



**Details of Surface Water Drainage
Maintenance to support
Planning Application**

for

Residential Development at
58 Albany Park Road
Kingston Upon Thames
KT2 5SU

on behalf of

Mr R Fountain

1.0 OPERATION & MAINTENANCE STATEMENT

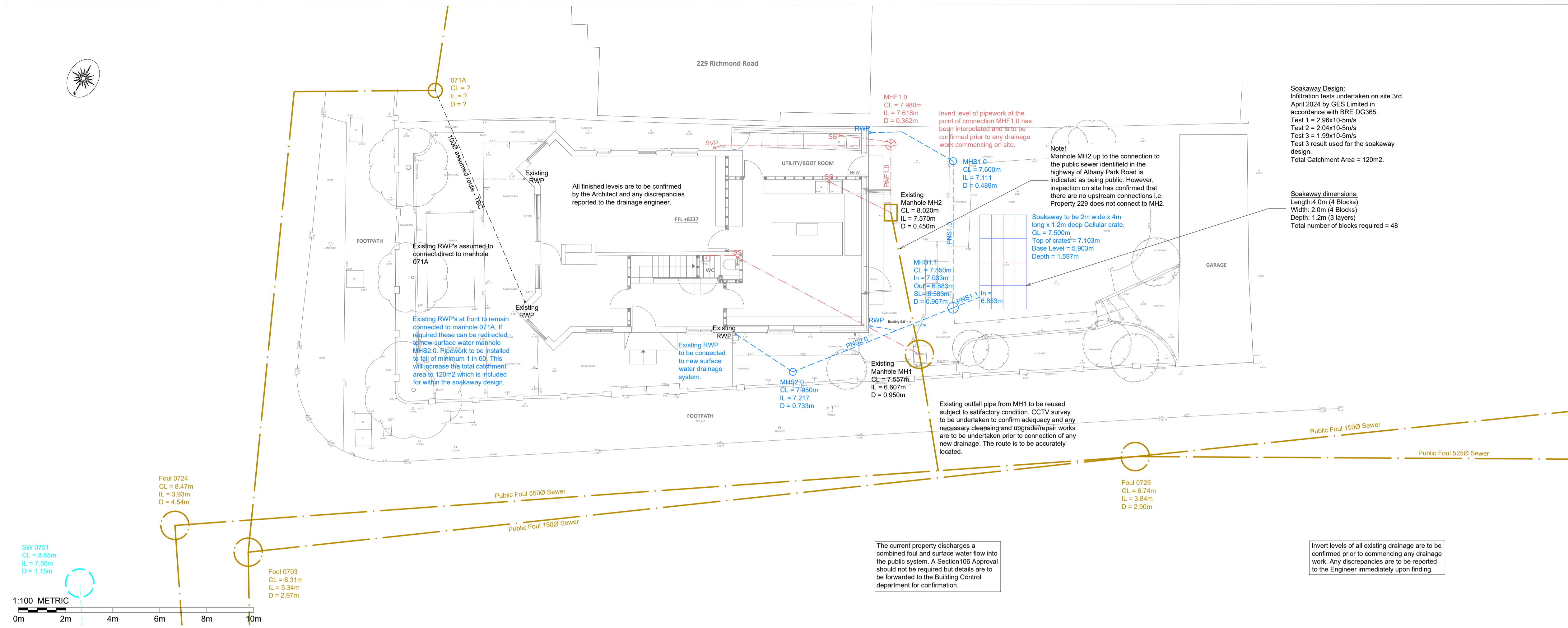
- 1.1 The foul and surface water disposal systems as indicated on drawings T-2023-017-02 Rev C and -03B are designed assuming they will remain as privately owned and be maintained by the owner of the new property. Future new owners will be informed of their responsibilities for the inspection and maintenance of these systems.
- 1.2 It is recommended that manhole chambers, drainage channels and catch-pit chambers are to be inspected as part of the general planned inspection and maintenance regime for the development, but certainly at no greater intervals than once per year.
- 1.3 Annual Inspection to include;
- Lift all access covers to inspection chambers, drainage channels and catch-pit chambers to check general condition and empty any debris/silt as required by licensed carrier.
 - Review quantities of silt removed and consider whether inspections should be increased or possibly reduced to every two years.
 - Carry out works as identified from inspection.
 - Maintenance inspection records to be kept and updated accordingly.
- 1.4 Five year Inspection / Five Year Anniversary
- Rod and flush all pipe work to ensure no blockages and free flow of water to the attenuation tank and to check overall integrity and remove any silt.
 - Carry out a rapid 'Flush' through of the system (works during a dry period).
- 1.5 The property owner should keep records of when annual inspections are carried out with details of the works carried out. Note that the removed silt will need to be disposed of by a Licensed Carrier and receipts kept.

APPENDIX A

Tridax Drawings

T-2023-017-02 Rev C - Drainage Layout Plan

T-2023-017-03 Rev B - Drainage Construction Details



DRAWING LEGEND

--- Site boundary line

EXISTING PUBLIC SEWERS

--- Public foul water sewer

○ □ MH Public foul water manhole

--- Public surface water sewer

○ □ MH Public surface water manhole

EXISTING PRIVATE DRAINAGE

--- Private foul water drain

○ □ MH Private foul water manhole

--- Private surface water drain

○ □ MH Private surface water manhole

--- Private combined drain

PROPOSED PRIVATE FOUL DRAINAGE

--- Private foul water drainage

○ □ MH Private foul water manhole

SVP Soil vent pipe

SS Stub stack

PROPOSED PRIVATE FOUL DRAINAGE

--- Private surface water drainage

○ □ MH Private surface water manhole

SA Private surface water Attenuation tank

RWP Rainwater pipe

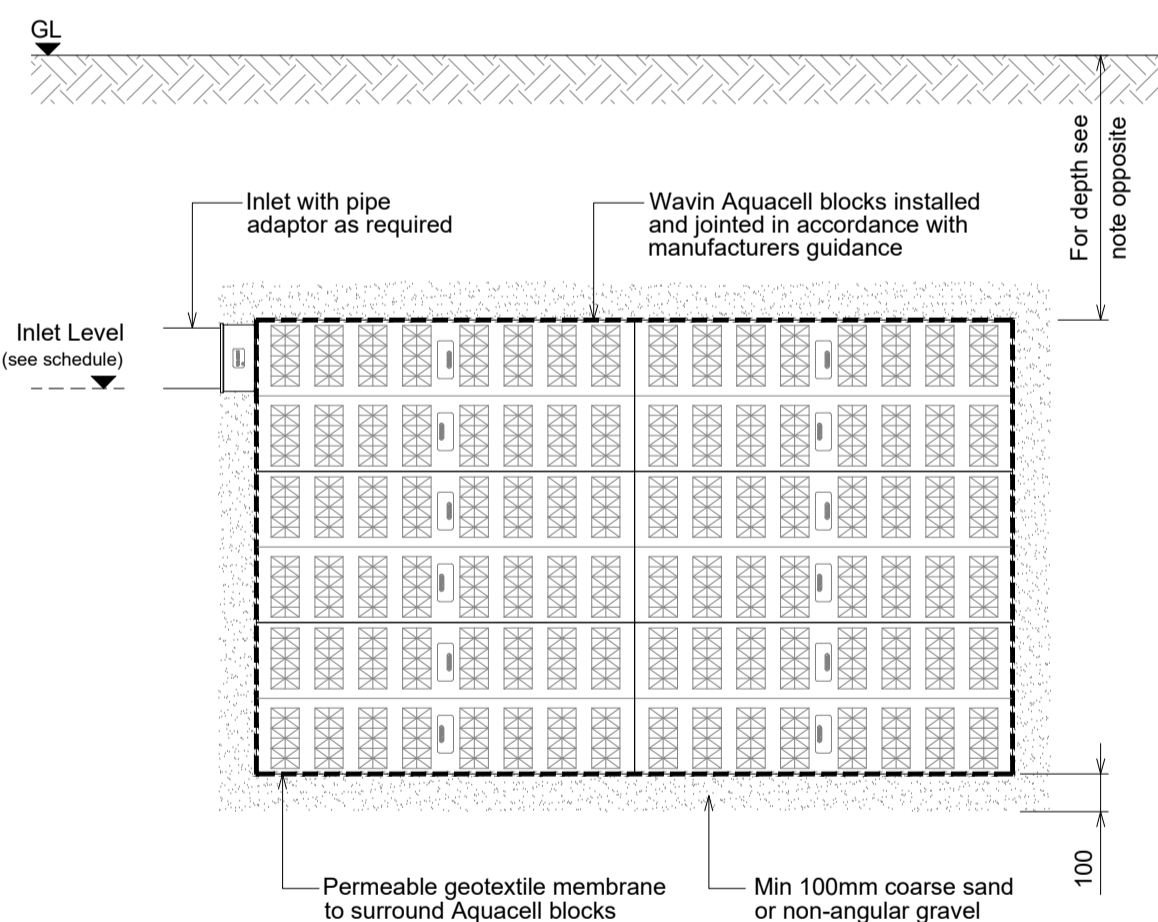
Soakaway Design:
Infiltration tests undertaken on site 3rd April 2024 by GES Limited in accordance with BRE DG365.
Test 1 = 2.96x10-5m/s
Test 2 = 2.04x10-5m/s
Test 3 = 1.99x10-5m/s
Test 3 result used for the soakaway design.
Total Catchment Area = 120m².

Soakaway dimensions:
Length: 4.0m (4 Blocks)
Width: 2.0m (3 Blocks)
Depth: 1.2m (3 layers)
Total number of blocks required = 48

The current property discharges a combined foul and surface water flow into the public system. A Section 108 Approval should not be required but details are to be forwarded to the Building Control department for confirmation.

Invert levels of all existing drainage are to be confirmed prior to commencing any drainage work. Any discrepancies are to be reported to the Engineer immediately upon finding.

Section - Cellular Soakaway (AquaCell)
scale 1:20



See manufacturers literature for details of block arrangement / fixing and selection.

As strength varies between block models, the contractor is to consult the manufacturer to ascertain the correct block selection for each installation.

NOTE: Minimum cover depths. (Guidance Only)

- Heavy vehicle loading (i.e. large vehicles)
Cover to be not less than 1200mm.
- Light vehicle loading (i.e. parked cars)
Cover to be not less than 800mm.
- Non trafficked areas:
Cover to be not less than 600mm

- AquaCell Installation Notes: (Contractor to consult manufacturers literature for full details)**
- Excavate the trench to the required depth ensuring that the plan area is slightly greater than that of the AquaCell units.
 - Lay 100mm bed of coarse sand or non angular granular material, level and compact.
 - Lay the geotextile membrane over the base and up the sides of the trench.
 - Lay the AquaCell units parallel with each other. In multiple layer applications, wherever possible, continuous vertical joints should be avoided. AquaCell units can be laid in a 'brick bonded' formation (i.e. to overlap the joints below) For single layer applications use AquaCell Clips and for multi layers use AquaCell Clips and AquaCell Shear Connectors (vertical rods).
 - Fix the pipe adaptors to the AquaCell units as required to suit the incoming pipework.
 - In order to prevent silt from entering the tank, clogging the inlet pipework and reducing the storage capacity, it is recommended that a silt trap / catchpit is installed upstream of the tank inlet.
 - Wrap and overlap the geotextile covering the entire AquaCell structure, minimum lap to be in the order of 300mm.
 - Lay 100mm of coarse sand or non angular granular material between the trench walls and the AquaCell structure and compact being careful not to damage either the blocks or the geotextile membrane.
 - Lay 100mm of coarse sand or non angular granular material over the geotextile and compact.
 - Backfill tank with suitable clean material, free of organic matter and debris.

FOUL WATER MANHOLE SCHEDULE

Manhole Ref.	Cover Level (m)	Invert Level (m)	Backdrop Invert Lvl (m)	Manhole Depth (m)	Manhole Type	Manhole Ø (mm)	Cover/Frame Grade	Remarks
MHF1.0	7.980	7.618	-	0.362	PPIC	450	A15	-

FOUL WATER PIPE SCHEDULE

Pipe Ref.	Pipe Length (m)	Pipe Ø (mm)	Pipe Material	Gradient (1 in ?)	Bedding	Remarks
PNF1.0	2.9	100	UPVC	60	Class Z	-

SURFACE WATER MANHOLE SCHEDULE

Manhole Ref.	Cover Level (m)	Invert Level (m)	Backdrop Invert Lvl (m)	Manhole Depth (m)	Manhole Type	Manhole Ø (mm)	Cover/Frame Grade	Remarks
MHS1.0	7.600	7.111	-	0.489	SIC	300	A15	-
MHS1.1	7.550	IN=7.033 OUT=6.883 SL=6.433	-	1.117	Type 3 Silt trap	450	A15	450mm deep sump
MHS2.0	7.950	7.217	-	0.733	SIC	300	A15	-

SURFACE WATER PIPE SCHEDULE

Pipe Ref.	Pipe Length (m)	Pipe Ø (mm)	Pipe Material	Gradient (1 in ?)	Bedding	Remarks
PNS1.0	6.2	100	UPVC	80	Class S	-
PNS1.1	1.2	100	UPVC	40	Class S	-
PNS2.0	7.34	100	UPVC	40	Class S	-

SURFACE WATER SOAKAWAY SCHEDULE - CELLULAR BLOCKS

Soakaway Ref.	Cover / Ground Level (m)	Inlet Level(s) (m)	Base Level(s) (m)	Depth(s) (m)	Remarks
SA1	7.500	6.853	5.903	1.597	Soakaway constructed using Wavin AquaCell blocks or similar approved product (Individual block dimensions: L=1.0m x W=0.5m x D=0.4m) Soakaway Structure Dimensions Length = 4.0m (4 Blocks) Width = 2.0m (4 Blocks) Depth = 1.2m (3 Layers of Blocks) Inlet to be located at high level into soakaway structure

- DRAINAGE NOTES**
- The location of any existing drains and sewers are to be accurately located and reported prior to any work commencing on site.
 - All materials, workmanship and construction to be in accordance with the requirements of 'Sewers for Adoption - 7th Edition' and published addendum and corrigendum.
 - Channel drains shown are only to collect surface water run-off from hard paved areas and door thresholds and are not intended to collect groundwater or run-off from gardens and landscaped areas.
 - All abandoned pipework to be completely removed or grout filled unless stated otherwise.

- NOTES**
- The Contractor should check all dimensions on site.
 - It is the Contractors responsibility to ensure compliance with building regulations and current codes of practice.
 - Drawings cannot take into account any drains or underground works not locatable by visual survey of the site.
 - Commencement of any building works prior to full building regulation approval is entirely at the clients risk.

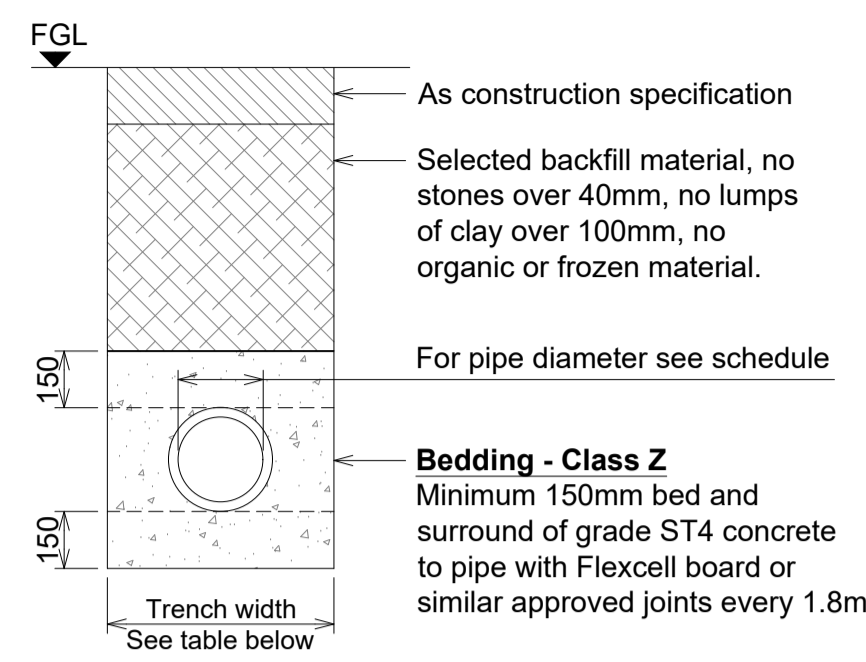
Rev	Description	Date
C	Drainage MHF1.0 - ExMH2 amended/schedule added	15/04/2024
B	Soakaway designed	12/04/2024
A	First issue to client	20/11/2023

PROJECT: Proposed residential development at: 5B Albany Park Road, Kingston Upon Thames, KT2 5SU	DATE: 20/11/2023	SCALE: 1:100	SIZE: A1
CLIENT: Mr R Fountain Esq	STATUS: PRELIMINARY	DATE: T-2023-017-02	REV: C

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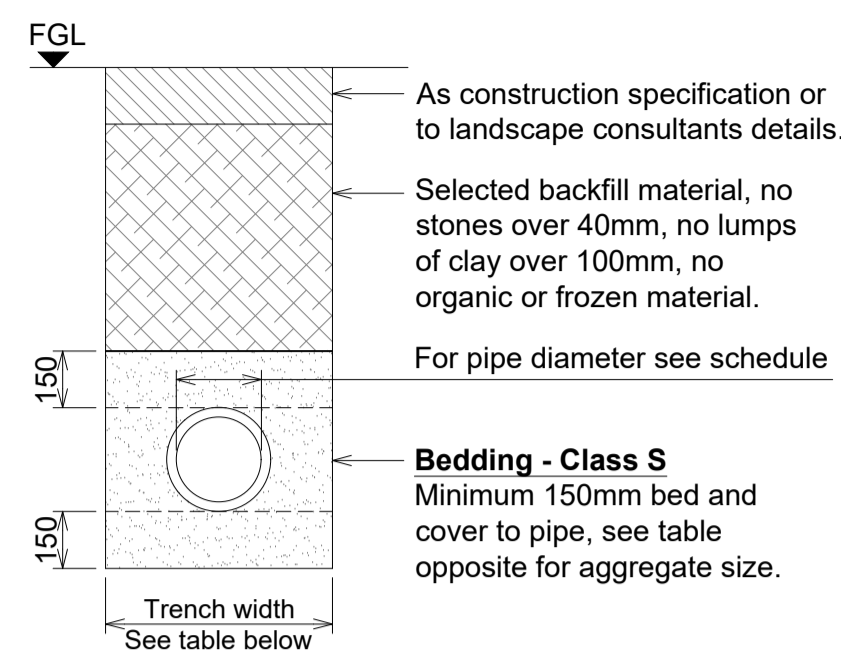
Pipe Bedding - Class Z

Areas subject to vehicle loadings.
Less than 1.2m cover to pipe.



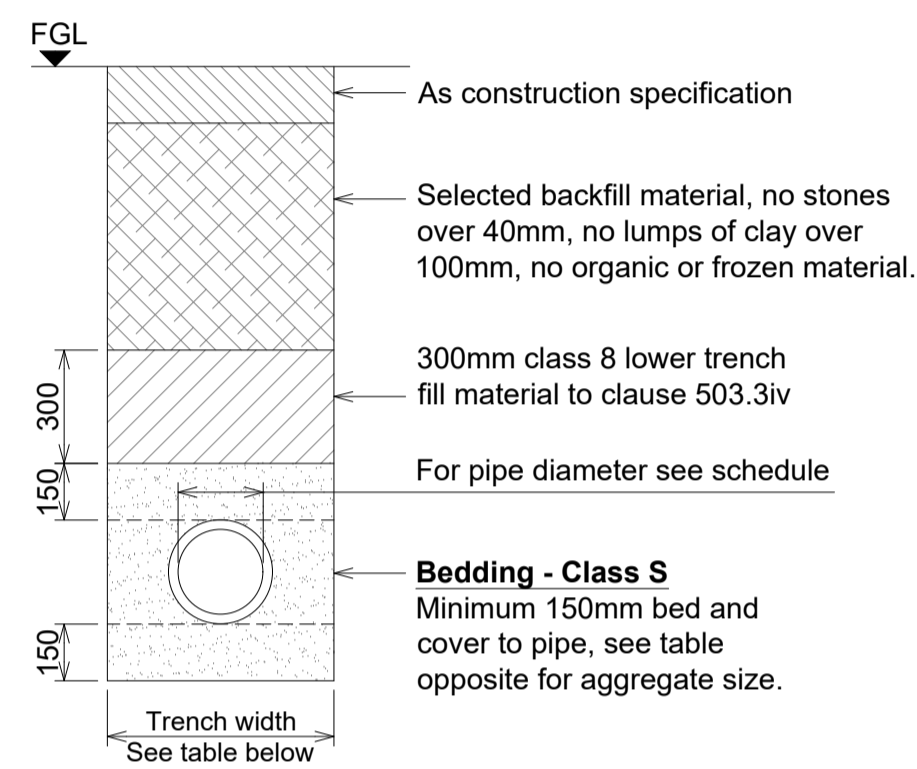
Pipe Bedding - Class S

Areas not subject to vehicle loadings.
Use in private gardens, landscaped areas etc.



Pipe Bedding - Class S

Areas subject to vehicle loadings.
Greater than 1.2m cover to pipe.



PIPE BEDDING MATERIAL - CLASS S	
Pipe Ø (mm)	Suitable Materials: (Aggregate to BS 882)
100	10mm nominal single sized aggregate
150	10 to 14mm nominal single sized aggregate
225 to 525	10 to 14mm or 20mm nominal single sized aggregate
Over 525	10, 14, 20 or 40mm nominal single sized crushed rock

TRENCH WIDTH	
Pipe Ø (mm)	Trench Width (mm)
100	450
150	450
225	600
300	600
375	750
450	750
525	900
600	900
750	1200
900	1350
1050	1500

Pipe surround material shall where required, be placed and compacted over the full width of the trench in layers not exceeding 150mm before compaction, to a finished thickness of 300mm above the crown of the pipe.

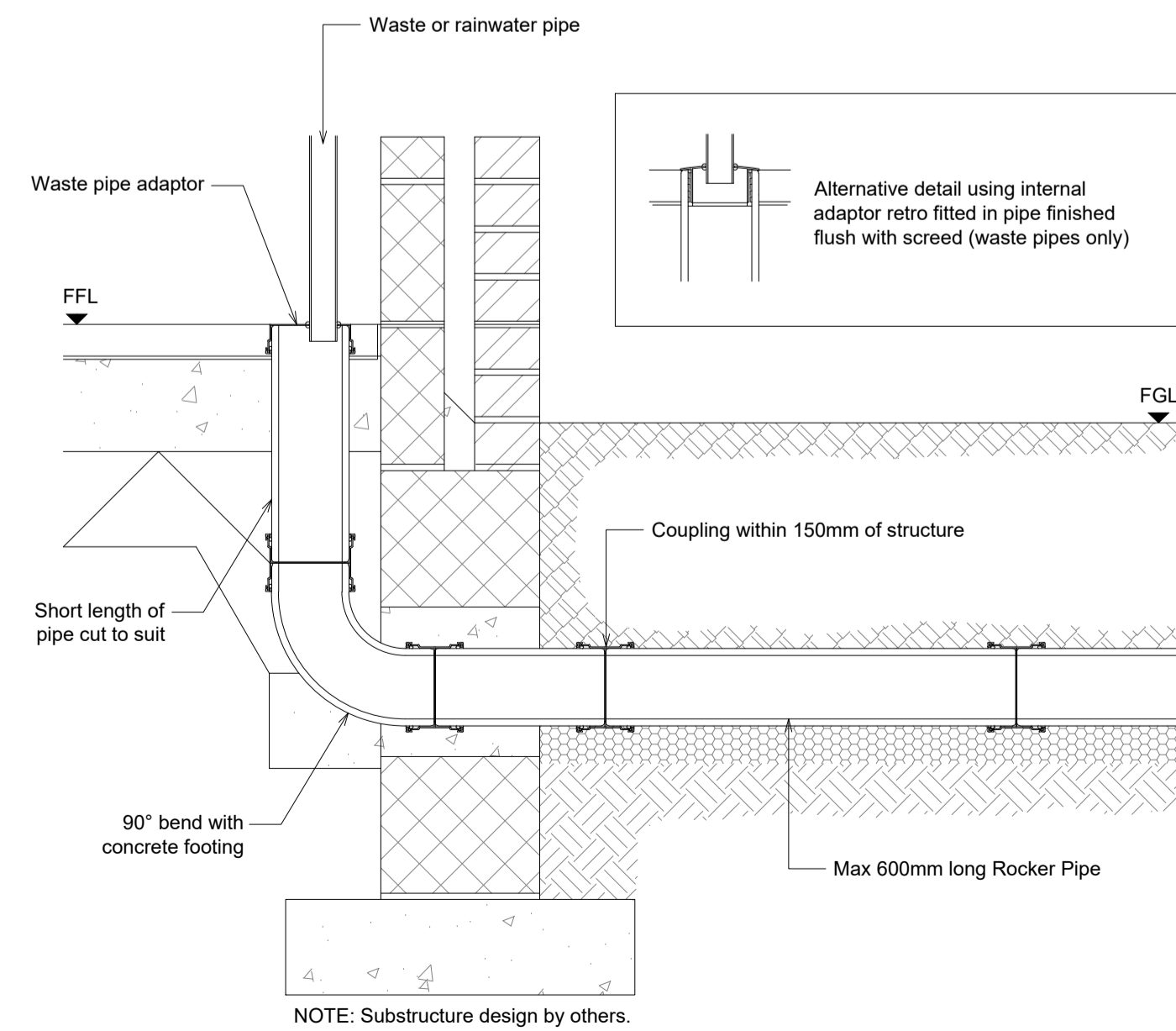
Where excavations have been supported and the supports are removed they shall be withdrawn progressively as backfilling proceeds in a manner that minimises the danger of collapse, all voids formed behind the supports are to be carefully filled and compacted.

Pipe jointing surfaces and components shall be kept clean and free from extraneous matter until the joints have been made or assembled, care should be taken to ensure that there is no ingress of grout or other material into the joint after the joint has been made.

Pipes should be cut in accordance with the manufacturers recommendations to provide a clean square profile without splitting or fracturing the pipe wall and to ensure minimal damage to any protective coatings, where necessary, the cut ends of pipes shall be formed to the tapers and chamfers suitable for the type of joint to be used.

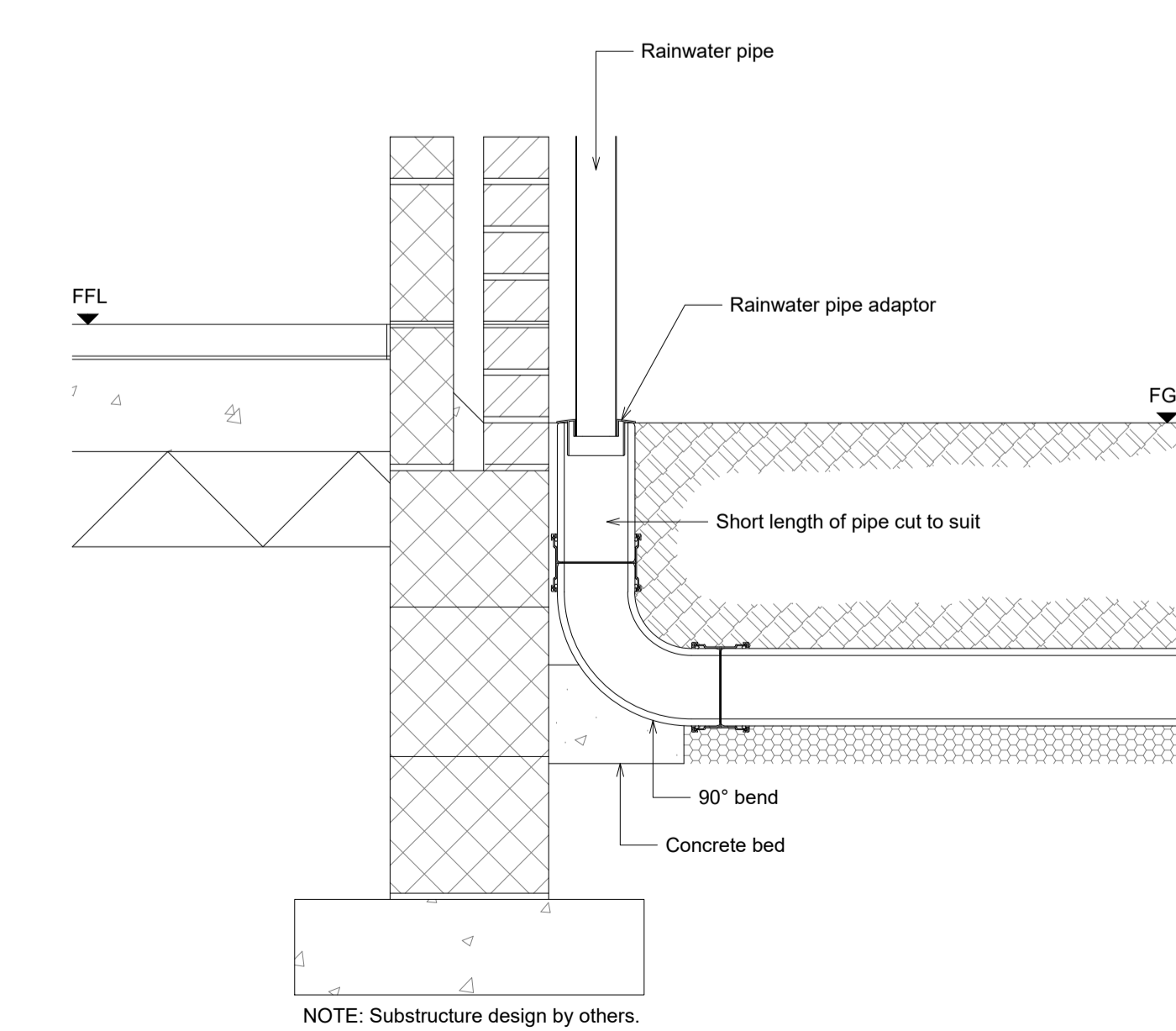
Typical Internal Waste Pipe Connection Detail

scale 1:10



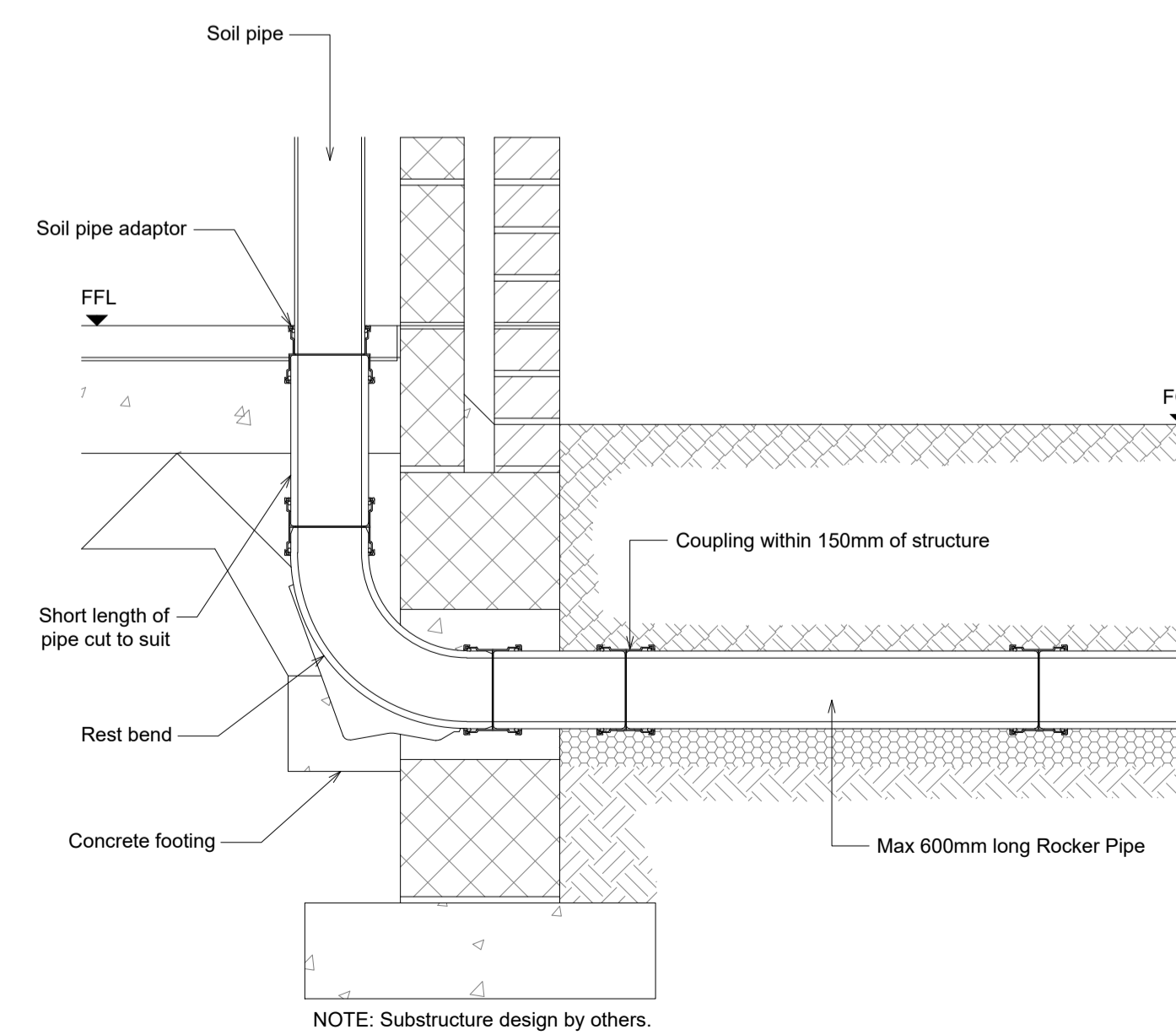
Typical External Rainwater Pipe Connection Detail

scale 1:10



Typical Soil Vent Pipe / Stub Stack Connection Detail

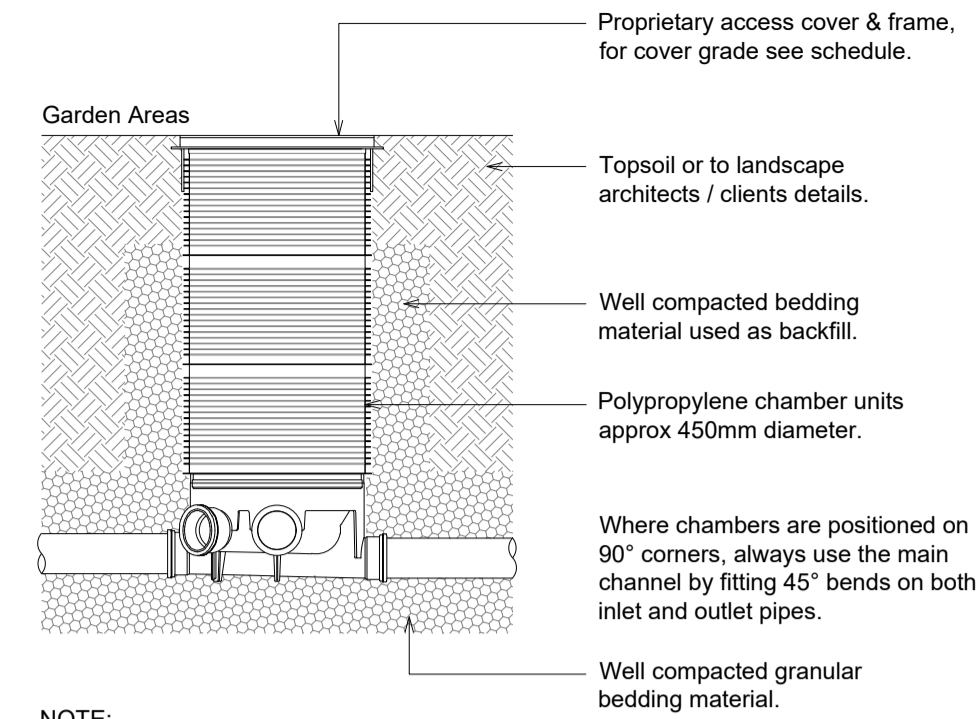
scale 1:10



Polypropylene Inspection Chamber (PPIC)

Use on private drainage works only

scale 1:20



NOTE: Maximum diameter of main channel 150/160mm
Maximum pipe diameter of inlets 100/110mm

Unused inlets are to be sealed and made watertight.

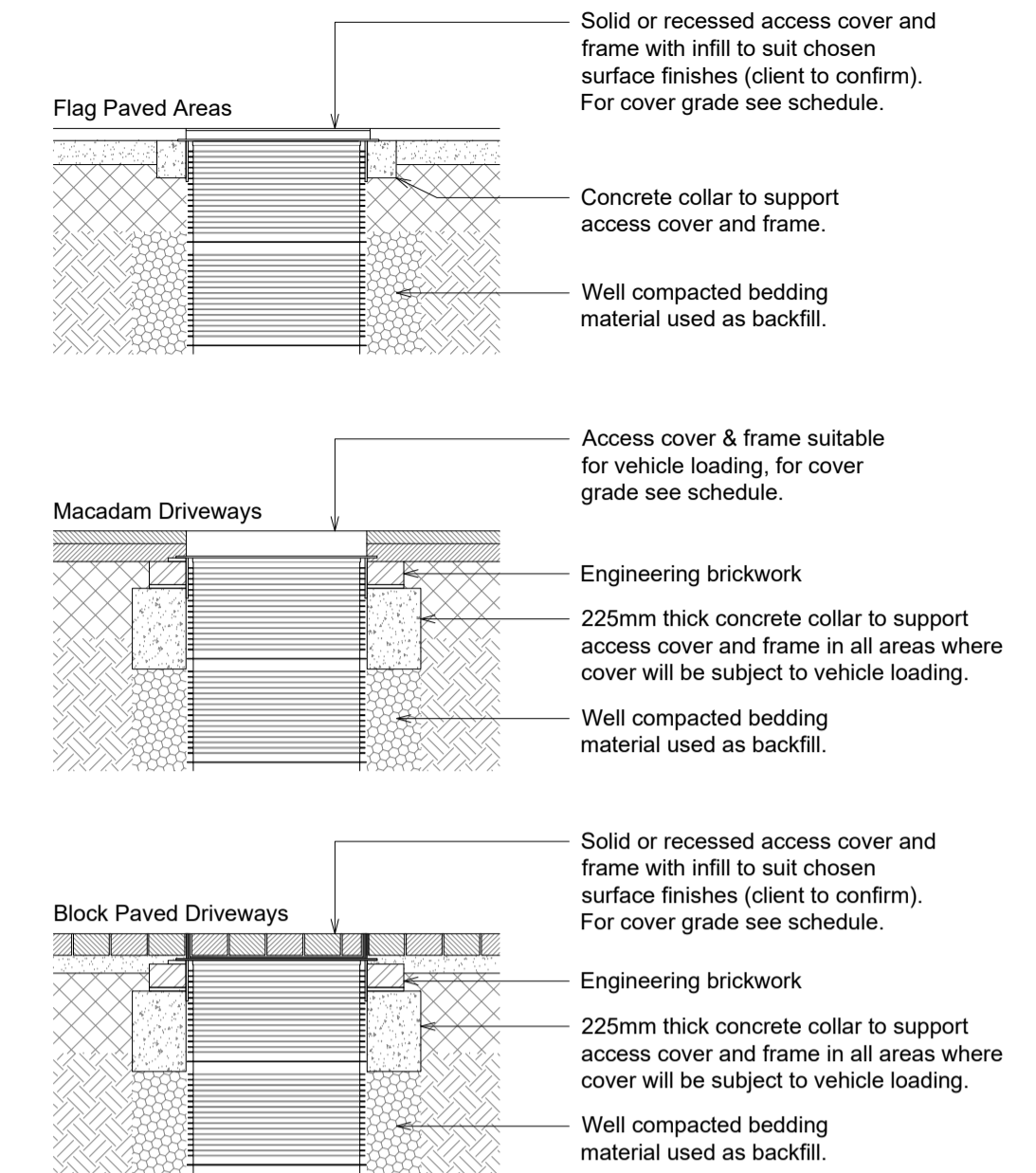
Backfill to be well compacted around shaft of chamber.

No incoming branch is to be less than 90° from the outgoing direction of flow, all pipes entering the bottom of the manhole are to have level soffits.

Alternate Access Cover Details (PPIC)

Use on private drainage works only

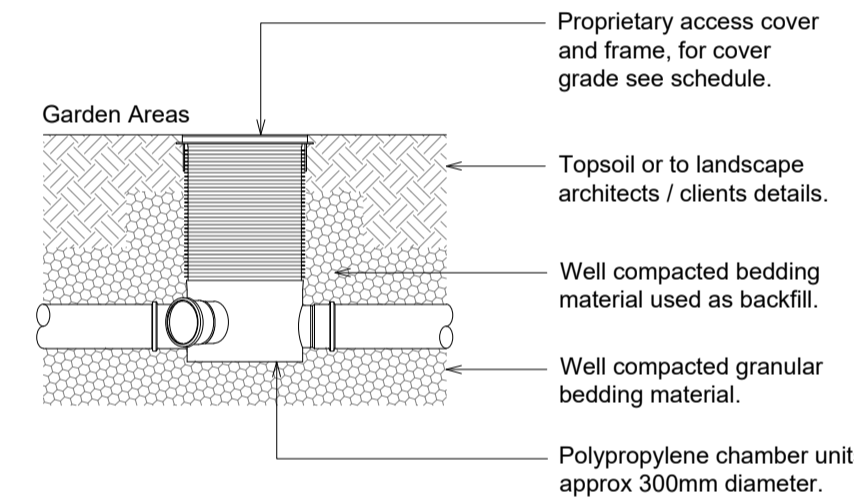
scale 1:20



Shallow Inspection Chamber (SIC)

Use on private drainage works only

scale 1:20



NOTE: Where chambers are positioned on 90° corners, always use the main channel by fitting 45° bends on both inlet and outlet pipes.

Maximum diameter of main channel 150/160mm
Maximum pipe diameter of inlets 100/110mm

Unused inlets are to be sealed and made watertight.

Backfill to be well compacted around shaft of chamber.

No incoming branch is to be less than 90° from the outgoing direction of flow.

DRAINAGE NOTES

- The location of any existing drains and sewers are to be accurately located and reported prior to any work commencing on site.
- All materials, workmanship and construction to be in accordance with the requirements of 'Sewers for Adoption - 7th Edition' and published addendum and corrigendum.
- Channel drains shown are only to collect surface water run-off from hard paved areas and door thresholds and are not intended to collect groundwater or run-off from gardens and landscaped areas.
- All abandoned pipework to be completely removed or grout filled unless stated otherwise.

NOTES

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- Commencement of any building works prior to full building regulation approval is entirely at the clients risk.


B	Flow control detail removed	15/04/2024
A	First issue to client	25/10/2023
Rev	Description	Date
PROJECT: Proposed residential development at: 5B Albany Park Road, Kingston Upon Thames, KT2 5SU		
CLIENT: Mr R Fountain Esq		
DRAWING: Drainage Construction Details		
SCALE:	DATE:	SHEET:
As shown	20/11/2023	A1
STATUS: PRELIMINARY		
T-2023-017-03		
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APPENDIX B

Windes Design Calculations


Tridax Ltd		Page 1
Honeywood House Whitfield Kent CT16 3EH	58 Albany Park Road Kingston Upon Thames Soakaway Design	
Date 12/04/2024 10:41 File T-2023-017 Soakaway Desi...	Designed by sjc Checked by	
XP Solutions	Source Control 2020.1.3	

Summary of Results for 100 year Return Period (+45%)

Half Drain Time : 398 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m ³)	Status
15 min Summer	6.049	0.549	0.1	4.2	O K
30 min Summer	6.205	0.705	0.2	5.4	O K
60 min Summer	6.341	0.841	0.2	6.4	O K
120 min Summer	6.437	0.937	0.2	7.1	O K
180 min Summer	6.472	0.972	0.2	7.4	O K
240 min Summer	6.481	0.981	0.2	7.5	O K
360 min Summer	6.471	0.971	0.2	7.4	O K
480 min Summer	6.454	0.954	0.2	7.3	O K
600 min Summer	6.435	0.935	0.2	7.1	O K
720 min Summer	6.414	0.914	0.2	6.9	O K
960 min Summer	6.369	0.869	0.2	6.6	O K
1440 min Summer	6.287	0.787	0.2	6.0	O K
2160 min Summer	6.183	0.683	0.2	5.2	O K
2880 min Summer	6.095	0.595	0.2	4.5	O K
4320 min Summer	5.956	0.456	0.1	3.5	O K
5760 min Summer	5.852	0.352	0.1	2.7	O K
7200 min Summer	5.771	0.271	0.1	2.1	O K
8640 min Summer	5.707	0.207	0.1	1.6	O K
10080 min Summer	5.656	0.156	0.1	1.2	O K
15 min Winter	6.117	0.617	0.2	4.7	O K
30 min Winter	6.292	0.792	0.2	6.0	O K
60 min Winter	6.448	0.948	0.2	7.2	O K
120 min Winter	6.561	1.061	0.2	8.1	O K


Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Time-Peak (mins)
15 min Summer	192.260	0.0	26
30 min Summer	124.873	0.0	40
60 min Summer	76.528	0.0	68
120 min Summer	45.025	0.0	126
180 min Summer	32.838	0.0	184
240 min Summer	26.190	0.0	242
360 min Summer	18.990	0.0	310
480 min Summer	15.094	0.0	372
600 min Summer	12.621	0.0	436
720 min Summer	10.899	0.0	504
960 min Summer	8.640	0.0	644
1440 min Summer	6.218	0.0	918
2160 min Summer	4.466	0.0	1324
2880 min Summer	3.528	0.0	1712
4320 min Summer	2.529	0.0	2472
5760 min Summer	1.999	0.0	3232
7200 min Summer	1.666	0.0	3960
8640 min Summer	1.436	0.0	4672
10080 min Summer	1.266	0.0	5352
15 min Winter	192.260	0.0	26
30 min Winter	124.873	0.0	40
60 min Winter	76.528	0.0	68
120 min Winter	45.025	0.0	124

Tridax Ltd		Page 2
Honeywood House Whitfield Kent CT16 3EH	58 Albany Park Road Kingston Upon Thames Soakaway Design	
Date 12/04/2024 10:41	Designed by sjc	
File T-2023-017 Soakaway Desi...	Checked by	
XP Solutions	Source Control 2020.1.3	

Summary of Results for 100 year Return Period (+45%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
180 min Winter	6.607	1.107	0.2	8.4	O K
240 min Winter	6.623	1.123	0.2	8.5	O K
360 min Winter	6.614	1.114	0.2	8.5	O K
480 min Winter	6.592	1.092	0.2	8.3	O K
600 min Winter	6.569	1.069	0.2	8.1	O K
720 min Winter	6.541	1.041	0.2	7.9	O K
960 min Winter	6.481	0.981	0.2	7.5	O K
1440 min Winter	6.364	0.864	0.2	6.6	O K
2160 min Winter	6.217	0.717	0.2	5.4	O K
2880 min Winter	6.096	0.596	0.2	4.5	O K
4320 min Winter	5.911	0.411	0.1	3.1	O K
5760 min Winter	5.779	0.279	0.1	2.1	O K
7200 min Winter	5.681	0.181	0.1	1.4	O K
8640 min Winter	5.609	0.109	0.1	0.8	O K
10080 min Winter	5.560	0.060	0.1	0.5	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
180 min Winter	32.838	0.0	180
240 min Winter	26.190	0.0	236
360 min Winter	18.990	0.0	340
480 min Winter	15.094	0.0	386
600 min Winter	12.621	0.0	462
720 min Winter	10.899	0.0	540
960 min Winter	8.640	0.0	692
1440 min Winter	6.218	0.0	988
2160 min Winter	4.466	0.0	1412
2880 min Winter	3.528	0.0	1820
4320 min Winter	2.529	0.0	2600
5760 min Winter	1.999	0.0	3352
7200 min Winter	1.666	0.0	4048
8640 min Winter	1.436	0.0	4752
10080 min Winter	1.266	0.0	5336

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Honeywood House Whitfield Kent CT16 3EH	58 Albany Park Road Kingston Upon Thames Soakaway Design	
Date 12/04/2024 10:41	Designed by sjc	
File T-2023-017 Soakaway Desi...	Checked by	
XP Solutions	Source Control 2020.1.3	


Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	26.250	Shortest Storm (mins)	15
Ratio R	0.400	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+45

Time Area Diagram

Total Area (ha) 0.012

Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)
From:	To:	From:	To:	From:	To:
0	4	4	8	8	12
	0.004		0.004		0.004

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Honeywood House Whitfield Kent CT16 3EH	58 Albany Park Road Kingston Upon Thames Soakaway Design	
Date 12/04/2024 10:41	Designed by sjc	
File T-2023-017 Soakaway Desi...	Checked by	
XP Solutions	Source Control 2020.1.3	

Model Details

Storage is Online Cover Level (m) 7.500

Cellular Storage Structure

Invert Level (m) 5.500 Safety Factor 2.0
 Infiltration Coefficient Base (m/hr) 0.07160 Porosity 0.95
 Infiltration Coefficient Side (m/hr) 0.07160

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	8.0	8.0	1.200	8.0	22.4	1.201	0.0	22.4