		





Bay Path 2

Type : Porous Paving

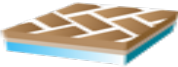
Dimensions		
Exceedance Level (m)		143.415
Depth (m)		0.315
Base Level (m)		143.100
Paving Layer Depth (mm)		115
Membrane Percolation (m/hr)		50.0
Porosity (%)		30
Length (m)		11.233
Long. Slope (1:X)		500.00
Width (m)		1.684
Total Volume (m³)		1.135

Advanced		
Base Infiltration Rate (m/hr)		0.135
Safety Factor		5.0
Conductivity (m/hr)		100.0

Pollutant Removals					
Name	Background Concentration (mg/L)	Method	Percentage Removal (%)	Δ (mins)	
TSS	0.0	Percentage Removal	70		
Heavy Metals	0.0	Percentage Removal	60		
Hydrocarbons	0.0	Percentage Removal	70		
BOD	0.0	Percentage Removal	0		
Nitrogen	0.0	Percentage Removal	0		

Project: Chicklade Services 12718	Date: 29/11/0025		
	Designed by: CJB	Checked by: SW	Approved By: SW
Report Details: Type: Stormwater Controls Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey		





Bay Path 1

Type : Porous Paving

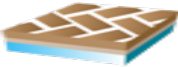
Dimensions		
Exceedance Level (m)		143.415
Depth (m)		0.315
Base Level (m)		143.100
Paving Layer Depth (mm)		115
Membrane Percolation (m/hr)		50.0
Porosity (%)		30
Length (m)		11.231
Long. Slope (1:X)		500.00
Width (m)		1.681
Total Volume (m³)		1.133

Advanced		
Base Infiltration Rate (m/hr)		0.135
Safety Factor		5.0
Conductivity (m/hr)		100.0

Pollutant Removals					
Name	Background Concentration (mg/L)	Method	Percentage Removal (%)	Δ (mins)	
TSS	0.0	Percentage Removal	70		
Heavy Metals	0.0	Percentage Removal	60		
Hydrocarbons	0.0	Percentage Removal	70		
BOD	0.0	Percentage Removal	0		
Nitrogen	0.0	Percentage Removal	0		

Project: Chicklade Services 12718	Date: 29/11/0025		
	Designed by: CJB	Checked by: SW	Approved By: SW
Report Details: Type: Stormwater Controls Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey		





Perm Bays 1

Type : Porous Paving

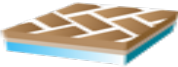
Dimensions		
Exceedance Level (m)		143.500
Depth (m)		0.480
Base Level (m)		143.020
Paving Layer Depth (mm)		130
Membrane Percolation (m/hr)		50.0
Porosity (%)		30
Length (m)		13.108
Long. Slope (1:X)		500.00
Width (m)		4.627
Total Volume (m³)		6.368

Advanced		
Base Infiltration Rate (m/hr)		0.135
Safety Factor		5.0
Conductivity (m/hr)		100.0

Pollutant Removals					
Name	Background Concentration (mg/L)	Method	Percentage Removal (%)	Δ (mins)	
TSS	0.0	Percentage Removal	70		
Heavy Metals	0.0	Percentage Removal	60		
Hydrocarbons	0.0	Percentage Removal	70		
BOD	0.0	Percentage Removal	0		
Nitrogen	0.0	Percentage Removal	0		

Project: Chicklade Services 12718	Date: 29/11/0025		
	Designed by: CJB	Checked by: SW	Approved By: SW
Report Details: Type: Stormwater Controls Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey		





Perm Bays 2

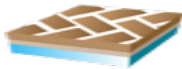
Type : Porous Paving

Dimensions		
Exceedance Level (m)		143.500
Depth (m)		0.480
Base Level (m)		143.020
Paving Layer Depth (mm)		130
Membrane Percolation (m/hr)		50.0
Porosity (%)		30
Length (m)		15.497
Long. Slope (1:X)		500.00
Width (m)		4.733
Total Volume (m³)		7.702

Advanced		
Base Infiltration Rate (m/hr)		0.135
Safety Factor		5.0
Conductivity (m/hr)		100.0

Pollutant Removals					
Name	Background Concentration (mg/L)	Method	Percentage Removal (%)	Δ (mins)	
TSS	0.0	Percentage Removal	70		
Heavy Metals	0.0	Percentage Removal	60		
Hydrocarbons	0.0	Percentage Removal	70		
BOD	0.0	Percentage Removal	0		
Nitrogen	0.0	Percentage Removal	0		

Project: Chicklade Services 12718	Date: 29/11/0025			
	Designed by: CJB	Checked by: SW	Approved By: SW	
Report Details: Type: Stormwater Controls Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey			



Perm Bays 3

Type : Porous Paving

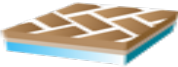
Dimensions		
Exceedance Level (m)		143.500
Depth (m)		0.480
Base Level (m)		143.020
Paving Layer Depth (mm)		130
Membrane Percolation (m/hr)		50.0
Porosity (%)		30
Length (m)		15.499
Long. Slope (1:X)		500.00
Width (m)		4.736
Total Volume (m³)		7.708

Advanced		
Base Infiltration Rate (m/hr)		0.135
Safety Factor		5.0
Conductivity (m/hr)		100.0

Pollutant Removals					
Name		Background Concentration (mg/L)	Method	Percentage Removal (%)	Δ (mins)
TSS		0.0	Percentage Removal	70	
Heavy Metals		0.0	Percentage Removal	60	
Hydrocarbons		0.0	Percentage Removal	70	
BOD		0.0	Percentage Removal	0	
Nitrogen		0.0	Percentage Removal	0	

Project: Chicklade Services 12718	Date: 29/11/0025		
	Designed by: CJB	Checked by: SW	Approved By: SW
Report Details: Type: Stormwater Controls Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey		





Perm Bays 4

Type : Porous Paving

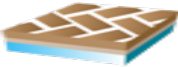
Dimensions		
Exceedance Level (m)		143.500
Depth (m)		0.480
Base Level (m)		143.020
Paving Layer Depth (mm)		130
Membrane Percolation (m/hr)		50.0
Porosity (%)		30
Length (m)		15.499
Long. Slope (1:X)		500.00
Width (m)		4.736
Total Volume (m³)		7.708

Advanced		
Base Infiltration Rate (m/hr)		0.135
Safety Factor		5.0
Conductivity (m/hr)		100.0

Pollutant Removals					
Name	Background Concentration (mg/L)	Method	Percentage Removal (%)	Δ (mins)	
TSS	0.0	Percentage Removal	70		
Heavy Metals	0.0	Percentage Removal	60		
Hydrocarbons	0.0	Percentage Removal	70		
BOD	0.0	Percentage Removal	0		
Nitrogen	0.0	Percentage Removal	0		

Project: Chicklade Services 12718	Date: 29/11/0025		
	Designed by: CJB	Checked by: SW	Approved By: SW
Report Details: Type: Stormwater Controls Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey		





Perm Bays 5

Type : Porous Paving

Dimensions

Exceedance Level (m)	143.500
Depth (m)	0.480
Base Level (m)	143.020
Paving Layer Depth (mm)	130
Membrane Percolation (m/hr)	50.0
Porosity (%)	30
Length (m)	15.499
Long. Slope (1:X)	500.00
Width (m)	4.736
Total Volume (m³)	7.708

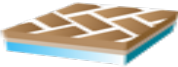
Advanced

Base Infiltration Rate (m/hr)	0.135
Safety Factor	5.0
Conductivity (m/hr)	100.0

Pollutant Removals

Name	Background Concentration (mg/L)	Method	Percentage Removal (%)	Δ (mins)
TSS	0.0	Percentage Removal	70	
Heavy Metals	0.0	Percentage Removal	60	
Hydrocarbons	0.0	Percentage Removal	70	
BOD	0.0	Percentage Removal	0	
Nitrogen	0.0	Percentage Removal	0	

Project: Chicklade Services 12718	Date: 29/11/0025			
	Designed by: CJB	Checked by: SW	Approved By: SW	
Report Details: Type: Stormwater Controls Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey			



Perm Bays 6

Type : Porous Paving

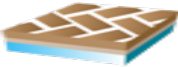
Dimensions		
Exceedance Level (m)		143.365
Depth (m)		0.580
Base Level (m)		142.785
Paving Layer Depth (mm)		130
Membrane Percolation (m/hr)		50.0
Porosity (%)		30
Length (m)		16.780
Long. Slope (1:X)		125.00
Width (m)		4.775
Total Volume (m³)		10.818

Advanced		
Base Infiltration Rate (m/hr)		0.135
Safety Factor		5.0
Conductivity (m/hr)		100.0

Pollutant Removals					
Name		Background Concentration (mg/L)	Method	Percentage Removal (%)	Δ (mins)
TSS		0.0	Percentage Removal	70	
Heavy Metals		0.0	Percentage Removal	60	
Hydrocarbons		0.0	Percentage Removal	70	
BOD		0.0	Percentage Removal	0	
Nitrogen		0.0	Percentage Removal	0	

Project: Chicklade Services 12718	Date: 29/11/0025		
	Designed by: CJB	Checked by: SW	Approved By: SW
Report Details: Type: Stormwater Controls Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey		





Perm Bays 7

Type : Porous Paving

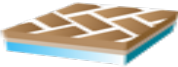
Dimensions		
Exceedance Level (m)		143.365
Depth (m)		0.580
Base Level (m)		142.785
Paving Layer Depth (mm)		130
Membrane Percolation (m/hr)		50.0
Porosity (%)		30
Length (m)		16.780
Long. Slope (1:X)		125.00
Width (m)		4.774
Total Volume (m³)		10.814

Advanced		
Base Infiltration Rate (m/hr)		0.135
Safety Factor		5.0
Conductivity (m/hr)		100.0

Pollutant Removals					
Name	Background Concentration (mg/L)	Method	Percentage Removal (%)	Δ (mins)	
TSS	0.0	Percentage Removal	70		
Heavy Metals	0.0	Percentage Removal	60		
Hydrocarbons	0.0	Percentage Removal	70		
BOD	0.0	Percentage Removal	0		
Nitrogen	0.0	Percentage Removal	0		

Project: Chicklade Services 12718	Date: 29/11/0025		
	Designed by: CJB	Checked by: SW	Approved By: SW
Report Details: Type: Stormwater Controls Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey		





Perm Bays 8

Type : Porous Paving

Dimensions

Exceedance Level (m)	143.365
Depth (m)	0.580
Base Level (m)	142.785
Paving Layer Depth (mm)	130
Membrane Percolation (m/hr)	50.0
Porosity (%)	30
Length (m)	16.780
Long. Slope (1:X)	125.00
Width (m)	4.776
Total Volume (m³)	10.820

Advanced

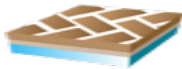
Base Infiltration Rate (m/hr)	0.135
Safety Factor	5.0
Conductivity (m/hr)	100.0

Pollutant Removals

Name	Background Concentration (mg/L)	Method	Percentage Removal (%)	Δ (mins)
TSS	0.0	Percentage Removal	70	
Heavy Metals	0.0	Percentage Removal	60	
Hydrocarbons	0.0	Percentage Removal	70	
BOD	0.0	Percentage Removal	0	
Nitrogen	0.0	Percentage Removal	0	

Project: Chicklade Services 12718	Date: 29/11/0025		
	Designed by: CJB	Checked by: SW	Approved By: SW
Report Details: Type: Stormwater Controls Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey		





Perm Bays 9

Type : Porous Paving

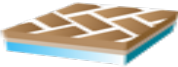
Dimensions		
Exceedance Level (m)		143.365
Depth (m)		0.580
Base Level (m)		142.785
Paving Layer Depth (mm)		130
Membrane Percolation (m/hr)		50.0
Porosity (%)		30
Length (m)		16.780
Long. Slope (1:X)		125.00
Width (m)		4.771
Total Volume (m³)		10.807

Advanced		
Base Infiltration Rate (m/hr)		0.135
Safety Factor		5.0
Conductivity (m/hr)		100.0

Pollutant Removals					
Name	Background Concentration (mg/L)	Method	Percentage Removal (%)	Δ (mins)	
TSS	0.0	Percentage Removal	70		
Heavy Metals	0.0	Percentage Removal	60		
Hydrocarbons	0.0	Percentage Removal	70		
BOD	0.0	Percentage Removal	0		
Nitrogen	0.0	Percentage Removal	0		

Project: Chicklade Services 12718	Date: 29/11/0025		
	Designed by: CJB	Checked by: SW	Approved By: SW
Report Details: Type: Stormwater Controls Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey		





Perm Bays 10

Type : Porous Paving

Dimensions

Exceedance Level (m)	143.365
Depth (m)	0.580
Base Level (m)	142.785
Paving Layer Depth (mm)	130
Membrane Percolation (m/hr)	50.0
Porosity (%)	30
Length (m)	17.776
Long. Slope (1:X)	125.00
Width (m)	5.730
Total Volume (m³)	13.750

Advanced

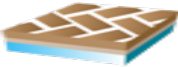
Base Infiltration Rate (m/hr)	0.135
Safety Factor	5.0
Conductivity (m/hr)	100.0

Pollutant Removals

Name	Background Concentration (mg/L)	Method	Percentage Removal (%)	Δ (mins)
TSS	0.0	Percentage Removal	70	
Heavy Metals	0.0	Percentage Removal	60	
Hydrocarbons	0.0	Percentage Removal	70	
BOD	0.0	Percentage Removal	0	
Nitrogen	0.0	Percentage Removal	0	

Project: Chicklade Services 12718	Date: 29/11/0025		
	Designed by: CJB	Checked by: SW	Approved By: SW
Report Details: Type: Stormwater Controls Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey		





Perm Bays 11

Type : Porous Paving

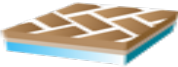
Dimensions		
Exceedance Level (m)		143.365
Depth (m)		0.580
Base Level (m)		142.785
Paving Layer Depth (mm)		130
Membrane Percolation (m/hr)		50.0
Porosity (%)		30
Length (m)		17.779
Long. Slope (1:X)		125.00
Width (m)		5.732
Total Volume (m³)		13.757

Advanced		
Base Infiltration Rate (m/hr)		0.135
Safety Factor		5.0
Conductivity (m/hr)		100.0

Pollutant Removals					
Name	Background Concentration (mg/L)	Method	Percentage Removal (%)	Δ (mins)	
TSS	0.0	Percentage Removal	70		
Heavy Metals	0.0	Percentage Removal	60		
Hydrocarbons	0.0	Percentage Removal	70		
BOD	0.0	Percentage Removal	0		
Nitrogen	0.0	Percentage Removal	0		

Project: Chicklade Services 12718	Date: 29/11/0025		
	Designed by: CJB	Checked by: SW	Approved By: SW
Report Details: Type: Stormwater Controls Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey		





Perm Bays 12

Type : Porous Paving

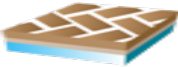
Dimensions		
Exceedance Level (m)		143.365
Depth (m)		0.580
Base Level (m)		142.785
Paving Layer Depth (mm)		130
Membrane Percolation (m/hr)		50.0
Porosity (%)		30
Length (m)		17.771
Long. Slope (1:X)		125.00
Width (m)		5.732
Total Volume (m³)		13.752

Advanced		
Base Infiltration Rate (m/hr)		0.135
Safety Factor		5.0
Conductivity (m/hr)		100.0

Pollutant Removals					
Name	Background Concentration (mg/L)	Method	Percentage Removal (%)	Δ (mins)	
TSS	0.0	Percentage Removal	70		
Heavy Metals	0.0	Percentage Removal	60		
Hydrocarbons	0.0	Percentage Removal	70		
BOD	0.0	Percentage Removal	0		
Nitrogen	0.0	Percentage Removal	0		

Project: Chicklade Services 12718	Date: 29/11/0025		
	Designed by: CJB	Checked by: SW	Approved By: SW
Report Details: Type: Stormwater Controls Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey		





Perm Bays 13

Type : Porous Paving

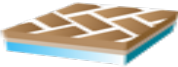
Dimensions		
Exceedance Level (m)		143.365
Depth (m)		0.580
Base Level (m)		142.785
Paving Layer Depth (mm)		130
Membrane Percolation (m/hr)		50.0
Porosity (%)		30
Length (m)		17.752
Long. Slope (1:X)		125.00
Width (m)		5.731
Total Volume (m³)		13.734

Advanced		
Base Infiltration Rate (m/hr)		0.135
Safety Factor		5.0
Conductivity (m/hr)		100.0

Pollutant Removals					
Name	Background Concentration (mg/L)	Method	Percentage Removal (%)	Δ (mins)	
TSS	0.0	Percentage Removal	70		
Heavy Metals	0.0	Percentage Removal	60		
Hydrocarbons	0.0	Percentage Removal	70		
BOD	0.0	Percentage Removal	0		
Nitrogen	0.0	Percentage Removal	0		

Project: Chicklade Services 12718	Date: 29/11/0025		
	Designed by: CJB	Checked by: SW	Approved By: SW
Report Details: Type: Stormwater Controls Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey		





Plant area Gravel

Type : Porous Paving

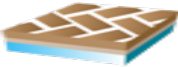
Dimensions		
Exceedance Level (m)		143.500
Depth (m)		0.275
Base Level (m)		143.225
Paving Layer Depth (mm)		75
Membrane Percolation (m/hr)		50.0
Porosity (%)		30
Length (m)		25.152
Long. Slope (1:X)		230.00
Width (m)		11.485
Total Volume (m³)		17.332

Advanced		
Base Infiltration Rate (m/hr)		0.135
Safety Factor		10.0
Conductivity (m/hr)		100.0

Pollutant Removals					
Name	Background Concentration (mg/L)	Method	Percentage Removal (%)	Δ (mins)	
TSS	0.0	Percentage Removal	70		
Heavy Metals	0.0	Percentage Removal	60		
Hydrocarbons	0.0	Percentage Removal	70		
BOD	0.0	Percentage Removal	0		
Nitrogen	0.0	Percentage Removal	0		

Project: Chicklade Services 12718	Date: 29/11/0025		
	Designed by: CJB	Checked by: SW	Approved By: SW
Report Details: Type: Stormwater Controls Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey		





South Path

Type : Porous Paving

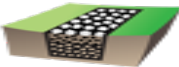
Dimensions		
Exceedance Level (m)		143.600
Depth (m)		0.315
Base Level (m)		143.285
Paving Layer Depth (mm)		115
Membrane Percolation (m/hr)		50.0
Porosity (%)		30
Length (m)		51.782
Long. Slope (1:X)		125.00
Width (m)		2.060
Total Volume (m³)		6.399

Advanced		
Base Infiltration Rate (m/hr)		0.0972
Safety Factor		10.0
Conductivity (m/hr)		50.0

Pollutant Removals					
Name	Background Concentration (mg/L)	Method	Percentage Removal (%)	Δ (mins)	
TSS	0.0	Percentage Removal	70		
Heavy Metals	0.0	Percentage Removal	60		
Hydrocarbons	0.0	Percentage Removal	70		
BOD	0.0	Percentage Removal	0		
Nitrogen	0.0	Percentage Removal	0		

Project: Chicklade Services 12718	Date: 29/11/0025		
	Designed by: CJB	Checked by: SW	Approved By: SW
Report Details: Type: Stormwater Controls Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey		





Rear Filter Drain

Type : Infiltration Trench

Dimensions

Exceedance Level (m)	143.300
Depth (m)	0.750
Base Level (m)	142.550
Freeboard (mm)	0
Porosity (%)	30
Length (m)	54.158
Long. Slope (1:X)	500.00
Width (m)	1.200
Total Volume (m³)	15.293

Under Drain

Height Above Base (m)	0.075
Diameter (mm)	150
No. of Barrels	1
Release Height (m)	0.000
Friction Scheme	Manning's n
n	0.015

Advanced

Base Infiltration Rate (m/hr)	0.135
Side Infiltration Rate (m/hr)	0.135
Safety Factor	10.0
Conductivity (m/hr)	100.0

Pollutant Removals

Name	Background Concentration (mg/L)	Method	Percentage Removal (%)	Δ (mins)
TSS	0.0	Percentage Removal	40	
Heavy Metals	0.0	Percentage Removal	40	
Hydrocarbons	0.0	Percentage Removal	40	
BOD	0.0	Percentage Removal	0	
Nitrogen	0.0	Percentage Removal	0	

Project:
Chicklade Services
12718

Report Details:
Type: Stormwater Controls
Storm Phase: New Surface Water T9

Date:
29/11/0025

Designed by:
CJB

Company Address:
AWA Consulting Engineers
The Old Brewery House
Portersbridge Street, Romsey

Checked by:
SW

Approved By:
SW





Swale 1

Type : Swale

Swale		
Exceedance Level (m)		142.750
Depth (m)		1.000
Base Level (m)		141.750
Top Width (m)		6.000
Side Slope (I:X)		1.50
Base Width (m)		3.000
Freeboard (mm)		0
Length (m)		25.000
Long. Slope (I:X)		100.00
Filtration Rate (m/hr)		0.135
Friction Scheme	Manning's n	
n		0.025
Total Volume (m³)		118.125

Trench		
Trench Depth (m)		0.250
Trench Porosity (%)		30

Advanced		
Safety Factor		10.0

Swale		
Side Infiltration Rate (m/hr)		0.135
Porosity (%)		100

Trench		
Base Infiltration Rate (m/hr)		0.135
Side Infiltration Rate (m/hr)		0.135
Trench Conductivity (m/hr)		150.0

Pollutant Removals						
Name	Aspect	Background Concentration (mg/L)	Method	Percentage Removal (%)		Δ (mins)
TSS	Swale Pollution Removals	0.0	Percentage Removal	60		
Heavy Metals	Swale Pollution Removals	0.0	Percentage Removal	10		
Hydrocarbons	Swale Pollution Removals	0.0	Percentage Removal	15		
BOD	Swale Pollution Removals	0.0	Percentage Removal	0		
Nitrogen	Swale Pollution Removals	0.0	Percentage Removal	0		
TSS	Trench Pollution Removals	0.0	Percentage Removal	70		
Heavy Metals	Trench Pollution Removals	0.0	Percentage Removal	60		
Hydrocarbons	Trench Pollution Removals	0.0	Percentage Removal	2		
BOD	Trench Pollution Removals	0.0	Percentage Removal	0		
Nitrogen	Trench Pollution Removals	0.0	Percentage Removal	0		

Project: Chicklade Services 12718	Date: 29/11/0025			
	Designed by: CJB	Checked by: SW	Approved By: SW	
Report Details: Type: Stormwater Controls Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey			



Swale 2

Type : Swale

Swale

Exceedance Level (m)	142.500
Depth (m)	1.000
Base Level (m)	141.500
Top Width (m)	6.000
Side Slope (1:X)	1.50
Base Width (m)	3.000
Freeboard (mm)	0
Length (m)	25.000
Long. Slope (1:X)	100.00
Filtration Rate (m/hr)	0.258
Friction Scheme	Manning's n
n	0.025
Total Volume (m³)	118.125

Trench

Trench Depth (m)	0.250
Trench Porosity (%)	30

Advanced

Safety Factor	10.0
---------------	------

Swale

Side Infiltration Rate (m/hr)	0.258
Porosity (%)	100

Trench

Base Infiltration Rate (m/hr)	0.258
Side Infiltration Rate (m/hr)	0.258
Trench Conductivity (m/hr)	150.0

Pollutant Removals

Name	Aspect	Background Concentration (mg/L)	Method	Percentage Removal (%)	Δ (mins)
TSS	Swale Pollution Removals	0.0	Percentage Removal	60	
Heavy Metals	Swale Pollution Removals	0.0	Percentage Removal	10	
Hydrocarbons	Swale Pollution Removals	0.0	Percentage Removal	15	
BOD	Swale Pollution Removals	0.0	Percentage Removal	0	
Nitrogen	Swale Pollution Removals	0.0	Percentage Removal	0	
TSS	Trench Pollution Removals	0.0	Percentage Removal	70	
Heavy Metals	Trench Pollution Removals	0.0	Percentage Removal	60	
Hydrocarbons	Trench Pollution Removals	0.0	Percentage Removal	2	
BOD	Trench Pollution Removals	0.0	Percentage Removal	0	
Nitrogen	Trench Pollution Removals	0.0	Percentage Removal	0	

Project: Chicklade Services 12718	Date: 29/11/0025			
	Designed by: CJB	Checked by: SW	Approved By: SW	
Report Details: Type: Stormwater Controls Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey			



Swale 3

Type : Swale

Swale		
Exceedance Level (m)		142.250
Depth (m)		1.000
Base Level (m)		141.250
Top Width (m)		6.000
Side Slope (I:X)		1.50
Base Width (m)		3.000
Freeboard (mm)		0
Length (m)		25.000
Long. Slope (I:X)		100.00
Filtration Rate (m/hr)		0.156
Friction Scheme	Manning's n	
n		0.025
Total Volume (m³)		118.125

Trench		
Trench Depth (m)		0.250
Trench Porosity (%)		30

Advanced		
Safety Factor		10.0

Swale		
Side Infiltration Rate (m/hr)		0.156
Porosity (%)		100

Trench		
Base Infiltration Rate (m/hr)		0.156
Side Infiltration Rate (m/hr)		0.156
Trench Conductivity (m/hr)		150.0

Pollutant Removals						
Name	Aspect	Background Concentration (mg/L)	Method	Percentage Removal (%)		Δ (mins)
TSS	Swale Pollution Removals	0.0	Percentage Removal	60		
Heavy Metals	Swale Pollution Removals	0.0	Percentage Removal	10		
Hydrocarbons	Swale Pollution Removals	0.0	Percentage Removal	15		
BOD	Swale Pollution Removals	0.0	Percentage Removal	0		
Nitrogen	Swale Pollution Removals	0.0	Percentage Removal	0		
TSS	Trench Pollution Removals	0.0	Percentage Removal	70		
Heavy Metals	Trench Pollution Removals	0.0	Percentage Removal	60		
Hydrocarbons	Trench Pollution Removals	0.0	Percentage Removal	2		
BOD	Trench Pollution Removals	0.0	Percentage Removal	0		
Nitrogen	Trench Pollution Removals	0.0	Percentage Removal	0		

Project: Chicklade Services 12718	Date: 29/11/0025		
	Designed by: CJB	Checked by: SW	Approved By: SW
Report Details: Type: Stormwater Controls Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey		





SPEL ESR Public

Type : Chamber

Dimensions

Exceedance Level (m)	144.000
Depth (m)	1.240
Base Level (m)	142.125
Number of Chambers	1
Number of Rows	1
Distance Between Rows (mm)	0
Total Volume (m³)	3.413

Chamber Shape

Type	Circular Chamber
Chamber Length (m)	2.920
Wall Thickness (mm)	10
Diameter / Base Width (mm)	1220

Pollutant Removals

Name	Background Concentration (mg/L)	Method	Percentage Removal (%)	Δ (mins)
TSS	0.0	Percentage Removal	80	
Heavy Metals	0.0	Percentage Removal	60	
Hydrocarbons	0.0	Percentage Removal	90	
BOD	0.0	Percentage Removal	0	
Nitrogen	0.0	Percentage Removal	0	

Project: Chicklade Services 12718	Date: 29/11/0025			
	Designed by: CJB	Checked by: SW	Approved By: SW	
Report Details: Type: Stormwater Controls Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey			



SPEL ESR Staff

Type : Chamber

Dimensions

Exceedance Level (m)	143.450
Depth (m)	1.240
Base Level (m)	142.200
Number of Chambers	1
Number of Rows	1
Distance Between Rows (mm)	0
Total Volume (m³)	3.413

Chamber Shape

Type	Circular Chamber
Chamber Length (m)	2.920
Wall Thickness (mm)	10
Diameter / Base Width (mm)	1220

Pollutant Removals

Name	Background Concentration (mg/L)	Method	Percentage Removal (%)	Δ (mins)
TSS	0.0	Percentage Removal	80	
Heavy Metals	0.0	Percentage Removal	60	
Hydrocarbons	0.0	Percentage Removal	90	
BOD	0.0	Percentage Removal	0	
Nitrogen	0.0	Percentage Removal	0	

Project: Chicklade Services 12718	Date: 29/11/0025			
	Designed by: CJB	Checked by: SW	Approved By: SW	
Report Details: Type: Stormwater Controls Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey			



Soakaway SA1

Type : Cellular Storage

Dimensions

Exceedance Level (m)	142.505
Depth (m)	1.200
Base Level (m)	141.300
Number of Crates Long	6
Number of Crates Wide	12
Number of Crates High	3
Porosity (%)	95
Crate Length (m)	1
Crate Width (m)	0.5
Crate Height (m)	0.4
Total Volume (m³)	41.045

Advanced

Base Infiltration Rate (m/hr)	0.135
Side Infiltration Rate (m/hr)	0.135
Safety Factor	5.0

Pollutant Removals

Name	Background Concentration (mg/L)	Method	Percentage Removal (%)	Δ (mins)
TSS	0.0	Percentage Removal	0	
Heavy Metals	0.0	Percentage Removal	0	
Hydrocarbons	0.0	Percentage Removal	0	
BOD	0.0	Percentage Removal	0	
Nitrogen	0.0	Percentage Removal	0	

Project: Chicklade Services 12718	Date: 29/11/0025		
	Designed by: CJB	Checked by: SW	Approved By: SW
Report Details: Type: Stormwater Controls Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey		





Soakaway SA2

Type : Cellular Storage

Dimensions

Exceedance Level (m)	143.102
Depth (m)	1.200
Base Level (m)	141.900
Number of Crates Long	4
Number of Crates Wide	4
Number of Crates High	3
Porosity (%)	95
Crate Length (m)	1
Crate Width (m)	0.5
Crate Height (m)	0.4
Total Volume (m³)	9.122

Advanced

Base Infiltration Rate (m/hr)	0.135
Side Infiltration Rate (m/hr)	0.135
Safety Factor	5.0

Pollutant Removals

Name	Background Concentration (mg/L)	Method	Percentage Removal (%)	Δ (mins)
TSS	0.0	Percentage Removal	0	
Heavy Metals	0.0	Percentage Removal	0	
Hydrocarbons	0.0	Percentage Removal	0	
BOD	0.0	Percentage Removal	0	
Nitrogen	0.0	Percentage Removal	0	

Project: Chicklade Services 12718	Date: 29/11/0025			
	Designed by: CJB	Checked by: SW	Approved By: SW	
Report Details: Type: Stormwater Controls Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey			



Soakaway SA3

Type : Cellular Storage

Dimensions

Exceedance Level (m)	143.060
Depth (m)	1.200
Base Level (m)	141.850
Number of Crates Long	14
Number of Crates Wide	10
Number of Crates High	3
Porosity (%)	95
Crate Length (m)	1
Crate Width (m)	0.5
Crate Height (m)	0.4
Total Volume (m³)	79.810

Advanced

Base Infiltration Rate (m/hr)	0.135
Side Infiltration Rate (m/hr)	0.135
Safety Factor	5.0

Pollutant Removals

Name	Background Concentration (mg/L)	Method	Percentage Removal (%)	Δ (mins)
TSS	0.0	Percentage Removal	0	
Heavy Metals	0.0	Percentage Removal	0	
Hydrocarbons	0.0	Percentage Removal	0	
BOD	0.0	Percentage Removal	0	
Nitrogen	0.0	Percentage Removal	0	

Project: Chicklade Services 12718	Date: 29/11/0025		
	Designed by: CJB	Checked by: SW	Approved By: SW
Report Details: Type: Inflow Summary Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey		



Inflow Label	Connected To	Flow (L/s)	Runoff Method	Area (m²)	Percentage Impervious (%)	Urban Creep (%)	Adjusted Percentage Impervious (%)	Area Analysed (m²)
Aisle & Perm Bay 6	Perm Bays 6		Time of Concentration	172.518	100	0	100	172.518
Aisle & Perm Bay 7	Perm Bays 7		Time of Concentration	181.748	100	0	100	181.748
Aisle & Perm Bay 8	Perm Bays 8		Time of Concentration	181.936	100	0	100	181.936
Aisle & Perm Bay 9	Perm Bays 9		Time of Concentration	181.935	100	0	100	181.935
Aisle & Perm Bay 10	Perm Bays 10		Time of Concentration	206.646	100	0	100	206.646
Aisle & Perm Bay 11	Perm Bays 11		Time of Concentration	217.810	100	0	100	217.810
Aisle & Perm Bay 12	Perm Bays 12		Time of Concentration	217.561	100	0	100	217.561
Aisle & Perm Bay 13	Perm Bays 13		Time of Concentration	217.561	100	0	100	217.561
Bay path 1	Bay Path 1		Time of Concentration	18.922	100	0	100	18.922
Bay path 2	Bay Path 2		Time of Concentration	18.922	100	0	100	18.922
Bay path 3	Bay Path 3		Time of Concentration	18.967	100	0	100	18.967
Entrance Junction 1	RG5		Time of Concentration	60.865	100	0	100	60.865
Entrance Junction 2	RG4		Time of Concentration	224.951	100	0	100	224.951
Entrance Road 2	RG3		Time of Concentration	104.579	100	0	100	104.579
Parking Exit Curve	RG6		Time of Concentration	220.409	100	0	100	220.409
Parking turning curve	RG7		Time of Concentration	161.159	100	0	100	161.159
Patio North 1	Perm North 1		Time of Concentration	55.508	100	0	100	55.508
Patio North 2	Perm North 2		Time of Concentration	55.739	100	0	100	55.739
Patio North 3	Perm North 3		Time of Concentration	97.576	100	0	100	97.576
Patio South 1	Perm South 1		Time of Concentration	123.842	100	0	100	123.842
Patio South 2	Perm South 2		Time of Concentration	87.267	100	0	100	87.267
Perm Bays 1	Perm Bays 1		Time of Concentration	60.678	100	0	100	60.678
Perm Bays 2	Perm Bays 2		Time of Concentration	73.408	100	0	100	73.408
Perm Bays 3	Perm Bays 3		Time of Concentration	73.408	100	0	100	73.408
Perm Bays 4	Perm Bays 4		Time of Concentration	73.408	100	0	100	73.408
Perm Bays 5	Perm Bays 5		Time of Concentration	73.408	100	0	100	73.408
Plant & Equipment	Plant area Gravel		Time of Concentration	288.870	100	10	110	317.757
Rf High 1	S4		Time of Concentration	182.721	100	10	110	200.993
Rf High 2	S5		Time of Concentration	303.332	100	10	110	333.665
Rf High 3	S6		Time of Concentration	215.158	100	10	110	236.673
Rf High 4	S7		Time of Concentration	114.806	100	10	110	126.286
Rf High 5	S8		Time of Concentration	310.299	100	10	110	341.329
Rf low 1	RWP1		Time of Concentration	35.828	100	10	110	39.411
Rf low 2	S3		Time of Concentration	112.175	100	10	110	123.393
Rf Low 3	S4		Time of Concentration	118.885	100	10	110	130.774
Service yard 1	Rear Filter Drain		Time of Concentration	123.266	100	0	100	123.266
Service yard 2	Rear Filter Drain		Time of Concentration	88.103	100	0	100	88.103
South Elev Path	South Path		Time of Concentration	106.635	100	0	100	106.635
Staff Access 1	M100.1		Time of Concentration	68.401	100	0	100	68.401
Staff Access 2	RG1		Time of Concentration	48.036	100	0	100	48.036
Staff Parking 1	M100.3		Time of Concentration	87.728	100	0	100	87.728
Staff Parking 2	M100.3		Time of Concentration	43.950	100	0	100	43.950
Staff Parking 3	Rear Filter Drain		Time of Concentration	94.773	100	0	100	94.773
Turning Area 1	M100.4		Time of Concentration	45.322	100	0	100	45.322
Turning Area 2	RG2		Time of Concentration	33.952	100	0	100	33.952
Turning Area 3	M100.5		Time of Concentration	62.858	100	0	100	62.858
Turning Area 4	RG2		Time of Concentration	52.203	100	0	100	52.203
Turning Area 5	M100.4		Time of Concentration	62.916	100	0	100	62.916
TOTAL		0.0		5780.943				5949.150

Project: Chicklade Services 12718	Date: 29/11/0025			
	Designed by: CJB	Checked by: SW	Approved By: SW	
Report Details: Type: Network Design Criteria Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey			

Flow Options

Peak Flow Calculation	(UK) Modified Rational Method
Min. Time of Entry (mins)	15
Max. Travel Time (mins)	30

FEH2022

Type: FEH

Site Location	GB 390479 134457 ST 90479 34457
Return Period (years)	100.0
Rainfall Version	2022

Lock Slope Options	None
Design Options	Minimise Excavation
Design Level	Level Inverts
Min. Cover Depth (m)	0.700
Min. Slope (1:X)	500.00
Max. Slope (1:X)	40.00
Use Flow Restriction	☐
Reduce Channel Depths	☐

Project: Chicklade Services 12718	Date: 29/11/0025		
	Designed by: CJB	Checked by: SW	Approved By: SW
Report Details: Type: Inflow Summary Foul Phase: Foul	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey		



Inflow Label	Connected To	Flow (L/s)	Runoff Method	Area (m²)	Percentage Impervious (%)	Urban Creep (%)	Adjusted Percentage Impervious (%)	Area Analysed (m²)
Kitchen	F9		Foul	44.721				0.00
Toilet	F3		Foul	49.110				0.00
WCs	F6		Foul	70.456				0.00
TOTAL		0.0		164.287				0.00

Project: Chicklade Services 12718	Date: 29/11/0025			
	Designed by: CJB	Checked by: SW	Approved By: SW	
Report Title: Rainfall Analysis Criteria	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey			

Runoff Type	Dynamic
Output Interval (mins)	5
Time Step	Default
Urban Creep	Use Catchment Values
Junction Flood Risk Margin (mm)	300
Prefill Manhole Sumps	☒
Perform No Discharge Analysis	☐

Rainfall

FEH2022	Type: FEH
---------	-----------

Site Location	GB 390479 134457 ST 90479 34457
Rainfall Version	2022
Summer	☒
Winter	☒

Return Period

Return Period (years)	Increase Rainfall (%)
2.0	0.000
30.0	0.000
100.0	45.000

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
2880	5760

Project: Chicklade Services 12718	Date: 29/11/0025		
	Designed by: CJB	Checked by: SW	Approved By: SW
Report Title: Dry Weather Flow Analysis Criteria	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey		



Run Time (mins)	0
Output Interval (mins)	5
Time Step	Default
Junction Flood Risk Margin (mm)	300
Prefill Manhole Sumps	☐

Project: Chicklade Services 12718	Date: 29/11/0025		
	Designed by: CJB	Checked by: SW	Approved By: SW
Report Title: Pollutants	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey		



	Name
1	TSS
2	Heavy Metals
3	Hydrocarbons
4	BOD
5	Nitrogen

Project: Chicklade Services 12718	Date: 29/11/0025		
	Designed by: CJB	Checked by: SW	Approved By: SW
Report Details: Type: Inflows Summary Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey		





Critical Storm Per Item: Rank By: Max. Inflow

Inflow	Storm Event	Inflow Area (m²)	Max. Inflow (L/s)	Total Inflow Volume (m³)	Total Pollutant Load (kg): TSS	Total Pollutant Load (kg): Heavy Metals	Total Pollutant Load (kg): Hydrocarbons	Total Pollutant Load (kg): BOD	Total Pollutant Load (kg): Nitrogen
Plant & Equipment	FEH2022: 100 years: +45 %: 15 mins: Summer	288.87	23.7	10.279	0.6	0.0	0.1	0.0	0.0
Staff Parking 3	FEH2022: 100 years: +45 %: 15 mins: Summer	94.77	7.1	3.064	0.2	0.0	0.0	0.0	0.0
Staff Access 1	FEH2022: 100 years: +45 %: 15 mins: Summer	68.40	5.1	2.210	0.1	0.0	0.0	0.0	0.0
Rf low 1	FEH2022: 100 years: +45 %: 15 mins: Summer	35.83	2.9	1.271	0.0	0.0	0.0	0.0	0.0
Rf High 1	FEH2022: 100 years: +45 %: 15 mins: Summer	182.72	15.0	6.501	0.1	0.0	0.0	0.0	0.0
Entrance Junction 1	FEH2022: 100 years: +45 %: 15 mins: Summer	60.86	4.5	1.970	0.1	0.0	0.0	0.0	0.0
Staff Parking 2	FEH2022: 100 years: +45 %: 15 mins: Summer	43.95	3.3	1.421	0.0	0.0	0.0	0.0	0.0
Entrance Road 2	FEH2022: 100 years: +45 %: 15 mins: Summer	104.58	7.8	3.379	0.2	0.0	0.0	0.0	0.0
Parking Exit Curve	FEH2022: 100 years: +45 %: 15 mins: Summer	220.41	16.4	7.127	0.4	0.0	0.1	0.0	0.0
Perm Bays 2	FEH2022: 100 years: +45 %: 15 mins: Summer	73.41	5.5	2.375	0.1	0.0	0.0	0.0	0.0
Aisle & Perm Bay 7	FEH2022: 100 years: +45 %: 15 mins: Summer	181.75	13.6	5.877	0.4	0.0	0.1	0.0	0.0
Aisle & Perm Bay 10	FEH2022: 100 years: +45 %: 15 mins: Summer	206.65	15.4	6.686	0.4	0.0	0.1	0.0	0.0
Aisle & Perm Bay 11	FEH2022: 100 years: +45 %: 15 mins: Summer	217.81	16.2	7.043	0.4	0.0	0.1	0.0	0.0
Aisle & Perm Bay 13	FEH2022: 100 years: +45 %: 15 mins: Summer	217.56	16.2	7.040	0.4	0.0	0.1	0.0	0.0
Aisle & Perm Bay 12	FEH2022: 100 years: +45 %: 15 mins: Summer	217.56	16.2	7.040	0.4	0.0	0.1	0.0	0.0
Aisle & Perm Bay 9	FEH2022: 100 years: +45 %: 15 mins: Summer	181.93	13.6	5.886	0.4	0.0	0.1	0.0	0.0
Aisle & Perm Bay 8	FEH2022: 100 years: +45 %: 15 mins: Summer	181.94	13.6	5.886	0.4	0.0	0.1	0.0	0.0
Parking turning curve	FEH2022: 100 years: +45 %: 15 mins: Summer	161.16	12.0	5.211	0.3	0.0	0.1	0.0	0.0
Rf High 5	FEH2022: 100 years: +45 %: 15 mins: Summer	310.30	25.5	11.040	0.1	0.1	0.0	0.0	0.0
Rf High 4	FEH2022: 100 years: +45 %: 15 mins: Summer	114.81	9.4	4.084	0.0	0.0	0.0	0.0	0.0
Rf High 3	FEH2022: 100 years: +45 %: 15 mins: Summer	215.16	17.7	7.652	0.1	0.0	0.0	0.0	0.0
Rf High 2	FEH2022: 100 years: +45 %: 15 mins: Summer	303.33	24.9	10.791	0.1	0.1	0.0	0.0	0.0
Rf Low 3	FEH2022: 100 years: +45 %: 15 mins: Summer	118.89	9.8	4.231	0.0	0.0	0.0	0.0	0.0
Patio South 1	FEH2022: 100 years: +45 %: 15 mins: Summer	123.84	9.2	4.003	0.1	0.0	0.0	0.0	0.0
Patio North 1	FEH2022: 100 years: +45 %: 15 mins: Summer	55.51	4.1	1.796	0.1	0.0	0.0	0.0	0.0
Perm Bays 1	FEH2022: 100 years: +45 %: 15 mins: Winter	60.68	3.6	1.646	0.0	0.0	0.0	0.0	0.0
Turning Area 1	FEH2022: 100 years: +45 %: 15 mins: Summer	45.32	3.4	1.466	0.1	0.0	0.0	0.0	0.0
Staff Parking 1	FEH2022: 100 years: +45 %: 15 mins: Summer	87.73	6.5	2.833	0.2	0.0	0.0	0.0	0.0

Project: Chicklade Services 12718					Date: 29/11/0025				
					Designed by: CJB		Checked by: SW		Approved By: SW
Report Details: Type: Inflows Summary Storm Phase: New Surface Water T9					Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey				



Service yard 1	FEH2022: 100 years: +45 %: 15 mins: Summer	123.27	9.2	3.985	0.2	0.0	0.0	0.0	0.0
Service yard 2	FEH2022: 100 years: +45 %: 15 mins: Summer	88.10	6.6	2.848	0.2	0.0	0.0	0.0	0.0
Patio North 2	FEH2022: 100 years: +45 %: 15 mins: Summer	55.74	4.2	1.799	0.1	0.0	0.0	0.0	0.0
Patio North 3	FEH2022: 100 years: +45 %: 15 mins: Summer	97.58	7.3	3.157	0.1	0.0	0.0	0.0	0.0
Aisle & Perm Bay 6	FEH2022: 100 years: +45 %: 15 mins: Summer	172.52	12.9	5.580	0.3	0.0	0.1	0.0	0.0
Patio South 2	FEH2022: 100 years: +45 %: 15 mins: Summer	87.27	6.5	2.824	0.1	0.0	0.0	0.0	0.0
Perm Bays 3	FEH2022: 100 years: +45 %: 15 mins: Winter	73.41	4.3	1.991	0.0	0.0	0.0	0.0	0.0
Perm Bays 4	FEH2022: 100 years: +45 %: 15 mins: Winter	73.41	4.3	1.991	0.0	0.0	0.0	0.0	0.0
Perm Bays 5	FEH2022: 100 years: +45 %: 15 mins: Winter	73.41	4.3	1.991	0.0	0.0	0.0	0.0	0.0
Bay path 1	FEH2022: 100 years: +45 %: 15 mins: Winter	18.92	1.1	0.513	0.0	0.0	0.0	0.0	0.0
Bay path 2	FEH2022: 100 years: +45 %: 15 mins: Winter	18.92	1.1	0.513	0.0	0.0	0.0	0.0	0.0
Bay path 3	FEH2022: 100 years: +45 %: 15 mins: Winter	18.97	1.1	0.516	0.0	0.0	0.0	0.0	0.0
South Elev Path	FEH2022: 100 years: +45 %: 15 mins: Winter	106.63	6.3	2.896	0.0	0.0	0.0	0.0	0.0
Staff Access 2	FEH2022: 100 years: +45 %: 15 mins: Winter	48.04	2.8	1.304	0.0	0.0	0.0	0.0	0.0
Turning Area 5	FEH2022: 100 years: +45 %: 15 mins: Winter	62.92	3.7	1.712	0.0	0.0	0.0	0.0	0.0
Turning Area 2	FEH2022: 100 years: +45 %: 15 mins: Winter	33.95	2.0	0.923	0.0	0.0	0.0	0.0	0.0
Turning Area 4	FEH2022: 100 years: +45 %: 15 mins: Winter	52.20	3.1	1.418	0.0	0.0	0.0	0.0	0.0
Turning Area 3	FEH2022: 100 years: +45 %: 15 mins: Winter	62.86	3.7	1.709	0.0	0.0	0.0	0.0	0.0
Entrance Junction 2	FEH2022: 100 years: +45 %: 15 mins: Summer	224.95	16.8	7.277	0.4	0.0	0.1	0.0	0.0
Rf low 2	FEH2022: 100 years: +45 %: 15 mins: Summer	112.18	9.2	3.994	0.0	0.0	0.0	0.0	0.0

Project: Chicklade Services 12718	Date: 29/11/0025		
	Designed by: CJB	Checked by: SW	Approved By: SW
Report Details: Type: Junctions Summary Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey		





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
S4	FEH2022: 100 years: +45 %: 15 mins: Summer	143.570	142.910	143.275	0.365	29.8	0.103	0.000	27.5	15.983	Flood Risk
S5	FEH2022: 100 years: +45 %: 15 mins: Summer	143.600	142.833	143.208	0.375	52.4	0.238	0.000	50.2	26.766	Surcharged
S8	FEH2022: 100 years: +45 %: 15 mins: Summer	143.600	142.717	143.064	0.347	98.9	0.301	0.000	95.9	49.491	Surcharged
S9	FEH2022: 100 years: +45 %: 240 mins: Summer	143.801	142.035	143.016	0.981	32.6	1.109	0.000	31.5	126.624	Surcharged
S14	FEH2022: 100 years: +45 %: 600 mins: Summer	143.250	142.125	142.515	0.390	19.2	0.689	0.000	18.9	146.788	Surcharged
S6	FEH2022: 100 years: +45 %: 15 mins: Summer	143.621	142.776	143.165	0.389	67.9	0.337	0.000	65.9	34.403	Surcharged
S7	FEH2022: 100 years: +45 %: 15 mins: Summer	143.620	142.744	143.116	0.372	75.4	0.322	0.000	73.5	38.475	Surcharged
RWP1	FEH2022: 100 years: +45 %: 15 mins: Summer		143.170	143.270	0.100	2.9			0.8	1.269	OK
S2	FEH2022: 100 years: +45 %: 15 mins: Summer	143.640	143.140	143.270	0.130	2.5	0.021	0.000	1.0	1.363	Surcharged
S3	FEH2022: 100 years: +45 %: 15 mins: Summer	143.600	143.032	143.282	0.250	9.2	0.040	0.000	5.1	5.354	Surcharged
RG6	FEH2022: 100 years: +45 %: 15 mins: Summer	143.280	142.065	142.799	0.734	16.4	0.117	0.000	15.7	7.125	Surcharged
M100.2	FEH2022: 100 years: +45 %: 15 mins: Summer	143.460	142.850	142.886	0.036	4.9	0.002	0.000	4.9	2.206	OK
M100.3	FEH2022: 100 years: +45 %: 15 mins: Summer	143.330	143.065	143.240	0.175	9.8	0.013	0.000	9.4	4.241	Flood Risk
M100.1	FEH2022: 100 years: +45 %: 15 mins: Summer	143.620	143.360	143.444	0.084	5.1	0.004	0.000	4.9	2.207	Flood Risk
M100.4	FEH2022: 100 years: +45 %: 15 mins: Summer	143.330	143.065	143.207	0.142	6.9	0.011	0.000	6.7	2.979	Flood Risk
M100.5	FEH2022: 100 years: +45 %: 15 mins: Winter	143.330	143.065	143.156	0.091	3.7	0.007	0.000	3.6	1.699	Flood Risk
RG1	FEH2022: 100 years: +45 %: 15 mins: Summer	143.330	142.115	142.762	0.647	12.1	0.103	0.000	11.9	5.404	OK
RG2	FEH2022: 100 years: +45 %: 15 mins: Winter	143.330	142.115	142.761	0.646	15.3	0.103	0.000	15.1	7.205	OK
S1	FEH2022: 100 years: +45 %: 15 mins: Summer	143.350	142.400	142.492	0.092	31.5	0.104	0.000	31.0	14.182	OK
S10	FEH2022: 100 years: +45 %: 15 mins: Summer	143.475	142.530	142.725	0.195	42.8	0.221	0.000	41.5	19.734	OK
S11	FEH2022: 100 years: +45 %: 15 mins: Summer	143.412	142.487	142.666	0.179	41.5	0.203	0.000	38.6	19.741	OK
RG7	FEH2022: 100 years: +45 %: 15 mins: Summer	143.280	142.065	142.721	0.656	12.0	0.104	0.000	11.8	5.209	OK
RG4	FEH2022: 100 years: +45 %: 15 mins: Summer	143.350	142.135	142.824	0.689	16.8	0.110	0.000	15.1	7.275	OK
RG3	FEH2022: 100 years: +45 %: 15 mins: Summer	143.490	142.275	142.896	0.621	7.8	0.099	0.000	7.7	3.377	OK
S13	FEH2022: 100 years: +45 %: 600 mins: Summer	143.926	142.217	142.515	0.298	9.0	0.337	0.000	9.0	82.551	OK
S12	FEH2022: 100 years: +45 %: 600 mins: Summer	143.404	142.342	142.516	0.174	7.1	0.196	0.000	7.1	65.380	OK
RG5	FEH2022: 100 years: +45 %: 15 mins: Summer	143.275	142.060	142.732	0.672	4.5	0.107	0.000	4.3	1.968	OK

Project: Chicklade Services 12718	Date: 29/11/0025		
	Designed by: CJB	Checked by: SW	Approved By: SW
Report Details: Type: Junctions Summary Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey		



HGL (m)	Freeboard (m)
143.275	0.295
143.208	0.392
143.064	0.536
143.016	0.786
142.515	0.735
143.165	0.455
143.116	0.503
143.270	0.350
143.270	0.370
143.282	0.318
142.799	0.481
142.886	0.574
143.240	0.090
143.444	0.176
143.207	0.123
143.156	0.174
142.762	0.568
142.761	0.569
142.492	0.858
142.725	0.750
142.666	0.746
142.721	0.559
142.824	0.526
142.896	0.594
142.515	1.411
142.516	0.888
142.732	0.543

Project: Chicklade Services 12718	Date: 29/11/0025		
	Designed by: CJB	Checked by: SW	Approved By: SW
Report Details: Type: Stormwater Controls Summary Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey		





Critical Storm Per Item: Rank By: Max. Resident Volume

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. Velocity (m/s)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Half Drain Down Time (mins)
Swale 1	FEH2022: 100 years: +45 %: 600 mins: Summer	142.514	142.514	0.764	1.014	18.9	63.627	0.000	24.334	0.1	8.7	121.714	155
Swale 2	FEH2022: 100 years: +45 %: 960 mins: Summer	141.903	141.903	0.403	0.653	8.0	24.102	0.000	65.793	0.1	1.9	69.171	
Swale 3	FEH2022: 100 years: +45 %: 1440 mins: Summer	141.837	141.837	0.587	0.837	2.7	42.977	0.000	58.929	0.1	0.0	4.757	
SPEL ESR Public	FEH2022: 100 years: +45 %: 600 mins: Summer	142.515	142.515	0.390	0.390	9.0	0.882	0.000	0.000		8.9	82.627	
Perm North 1	FEH2022: 100 years: +45 %: 60 mins: Winter	143.549	143.479	0.122	0.144	2.0	2.367	0.000	1.573		0.0	0.000	10
Perm North 2	FEH2022: 100 years: +45 %: 60 mins: Winter	143.550	143.479	0.122	0.144	2.0	2.369	0.000	1.580		0.0	0.000	10
Perm North 3	FEH2022: 100 years: +45 %: 60 mins: Winter	143.617	143.479	0.129	0.144	3.6	4.186	0.000	2.713		0.0	0.000	15
Perm South 1	FEH2022: 100 years: +45 %: 60 mins: Winter	143.541	143.439	0.134	0.154	4.6	5.375	0.000	3.306		0.0	0.000	
Perm South 2	FEH2022: 100 years: +45 %: 120 mins: Winter	143.547	143.447	0.132	0.162	2.1	3.794	0.000	4.607		0.0	0.000	60
Bay Path 3	FEH2022: 100 years: +45 %: 60 mins: Winter	143.204	143.184	0.081	0.084	0.6	0.467	0.000	0.912		0.0	0.000	
Bay Path 2	FEH2022: 100 years: +45 %: 60 mins: Winter	143.202	143.183	0.080	0.083	0.6	0.461	0.000	0.906		0.0	0.000	
Bay Path 1	FEH2022: 100 years: +45 %: 60 mins: Winter	143.203	143.183	0.080	0.083	0.6	0.462	0.000	0.906		0.0	0.000	
Perm Bays 1	FEH2022: 100 years: +45 %: 60 mins: Winter	143.127	143.103	0.081	0.083	1.9	1.491	0.000	2.916		0.0	0.000	
Perm Bays 2	FEH2022: 100 years: +45 %: 60 mins: Summer	143.157	143.129	0.106	0.109	3.4	2.369	0.000	3.803		0.0	0.000	
Perm Bays 3	FEH2022: 100 years: +45 %: 60 mins: Winter	143.132	143.103	0.081	0.083	2.3	1.803	0.000	3.528		0.0	0.000	
Perm Bays 4	FEH2022: 100 years: +45 %: 60 mins: Winter	143.132	143.103	0.081	0.083	2.3	1.803	0.000	3.528		0.0	0.000	
Perm Bays 5	FEH2022: 100 years: +45 %: 60 mins: Winter	143.132	143.103	0.081	0.083	2.3	1.803	0.000	3.528		0.0	0.000	
Perm Bays 6	FEH2022: 100 years: +45 %: 120 mins: Winter	143.215	143.140	0.295	0.355	4.1	7.779	0.000	8.470		0.0	0.000	70
Perm Bays 7	FEH2022: 100 years: +45 %: 120 mins: Winter	143.238	143.168	0.318	0.383	4.3	8.402	0.000	8.475		0.0	0.000	85
Perm Bays 8	FEH2022: 100 years: +45 %: 120 mins: Winter	143.238	143.168	0.319	0.383	4.3	8.406	0.000	8.478		0.0	0.000	85
Perm Bays 9	FEH2022: 100 years: +45 %: 120 mins: Winter	143.238	143.169	0.319	0.384	4.3	8.410	0.000	8.470		0.0	0.000	85
Perm Bays 10	FEH2022: 100 years: +45 %: 120 mins: Winter	143.199	143.109	0.272	0.324	4.9	9.038	0.000	10.753		0.0	0.000	50
Perm Bays 11	FEH2022: 100 years: +45 %: 120 mins: Winter	143.220	143.135	0.293	0.350	5.1	9.773	0.000	10.770		0.0	0.000	65
Perm Bays 12	FEH2022: 100 years: +45 %: 120 mins: Winter	143.220	143.135	0.293	0.350	5.1	9.763	0.000	10.766		0.0	0.000	65
Perm Bays 13	FEH2022: 100 years: +45 %: 120 mins: Winter	143.220	143.136	0.293	0.351	5.1	9.769	0.000	10.752		0.0	0.000	65
Plant area Gravel	FEH2022: 100 years: +45 %: 120 mins: Winter	143.493	143.401	0.159	0.176	7.5	14.481	0.000	15.274		0.0	0.000	90
Soakaway SA1	FEH2022: 100 years: +45 %: 720 mins: Winter	142.369	142.369	1.069	1.069	3.1	36.549	0.000	33.477		0.0	0.001	675
South Path	FEH2022: 100 years: +45 %: 120 mins: Winter	143.826	143.420	0.127	0.135	2.1	4.190	0.000	4.064		0.0	0.000	60

Project: Chicklade Services 12718	Date: 29/11/0025		
	Designed by: CJB	Checked by: SW	Approved By: SW
Report Details: Type: Stormwater Controls Summary Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey		



Percentage Available (%)	Status
46.136	OK
79.596	OK
63.617	OK
74.167	OK
46.897	OK
47.101	OK
45.528	OK
28.170	OK
27.550	OK
58.781	OK
59.366	OK
59.227	OK
76.591	OK
69.238	OK
76.610	OK
76.610	OK
76.610	OK
28.092	OK
22.309	OK
22.310	OK
22.180	OK
34.271	OK
28.958	OK
29.007	OK
28.866	OK
16.449	OK
10.953	OK
34.529	OK

Project: Chicklade Services 12718						Date: 29/11/0025							
						Designed by: CJB			Checked by: SW				
Report Details: Type: Stormwater Controls Summary Storm Phase: New Surface Water T9						Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey							

Rear Filter Drain	FEH2022: 100 years: +45 %: 960 mins: Summer	143.129	143.126	0.471	0.576	2.5	10.194	0.000	41.393		1.8	28.398	175
Soakaway SA2	FEH2022: 100 years: +45 %: 960 mins: Summer	143.126	143.126	1.226	1.226	1.8	9.305	0.180	14.146		0.0	1.941	
SPEL ESR Staff	FEH2022: 100 years: +45 %: 720 mins: Winter	142.369	142.369	0.169	0.169	3.1	0.237	0.000	0.000		3.1	52.076	
Soakaway SA3	FEH2022: 100 years: +45 %: 240 mins: Summer	143.013	143.013	1.163	1.163	31.5	77.358	0.000	21.799		14.9	42.726	

Project: Chicklade Services 12718	Date: 29/11/0025		
	Designed by: CJB	Checked by: SW	Approved By: SW
	Report Details: Type: Stormwater Controls Summary Storm Phase: New Surface Water T9		
		Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey	



33.341	OK
-2.007	Flood
93.062	OK
3.072	OK

Project: Chicklade Services 12718	Date: 29/11/0025		
	Designed by: CJB	Checked by: SW	Approved By: SW
Report Details: Type: Connections Summary Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey		





Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	From	To	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
S2.003	FEH2022: 100 years: +45 %: 15 mins: Summer	S4	S5	0.225	15.983	0.7	0.84	27.5	Flood Risk
S2.004	FEH2022: 100 years: +45 %: 15 mins: Summer	S5	S6	0.300	26.766	0.7	0.72	50.2	Surcharged
S2.007	FEH2022: 100 years: +45 %: 15 mins: Summer	S8	S9	0.294	49.491	1.4	1.22	95.9	Surcharged
S2.008	FEH2022: 100 years: +45 %: 15 mins: Summer	S9	Soakaway SA3	0.272	49.390	1.4	1.04	94.5	Surcharged
S2.005	FEH2022: 100 years: +45 %: 15 mins: Summer	S6	S7	0.300	34.403	0.9	0.94	65.9	Surcharged
S2.006	FEH2022: 100 years: +45 %: 15 mins: Summer	S7	S8	0.300	38.475	1.0	1	73.5	Surcharged
S2.000	FEH2022: 100 years: +45 %: 30 mins: Summer	RWP1	S2	0.038	1.732	0.7	0.28	2.0	OK
S2.001	FEH2022: 100 years: +45 %: 30 mins: Summer	S2	S3	0.082	1.731	0.5	0.3	2.0	OK
S2.002	FEH2022: 100 years: +45 %: 30 mins: Summer	S3	S4	0.150	7.163	0.5	0.41	8.2	OK
S1.002	FEH2022: 100 years: +45 %: 15 mins: Summer	S1	SPEL ESR Staff	0.083	14.182	2.0	0.13	31.0	OK
S8.001	FEH2022: 2 years: +0 %: 15 mins: Summer	Rear Filter Drain	Soakaway SA2	0.000	0.000	0.0	0	0.0	OK
S3.001	FEH2022: 100 years: +45 %: 15 mins: Summer	S10	S11	0.187	19.734	0.9	0.65	41.5	OK
S1.001	FEH2022: 100 years: +45 %: 15 mins: Summer	RG1	S1	0.075	5.404	1.4	0.42	11.9	OK
S5.006	FEH2022: 100 years: +45 %: 15 mins: Winter	RG2	S1	0.086	7.205	1.4	0.5	15.1	OK
S4.000	FEH2022: 100 years: +45 %: 15 mins: Winter	RG4	S10	0.146	7.274	0.9	0.73	15.3	OK
S3.000	FEH2022: 100 years: +45 %: 15 mins: Summer	RG3	S10	0.126	3.377	0.5	0.31	7.7	OK
S5.000	FEH2022: 100 years: +45 %: 15 mins: Summer	RG6	S10	0.150	7.125	0.9	0.74	15.7	Surcharged
Aco2.002	FEH2022: 100 years: +45 %: 15 mins: Winter	M100.5	RG2	0.079	1.699	0.6	0.15	3.6	Flood Risk
Aco2.001	FEH2022: 100 years: +45 %: 15 mins: Summer	M100.4	RG2	0.118	2.979	0.6	0.28	6.7	Flood Risk
Aco1.000	FEH2022: 100 years: +45 %: 15 mins: Summer	M100.1	M100.2	0.081	2.207	1.0	0.17	4.9	Flood Risk
Aco2.000	FEH2022: 100 years: +45 %: 15 mins: Summer	M100.3	RG1	0.144	4.241	0.7	0.39	9.4	Flood Risk
S1.000	FEH2022: 100 years: +45 %: 15 mins: Summer	M100.2	S1	0.064	2.206	0.7	0.13	4.9	OK
S1.003	FEH2022: 100 years: +45 %: 15 mins: Summer	SPEL ESR Staff	Soakaway SA1	0.092	14.160	1.7	0.16	30.6	OK
S2.009	FEH2022: 100 years: +45 %: 240 mins: Summer	Soakaway SA3	S14	0.109	42.726	1.1	0.84	14.9	OK
S7.000	FEH2022: 100 years: +45 %: 15 mins: Summer	RG7	S13	0.087	5.209	1.1	0.59	11.8	OK
Weir 1	FEH2022: 100 years: +45 %: 600 mins: Summer	Swale 1	Swale 2	0.040	14.034	0.0		5.9	
Weir 2	FEH2022: 2 years: +0 %: 15 mins: Summer	Swale 2	Swale 3	0.000	0.000	0.0		0.0	
S3.004	FEH2022: 100 years: +45 %: 15 mins: Summer	S13	SPEL ESR Public	0.176	24.805	1.0	0.63	41.8	OK
S3.005	FEH2022: 100 years: +45 %: 30 mins: Winter	SPEL ESR Public	S14	0.127	33.907	1.4	0.58	38.6	OK
S3.006	FEH2022: 100 years: +45 %: 15 mins: Summer	S14	Swale 1	0.091	24.810	3.3	0.19	40.4	OK
S3.002	FEH2022: 100 years: +45 %: 15 mins: Summer	S11	S12	0.171	19.741	0.9	0.6	38.6	OK
S3.003	FEH2022: 100 years: +45 %: 15 mins: Summer	S12	S13	0.179	19.643	0.8	0.53	33.7	OK
Orifice 1	FEH2022: 100 years: +45 %: 720 mins: Winter	Swale 1	Swale 2	0.100	118.981	1.5	0.78	4.6	Surcharged
Orifice 2	FEH2022: 100 years: +45 %: 720 mins: Summer	Swale 2	Swale 3	0.100	66.536	1.4	0.49	2.9	Surcharged
S6.000	FEH2022: 100 years: +45 %: 15 mins: Summer	RG5	S10	0.150	1.968	0.2	0.21	4.3	OK
S8.000	FEH2022: 100 years: +45 %: 30 mins: Summer	Rear Filter Drain	Soakaway SA2	0.150	7.591	1.2	0.53	12.1	Surcharged

Project: Chicklade Services 12718	Date: 29/11/0025			
	Designed by: CJB	Checked by: SW	Approved By: SW	
Report Details: Type: Stormwater Control Results Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey			



Swale 1
Critical Storm: FEH2022: 100 years: Increase Rainfall (%): +45: 600 mins: Summer

Type : Swale

Pollution

Total Event Load

Pollutant Name	Total Continuation (kg)	Total Bypass (kg)	Total Output (kg)	Reduction (%)
TSS	26.9	0.0	6.6	76
Heavy Metals	6.2	0.0	2.9	54
Hydrocarbons	1.3	0.0	0.8	41
BOD	0.0	0.0	0.0	0
Nitrogen	0.0	0.0	0.0	0

Pollution Concentration

Pollutant Name	Input			Output			Reduction		
	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (%)	Min. (%)	Max. (%)
TSS	10.5	1.5	12.0	4.4	2.4	4.8	58	0	60
Heavy Metals	1.3	0.1	3.9	2.0	0.2	2.9	0	0	25
Hydrocarbons	0.7	0.1	1.0	0.5	0.3	0.9	29	0	15
BOD	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Nitrogen	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0

Project: Chicklade Services 12718	Date: 29/11/0025		
	Designed by: CJB	Checked by: SW	Approved By: SW
Report Details: Type: Stormwater Control Results Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey		





Swale 2
Critical Storm: FEH2022: 100 years: Increase Rainfall (%): +45: 960 mins: Summer

Type : Swale

Pollution

Total Event Load

Pollutant Name	Total Continuation (kg)	Total Bypass (kg)	Total Output (kg)	Reduction (%)
TSS	6.6	0.0	1.2	82
Heavy Metals	3.0	0.0	1.1	63
Hydrocarbons	0.8	0.0	0.3	61
BOD	0.0	0.0	0.0	0
Nitrogen	0.0	0.0	0.0	0

Pollution Concentration

Pollutant Name	Input			Output			Reduction		
	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (%)	Min. (%)	Max. (%)
TSS	3.5	0.7	4.8	1.8	1.7	1.9	49	0	60
Heavy Metals	1.9	0.2	3.0	1.9	0.3	2.6	1	0	12
Hydrocarbons	0.5	0.3	0.9	0.4	0.3	0.7	11	0	15
BOD	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Nitrogen	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0

Project: Chicklade Services 12718	Date: 29/11/0025			
	Designed by: CJB	Checked by: SW	Approved By: SW	
Report Details: Type: Stormwater Control Results Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey			



Swale 3
Critical Storm: FEH2022: 100 years: Increase Rainfall (%): +45: 1440 mins: Summer

Type : Swale

Pollution

Total Event Load

Pollutant Name	Total Continuation (kg)	Total Bypass (kg)	Total Output (kg)	Reduction (%)
TSS	1.6	0.0	0.0	99
Heavy Metals	1.7	0.0	0.1	96
Hydrocarbons	0.4	0.0	0.0	98
BOD	0.0	0.0	0.0	0
Nitrogen	0.0	0.0	0.0	0

Pollution Concentration

Pollutant Name	Input			Output			Reduction		
	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (%)	Min. (%)	Max. (%)
TSS	1.8	1.7	1.9	0.7	0.7	0.7	61	59	63
Heavy Metals	1.9	0.3	2.6	2.0	1.9	2.0	0	0	22
Hydrocarbons	0.4	0.3	0.7	0.3	0.3	0.3	29	0	56
BOD	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Nitrogen	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0

Project:
Chicklade Services
12718

Report Details:
Type: Stormwater Control Results
Storm Phase: New Surface Water T9

Date:
29/11/0025

Designed by:
CJB

Company Address:
AWA Consulting Engineers
The Old Brewery House
Portersbridge Street, Romsey

Checked by:
SW

Approved By:
SW





SPEL ESR Public
Critical Storm: FEH2022: 100 years: Increase Rainfall (%): +45: 600 mins: Summer

Type : Chamber

Pollution

Total Event Load

Pollutant Name	Total Continuation (kg)	Total Bypass (kg)	Total Output (kg)	Reduction (%)
TSS	78.6	0.0	15.6	80
Heavy Metals	1.3	0.0	0.5	60
Hydrocarbons	13.1	0.0	1.3	90
BOD	0.0	0.0	0.0	0
Nitrogen	0.0	0.0	0.0	0

Pollution Concentration

Pollutant Name	Input			Output			Reduction		
	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (%)	Min. (%)	Max. (%)
TSS	55.8	7.6	60.0	11.1	3.9	12.0	80	48	80
Heavy Metals	0.9	0.1	1.0	0.4	0.1	0.4	60	0	60
Hydrocarbons	9.3	1.3	10.0	0.9	0.3	1.0	90	74	90
BOD	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Nitrogen	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0

Project: Chicklade Services 12718	Date: 29/11/0025		
	Designed by: CJB	Checked by: SW	Approved By: SW
Report Details: Type: Stormwater Control Results Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey		





Perm North 1

Critical Storm: FEH2022: 100 years: Increase Rainfall (%): +45: 60 mins: Winter

Type : Porous Paving

Pollution

Total Event Load

Pollutant Name	Total Continuation (kg)	Total Bypass (kg)	Total Output (kg)	Reduction (%)
TSS	0.2	0.0	0.0	100
Heavy Metals	0.0	0.0	0.0	100
Hydrocarbons	0.0	0.0	0.0	100
BOD	0.0	0.0	0.0	0
Nitrogen	0.0	0.0	0.0	0

Pollution Concentration

Pollutant Name	Input			Output			Reduction		
	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (%)	Min. (%)	Max. (%)
TSS	34.9	33.1	35.0	0.0	0.0	0.0	0	0	0
Heavy Metals	0.5	0.5	0.5	0.0	0.0	0.0	0	0	0
Hydrocarbons	0.1	0.0	0.1	0.0	0.0	0.0	0	0	0
BOD	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Nitrogen	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0

Project: Chicklade Services 12718	Date: 29/11/0025			
	Designed by: CJB	Checked by: SW	Approved By: SW	
Report Details: Type: Stormwater Control Results Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey			



Perm North 2

Critical Storm: FEH2022: 100 years: Increase Rainfall (%): +45: 60 mins: Winter

Type : Porous Paving

Pollution

Total Event Load

Pollutant Name	Total Continuation (kg)	Total Bypass (kg)	Total Output (kg)	Reduction (%)
TSS	0.2	0.0	0.0	100
Heavy Metals	0.0	0.0	0.0	100
Hydrocarbons	0.0	0.0	0.0	100
BOD	0.0	0.0	0.0	0
Nitrogen	0.0	0.0	0.0	0

Pollution Concentration

Pollutant Name	Input			Output			Reduction		
	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (%)	Min. (%)	Max. (%)
TSS	34.9	33.1	35.0	0.0	0.0	0.0	0	0	0
Heavy Metals	0.5	0.5	0.5	0.0	0.0	0.0	0	0	0
Hydrocarbons	0.1	0.0	0.1	0.0	0.0	0.0	0	0	0
BOD	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Nitrogen	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0

Project: Chicklade Services 12718	Date: 29/11/0025			
	Designed by: CJB	Checked by: SW	Approved By: SW	
Report Details: Type: Stormwater Control Results Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey			



Perm North 3

Critical Storm: FEH2022: 100 years: Increase Rainfall (%): +45: 60 mins: Winter

Type : Porous Paving

Pollution

Total Event Load

Pollutant Name	Total Continuation (kg)	Total Bypass (kg)	Total Output (kg)	Reduction (%)
TSS	0.3	0.0	0.0	100
Heavy Metals	0.0	0.0	0.0	100
Hydrocarbons	0.0	0.0	0.0	100
BOD	0.0	0.0	0.0	0
Nitrogen	0.0	0.0	0.0	0

Pollution Concentration

Pollutant Name	Input			Output			Reduction		
	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (%)	Min. (%)	Max. (%)
TSS	34.9	33.1	35.0	0.0	0.0	0.0	0	0	0
Heavy Metals	0.5	0.5	0.5	0.0	0.0	0.0	0	0	0
Hydrocarbons	0.1	0.0	0.1	0.0	0.0	0.0	0	0	0
BOD	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Nitrogen	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0

Project: Chicklade Services 12718	Date: 29/11/0025			
	Designed by: CJB	Checked by: SW	Approved By: SW	
Report Details: Type: Stormwater Control Results Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey			



Perm South 1

Critical Storm: FEH2022: 100 years: Increase Rainfall (%): +45: 60 mins: Winter

Type : Porous Paving

Pollution

Total Event Load

Pollutant Name	Total Continuation (kg)	Total Bypass (kg)	Total Output (kg)	Reduction (%)
TSS	0.4	0.0	0.0	100
Heavy Metals	0.0	0.0	0.0	100
Hydrocarbons	0.0	0.0	0.0	100
BOD	0.0	0.0	0.0	0
Nitrogen	0.0	0.0	0.0	0

Pollution Concentration

Pollutant Name	Input			Output			Reduction		
	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (%)	Min. (%)	Max. (%)
TSS	34.9	33.1	35.0	0.0	0.0	0.0	0	0	0
Heavy Metals	0.5	0.5	0.5	0.0	0.0	0.0	0	0	0
Hydrocarbons	0.1	0.0	0.1	0.0	0.0	0.0	0	0	0
BOD	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Nitrogen	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0

Project: Chicklade Services 12718	Date: 29/11/0025			
	Designed by: CJB	Checked by: SW	Approved By: SW	
Report Details: Type: Stormwater Control Results Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey			



Perm South 2

Critical Storm: FEH2022: 100 years: Increase Rainfall (%): +45: 120 mins: Winter

Type : Porous Paving

Pollution

Total Event Load

Pollutant Name	Total Continuation (kg)	Total Bypass (kg)	Total Output (kg)	Reduction (%)
TSS	0.3	0.0	0.0	100
Heavy Metals	0.0	0.0	0.0	100
Hydrocarbons	0.0	0.0	0.0	100
BOD	0.0	0.0	0.0	0
Nitrogen	0.0	0.0	0.0	0

Pollution Concentration

Pollutant Name	Input			Output			Reduction		
	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (%)	Min. (%)	Max. (%)
TSS	34.7	26.9	35.0	0.0	0.0	0.0	0	0	0
Heavy Metals	0.5	0.4	0.5	0.0	0.0	0.0	0	0	0
Hydrocarbons	0.1	0.0	0.1	0.0	0.0	0.0	0	0	0
BOD	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Nitrogen	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0

Project: Chicklade Services 12718	Date: 29/11/0025			
	Designed by: CJB	Checked by: SW	Approved By: SW	
Report Details: Type: Stormwater Control Results Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey			



Bay Path 3

Critical Storm: FEH2022: 100 years: Increase Rainfall (%): +45: 60 mins: Winter

Type : Porous Paving

Pollution

Total Event Load

Pollutant Name	Total Continuation (kg)	Total Bypass (kg)	Total Output (kg)	Reduction (%)
TSS	0.0	0.0	0.0	0
Heavy Metals	0.0	0.0	0.0	0
Hydrocarbons	0.0	0.0	0.0	0
BOD	0.0	0.0	0.0	0
Nitrogen	0.0	0.0	0.0	0

Pollution Concentration

Pollutant Name	Input			Output			Reduction		
	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (%)	Min. (%)	Max. (%)
TSS	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Heavy Metals	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Hydrocarbons	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
BOD	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Nitrogen	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0

Project: Chicklade Services 12718	Date: 29/11/0025		
	Designed by: CJB	Checked by: SW	
Report Details: Type: Stormwater Control Results Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey		



Bay Path 2

Critical Storm: FEH2022: 100 years: Increase Rainfall (%): +45: 60 mins: Winter

Type : Porous Paving

Pollution

Total Event Load

Pollutant Name	Total Continuation (kg)	Total Bypass (kg)	Total Output (kg)	Reduction (%)
TSS	0.0	0.0	0.0	0
Heavy Metals	0.0	0.0	0.0	0
Hydrocarbons	0.0	0.0	0.0	0
BOD	0.0	0.0	0.0	0
Nitrogen	0.0	0.0	0.0	0

Pollution Concentration

Pollutant Name	Input			Output			Reduction		
	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (%)	Min. (%)	Max. (%)
TSS	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Heavy Metals	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Hydrocarbons	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
BOD	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Nitrogen	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0

Project: Chicklade Services 12718	Date: 29/11/0025		
	Designed by: CJB	Checked by: SW	
Report Details: Type: Stormwater Control Results Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey		



Bay Path 1

Critical Storm: FEH2022: 100 years: Increase Rainfall (%): +45: 60 mins: Winter

Type : Porous Paving

Pollution

Total Event Load

Pollutant Name	Total Continuation (kg)	Total Bypass (kg)	Total Output (kg)	Reduction (%)
TSS	0.0	0.0	0.0	0
Heavy Metals	0.0	0.0	0.0	0
Hydrocarbons	0.0	0.0	0.0	0
BOD	0.0	0.0	0.0	0
Nitrogen	0.0	0.0	0.0	0

Pollution Concentration

Pollutant Name	Input			Output			Reduction		
	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (%)	Min. (%)	Max. (%)
TSS	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Heavy Metals	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Hydrocarbons	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
BOD	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Nitrogen	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0

Project: Chicklade Services 12718	Date: 29/11/0025		
	Designed by: CJB	Checked by: SW	
Report Details: Type: Stormwater Control Results Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey		



Perm Bays 1

Critical Storm: FEH2022: 100 years: Increase Rainfall (%): +45: 60 mins: Winter

Type : Porous Paving

Pollution

Total Event Load

Pollutant Name	Total Continuation (kg)	Total Bypass (kg)	Total Output (kg)	Reduction (%)
TSS	0.0	0.0	0.0	0
Heavy Metals	0.0	0.0	0.0	0
Hydrocarbons	0.0	0.0	0.0	0
BOD	0.0	0.0	0.0	0
Nitrogen	0.0	0.0	0.0	0

Pollution Concentration

Pollutant Name	Input			Output			Reduction		
	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (%)	Min. (%)	Max. (%)
TSS	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Heavy Metals	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Hydrocarbons	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
BOD	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Nitrogen	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0

Project: Chicklade Services 12718	Date: 29/11/0025			
	Designed by: CJB	Checked by: SW	Approved By: SW	
Report Details: Type: Stormwater Control Results Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey			



Perm Bays 2

Critical Storm: FEH2022: 100 years: Increase Rainfall (%): +45: 60 mins: Summer

Type : Porous Paving

Pollution

Total Event Load

Pollutant Name	Total Continuation (kg)	Total Bypass (kg)	Total Output (kg)	Reduction (%)
TSS	0.3	0.0	0.0	100
Heavy Metals	0.0	0.0	0.0	100
Hydrocarbons	0.1	0.0	0.0	100
BOD	0.0	0.0	0.0	0
Nitrogen	0.0	0.0	0.0	0

Pollution Concentration

Pollutant Name	Input			Output			Reduction		
	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (%)	Min. (%)	Max. (%)
TSS	60.0	60.0	60.0	0.0	0.0	0.0	0	0	0
Heavy Metals	1.0	1.0	1.0	0.0	0.0	0.0	0	0	0
Hydrocarbons	10.0	10.0	10.0	0.0	0.0	0.0	0	0	0
BOD	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Nitrogen	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0

Project: Chicklade Services 12718	Date: 29/11/0025		
	Designed by: CJB	Checked by: SW	
Report Details: Type: Stormwater Control Results Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey		



Perm Bays 3

Critical Storm: FEH2022: 100 years: Increase Rainfall (%): +45: 60 mins: Winter

Type : Porous Paving

Pollution

Total Event Load

Pollutant Name	Total Continuation (kg)	Total Bypass (kg)	Total Output (kg)	Reduction (%)
TSS	0.0	0.0	0.0	0
Heavy Metals	0.0	0.0	0.0	0
Hydrocarbons	0.0	0.0	0.0	0
BOD	0.0	0.0	0.0	0
Nitrogen	0.0	0.0	0.0	0

Pollution Concentration

Pollutant Name	Input			Output			Reduction		
	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (%)	Min. (%)	Max. (%)
TSS	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Heavy Metals	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Hydrocarbons	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
BOD	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Nitrogen	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0

Project: Chicklade Services 12718	Date: 29/11/0025		
	Designed by: CJB	Checked by: SW	Approved By: SW
Report Details: Type: Stormwater Control Results Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey		





Perm Bays 4

Critical Storm: FEH2022: 100 years: Increase Rainfall (%): +45: 60 mins: Winter

Type : Porous Paving

Pollution

Total Event Load

Pollutant Name	Total Continuation (kg)	Total Bypass (kg)	Total Output (kg)	Reduction (%)
TSS	0.0	0.0	0.0	0
Heavy Metals	0.0	0.0	0.0	0
Hydrocarbons	0.0	0.0	0.0	0
BOD	0.0	0.0	0.0	0
Nitrogen	0.0	0.0	0.0	0

Pollution Concentration

Pollutant Name	Input			Output			Reduction		
	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (%)	Min. (%)	Max. (%)
TSS	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Heavy Metals	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Hydrocarbons	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
BOD	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Nitrogen	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0

Project: Chicklade Services 12718	Date: 29/11/0025		
	Designed by: CJB	Checked by: SW	
Report Details: Type: Stormwater Control Results Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey		



Perm Bays 5

Critical Storm: FEH2022: 100 years: Increase Rainfall (%): +45: 60 mins: Winter

Type : Porous Paving

Pollution

Total Event Load

Pollutant Name	Total Continuation (kg)	Total Bypass (kg)	Total Output (kg)	Reduction (%)
TSS	0.0	0.0	0.0	0
Heavy Metals	0.0	0.0	0.0	0
Hydrocarbons	0.0	0.0	0.0	0
BOD	0.0	0.0	0.0	0
Nitrogen	0.0	0.0	0.0	0

Pollution Concentration

Pollutant Name	Input			Output			Reduction		
	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (%)	Min. (%)	Max. (%)
TSS	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Heavy Metals	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Hydrocarbons	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
BOD	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Nitrogen	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0

Project: Chicklade Services 12718	Date: 29/11/0025			
	Designed by: CJB	Checked by: SW	Approved By: SW	
Report Details: Type: Stormwater Control Results Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey			



Perm Bays 6

Critical Storm: FEH2022: 100 years: Increase Rainfall (%): +45: 120 mins: Winter

Type : Porous Paving

Pollution

Total Event Load

Pollutant Name	Total Continuation (kg)	Total Bypass (kg)	Total Output (kg)	Reduction (%)
TSS	0.9	0.0	0.0	100
Heavy Metals	0.0	0.0	0.0	100
Hydrocarbons	0.2	0.0	0.0	100
BOD	0.0	0.0	0.0	0
Nitrogen	0.0	0.0	0.0	0

Pollution Concentration

Pollutant Name	Input			Output			Reduction		
	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (%)	Min. (%)	Max. (%)
TSS	59.4	46.2	60.0	0.0	0.0	0.0	0	0	0
Heavy Metals	1.0	0.8	1.0	0.0	0.0	0.0	0	0	0
Hydrocarbons	9.9	7.7	10.0	0.0	0.0	0.0	0	0	0
BOD	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Nitrogen	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0

Project: Chicklade Services 12718	Date: 29/11/0025		
	Designed by: CJB	Checked by: SW	Approved By: SW
Report Details: Type: Stormwater Control Results Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey		





Perm Bays 7

Critical Storm: FEH2022: 100 years: Increase Rainfall (%): +45: 120 mins: Winter

Type : Porous Paving

Pollution

Total Event Load

Pollutant Name	Total Continuation (kg)	Total Bypass (kg)	Total Output (kg)	Reduction (%)
TSS	1.0	0.0	0.0	100
Heavy Metals	0.0	0.0	0.0	100
Hydrocarbons	0.2	0.0	0.0	100
BOD	0.0	0.0	0.0	0
Nitrogen	0.0	0.0	0.0	0

Pollution Concentration

Pollutant Name	Input			Output			Reduction		
	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (%)	Min. (%)	Max. (%)
TSS	59.4	46.2	60.0	0.0	0.0	0.0	0	0	0
Heavy Metals	1.0	0.8	1.0	0.0	0.0	0.0	0	0	0
Hydrocarbons	9.9	7.7	10.0	0.0	0.0	0.0	0	0	0
BOD	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Nitrogen	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0

Project: Chicklade Services 12718	Date: 29/11/0025		
	Designed by: CJB	Checked by: SW	Approved By: SW
Report Details: Type: Stormwater Control Results Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey		





Perm Bays 8

Critical Storm: FEH2022: 100 years: Increase Rainfall (%): +45: 120 mins: Winter

Type : Porous Paving

Pollution

Total Event Load

Pollutant Name	Total Continuation (kg)	Total Bypass (kg)	Total Output (kg)	Reduction (%)
TSS	1.0	0.0	0.0	100
Heavy Metals	0.0	0.0	0.0	100
Hydrocarbons	0.2	0.0	0.0	100
BOD	0.0	0.0	0.0	0
Nitrogen	0.0	0.0	0.0	0

Pollution Concentration

Pollutant Name	Input			Output			Reduction		
	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (%)	Min. (%)	Max. (%)
TSS	59.4	46.2	60.0	0.0	0.0	0.0	0	0	0
Heavy Metals	1.0	0.8	1.0	0.0	0.0	0.0	0	0	0
Hydrocarbons	9.9	7.7	10.0	0.0	0.0	0.0	0	0	0
BOD	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Nitrogen	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0

Project: Chicklade Services 12718	Date: 29/11/0025			
	Designed by: CJB	Checked by: SW	Approved By: SW	
Report Details: Type: Stormwater Control Results Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey			



Perm Bays 9

Critical Storm: FEH2022: 100 years: Increase Rainfall (%): +45: 120 mins: Winter

Type : Porous Paving

Pollution

Total Event Load

Pollutant Name	Total Continuation (kg)	Total Bypass (kg)	Total Output (kg)	Reduction (%)
TSS	1.0	0.0	0.0	100
Heavy Metals	0.0	0.0	0.0	100
Hydrocarbons	0.2	0.0	0.0	100
BOD	0.0	0.0	0.0	0
Nitrogen	0.0	0.0	0.0	0

Pollution Concentration

Pollutant Name	Input			Output			Reduction		
	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (%)	Min. (%)	Max. (%)
TSS	59.4	46.2	60.0	0.0	0.0	0.0	0	0	0
Heavy Metals	1.0	0.8	1.0	0.0	0.0	0.0	0	0	0
Hydrocarbons	9.9	7.7	10.0	0.0	0.0	0.0	0	0	0
BOD	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Nitrogen	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0

Project: Chicklade Services 12718	Date: 29/11/0025		
	Designed by: CJB	Checked by: SW	
Report Details: Type: Stormwater Control Results Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey		



Perm Bays 10

Critical Storm: FEH2022: 100 years: Increase Rainfall (%): +45: 120 mins: Winter

Type : Porous Paving

Pollution

Total Event Load

Pollutant Name	Total Continuation (kg)	Total Bypass (kg)	Total Output (kg)	Reduction (%)
TSS	1.1	0.0	0.0	100
Heavy Metals	0.0	0.0	0.0	100
Hydrocarbons	0.2	0.0	0.0	100
BOD	0.0	0.0	0.0	0
Nitrogen	0.0	0.0	0.0	0

Pollution Concentration

Pollutant Name	Input			Output			Reduction		
	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (%)	Min. (%)	Max. (%)
TSS	59.4	46.2	60.0	0.0	0.0	0.0	0	0	0
Heavy Metals	1.0	0.8	1.0	0.0	0.0	0.0	0	0	0
Hydrocarbons	9.9	7.7	10.0	0.0	0.0	0.0	0	0	0
BOD	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Nitrogen	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0

Project: Chicklade Services 12718	Date: 29/11/0025			
	Designed by: CJB	Checked by: SW	Approved By: SW	
Report Details: Type: Stormwater Control Results Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey			



Perm Bays 11

Critical Storm: FEH2022: 100 years: Increase Rainfall (%): +45: 120 mins: Winter

Type : Porous Paving

Pollution

Total Event Load

Pollutant Name	Total Continuation (kg)	Total Bypass (kg)	Total Output (kg)	Reduction (%)
TSS	1.1	0.0	0.0	100
Heavy Metals	0.0	0.0	0.0	100
Hydrocarbons	0.2	0.0	0.0	100
BOD	0.0	0.0	0.0	0
Nitrogen	0.0	0.0	0.0	0

Pollution Concentration

Pollutant Name	Input			Output			Reduction		
	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (%)	Min. (%)	Max. (%)
TSS	59.4	46.2	60.0	0.0	0.0	0.0	0	0	0
Heavy Metals	1.0	0.8	1.0	0.0	0.0	0.0	0	0	0
Hydrocarbons	9.9	7.7	10.0	0.0	0.0	0.0	0	0	0
BOD	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Nitrogen	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0

Project: Chicklade Services 12718	Date: 29/11/0025			
	Designed by: CJB	Checked by: SW	Approved By: SW	
Report Details: Type: Stormwater Control Results Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey			



Perm Bays 12

Critical Storm: FEH2022: 100 years: Increase Rainfall (%): +45: 120 mins: Winter

Type : Porous Paving

Pollution

Total Event Load

Pollutant Name	Total Continuation (kg)	Total Bypass (kg)	Total Output (kg)	Reduction (%)
TSS	1.1	0.0	0.0	100
Heavy Metals	0.0	0.0	0.0	100
Hydrocarbons	0.2	0.0	0.0	100
BOD	0.0	0.0	0.0	0
Nitrogen	0.0	0.0	0.0	0

Pollution Concentration

Pollutant Name	Input			Output			Reduction		
	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (%)	Min. (%)	Max. (%)
TSS	59.4	46.2	60.0	0.0	0.0	0.0	0	0	0
Heavy Metals	1.0	0.8	1.0	0.0	0.0	0.0	0	0	0
Hydrocarbons	9.9	7.7	10.0	0.0	0.0	0.0	0	0	0
BOD	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Nitrogen	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0

Project: Chicklade Services 12718	Date: 29/11/0025			
	Designed by: CJB	Checked by: SW	Approved By: SW	
Report Details: Type: Stormwater Control Results Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey			



Perm Bays 13

Critical Storm: FEH2022: 100 years: Increase Rainfall (%): +45: 120 mins: Winter

Type : Porous Paving

Pollution

Total Event Load

Pollutant Name	Total Continuation (kg)	Total Bypass (kg)	Total Output (kg)	Reduction (%)
TSS	1.1	0.0	0.0	100
Heavy Metals	0.0	0.0	0.0	100
Hydrocarbons	0.2	0.0	0.0	100
BOD	0.0	0.0	0.0	0
Nitrogen	0.0	0.0	0.0	0

Pollution Concentration

Pollutant Name	Input			Output			Reduction		
	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (%)	Min. (%)	Max. (%)
TSS	59.4	46.2	60.0	0.0	0.0	0.0	0	0	0
Heavy Metals	1.0	0.8	1.0	0.0	0.0	0.0	0	0	0
Hydrocarbons	9.9	7.7	10.0	0.0	0.0	0.0	0	0	0
BOD	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Nitrogen	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0

Project: Chicklade Services 12718	Date: 29/11/0025		
	Designed by: CJB	Checked by: SW	Approved By: SW
Report Details: Type: Stormwater Control Results Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey		



Plant area Gravel
Critical Storm: FEH2022: 100 years: Increase Rainfall (%): +45: 120 mins: Winter

Type : Porous Paving

Pollution

Total Event Load

Pollutant Name	Total Continuation (kg)	Total Bypass (kg)	Total Output (kg)	Reduction (%)
TSS	1.7	0.0	0.0	100
Heavy Metals	0.0	0.0	0.0	100
Hydrocarbons	0.3	0.0	0.0	100
BOD	0.0	0.0	0.0	0
Nitrogen	0.0	0.0	0.0	0

Pollution Concentration

Pollutant Name	Input			Output			Reduction		
	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (%)	Min. (%)	Max. (%)
TSS	59.4	46.2	60.0	0.0	0.0	0.0	0	0	0
Heavy Metals	1.0	0.8	1.0	0.0	0.0	0.0	0	0	0
Hydrocarbons	9.9	7.7	10.0	0.0	0.0	0.0	0	0	0
BOD	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Nitrogen	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0

Project: Chicklade Services 12718	Date: 29/11/0025			
	Designed by: CJB	Checked by: SW	Approved By: SW	
Report Details: Type: Stormwater Control Results Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey			



Soakaway SA1
Critical Storm: FEH2022: 100 years: Increase Rainfall (%): +45: 720 mins: Winter

Type : Cellular Storage

Pollution

Total Event Load

Pollutant Name	Total Continuation (kg)	Total Bypass (kg)	Total Output (kg)	Reduction (%)
TSS	2.4	0.0	0.0	100
Heavy Metals	0.1	0.0	0.0	100
Hydrocarbons	0.2	0.0	0.0	100
BOD	0.0	0.0	0.0	0
Nitrogen	0.0	0.0	0.0	0

Pollution Concentration

Pollutant Name	Input			Output			Reduction		
	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (%)	Min. (%)	Max. (%)
TSS	4.2	0.0	5.3	0.0	0.0	0.0	0	0	0
Heavy Metals	0.1	0.0	0.2	0.0	0.0	0.0	0	0	0
Hydrocarbons	0.3	0.0	0.3	0.0	0.0	0.0	0	0	0
BOD	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Nitrogen	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0

Project: Chicklade Services 12718	Date: 29/11/0025		
	Designed by: CJB	Checked by: SW	
Report Details: Type: Stormwater Control Results Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey		



South Path

Critical Storm: FEH2022: 100 years: Increase Rainfall (%): +45: 120 mins: Winter

Type : Porous Paving

Pollution

Total Event Load

Pollutant Name	Total Continuation (kg)	Total Bypass (kg)	Total Output (kg)	Reduction (%)
TSS	0.0	0.0	0.0	0
Heavy Metals	0.0	0.0	0.0	0
Hydrocarbons	0.0	0.0	0.0	0
BOD	0.0	0.0	0.0	0
Nitrogen	0.0	0.0	0.0	0

Pollution Concentration

Pollutant Name	Input			Output			Reduction		
	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (%)	Min. (%)	Max. (%)
TSS	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Heavy Metals	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Hydrocarbons	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
BOD	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Nitrogen	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0

Project: Chicklade Services 12718	Date: 29/11/0025			
	Designed by: CJB	Checked by: SW	Approved By: SW	
Report Details: Type: Stormwater Control Results Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey			



Rear Filter Drain
Critical Storm: FEH2022: 100 years: Increase Rainfall (%): +45: 960 mins: Summer

Type : Infiltration Trench

Pollution

Total Event Load

Pollutant Name	Total Continuation (kg)	Total Bypass (kg)	Total Output (kg)	Reduction (%)
TSS	32.8	0.0	3.5	89
Heavy Metals	0.5	0.0	0.1	89
Hydrocarbons	4.4	0.0	0.5	89
BOD	0.0	0.0	0.0	0
Nitrogen	0.0	0.0	0.0	0

Pollution Concentration

Pollutant Name	Input			Output			Reduction		
	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (%)	Min. (%)	Max. (%)
TSS	38.7	0.1	60.0	52.4	35.8	70.7	0	0	0
Heavy Metals	0.6	0.0	1.0	0.9	0.6	1.2	0	0	0
Hydrocarbons	5.1	0.0	8.1	7.0	4.8	9.4	0	0	0
BOD	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Nitrogen	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0

Project: Chicklade Services 12718	Date: 29/11/0025			
	Designed by: CJB	Checked by: SW	Approved By: SW	
Report Details: Type: Stormwater Control Results Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey			



Soakaway SA2
Critical Storm: FEH2022: 100 years: Increase Rainfall (%): +45: 960 mins: Summer

Type : Cellular Storage

Pollution

Total Event Load

Pollutant Name	Total Continuation (kg)	Total Bypass (kg)	Total Output (kg)	Reduction (%)
TSS	3.1	0.0	0.1	96
Heavy Metals	0.1	0.0	0.0	96
Hydrocarbons	0.4	0.0	0.0	96
BOD	0.0	0.0	0.0	0
Nitrogen	0.0	0.0	0.0	0

Pollution Concentration

Pollutant Name	Input			Output			Reduction		
	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (%)	Min. (%)	Max. (%)
TSS	15.7	0.0	34.0	14.7	11.5	20.1	7	0	41
Heavy Metals	0.3	0.0	0.6	0.2	0.2	0.3	7	0	41
Hydrocarbons	2.1	0.0	4.5	2.0	1.5	2.7	7	0	41
BOD	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Nitrogen	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0

Project: Chicklade Services 12718	Date: 29/11/0025			
	Designed by: CJB	Checked by: SW	Approved By: SW	
Report Details: Type: Stormwater Control Results Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey			



SPEL ESR Staff
Critical Storm: FEH2022: 100 years: Increase Rainfall (%): +45: 720 mins: Winter

Type : Chamber

Pollution

Total Event Load

Pollutant Name	Total Continuation (kg)	Total Bypass (kg)	Total Output (kg)	Reduction (%)
TSS	11.8	0.0	2.4	80
Heavy Metals	0.2	0.0	0.1	60
Hydrocarbons	1.5	0.0	0.2	90
BOD	0.0	0.0	0.0	0
Nitrogen	0.0	0.0	0.0	0

Pollution Concentration

Pollutant Name	Input			Output			Reduction		
	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (%)	Min. (%)	Max. (%)
TSS	21.4	0.0	26.9	4.2	0.0	5.3	80	0	80
Heavy Metals	0.4	0.0	0.4	0.1	0.0	0.2	61	0	60
Hydrocarbons	2.8	0.0	3.5	0.3	0.0	0.3	90	0	90
BOD	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Nitrogen	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0

Project: Chicklade Services 12718	Date: 29/11/0025		
	Designed by: CJB	Checked by: SW	
Report Details: Type: Stormwater Control Results Storm Phase: New Surface Water T9	Company Address: AWA Consulting Engineers The Old Brewery House Portersbridge Street, Romsey		



Soakaway SA3
Critical Storm: FEH2022: 100 years: Increase Rainfall (%): +45: 240 mins: Summer

Type : Cellular Storage

Pollution

Total Event Load

Pollutant Name	Total Continuation (kg)	Total Bypass (kg)	Total Output (kg)	Reduction (%)
TSS	1.5	0.0	0.5	65
Heavy Metals	0.7	0.0	0.3	65
Hydrocarbons	0.0	0.0	0.0	65
BOD	0.0	0.0	0.0	0
Nitrogen	0.0	0.0	0.0	0

Pollution Concentration

Pollutant Name	Input			Output			Reduction		
	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (mg/L)	Min. (mg/L)	Max. (mg/L)	Mean (%)	Min. (%)	Max. (%)
TSS	9.7	1.3	10.0	9.9	9.9	9.9	0	0	1
Heavy Metals	4.8	0.7	5.0	5.0	5.0	5.0	0	0	1
Hydrocarbons	0.0	0.0	0.0	0.0	0.0	0.0	0	0	1
BOD	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Nitrogen	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0