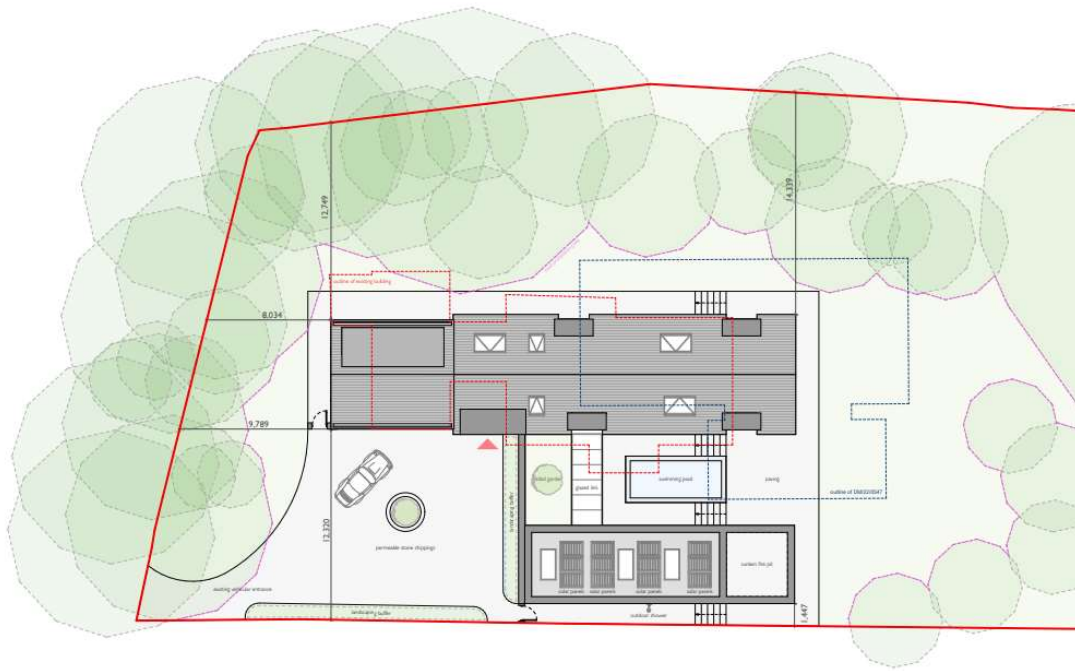


Shell Brook, High Street, Ardingly, Haywards Heath, RH17 6TG



Issued For	Supporting Document for Planning Submission	29/01/25
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1.0 Introduction

Haworth McCall is a Civil and Structural engineering consultancy with offices in Brighton and Belfast.

2.0 The Brief

Haworth McCall took instructions from PMR Architecture to prepare a drainage statement to support a planning submission for a replacement dwelling.

This drainage statement includes foul and surface water drainage proposals as well as an exceedance flow plan. See Appendix A for the existing site plans and Appendix B for the proposed site plans.

This drainage statement has been prepared with reference to:

- The technical guidance provided in The SuDS Manual
- The Validation Criteria for Planning Applications, produced by Mid Sussex District Council, dated March 2020.
- Mid Sussex District Council Flood Risk and Drainage Information Check List – Application Stage. See Appendix H for Drainage information checklist. This Drainage Statement includes all the information required for Tables 2, 3 & 4 in the Drainage Information Checklist. The infiltration rate will be confirmed on site at the proposed soakaway location with a BRE365 infiltration test before the drainage design is progressed to RIBA stage 4.

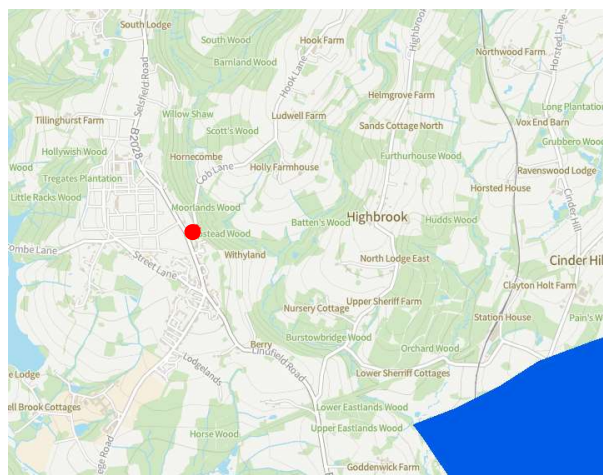
3.0 Site Information

The site is located at Shell Brook, High Street, Ardingly, Haywards Heath, RH17 6TG.

3.1 Source Protection Zone

Magic Map (opposite) indicates that the site is not within Source Protection Zone (SPZ) I, II or III.

Cobalt-blue is SPZ III approximately 2.3km South-East of the site. The site is indicated by the red dot.



3.2 Geology

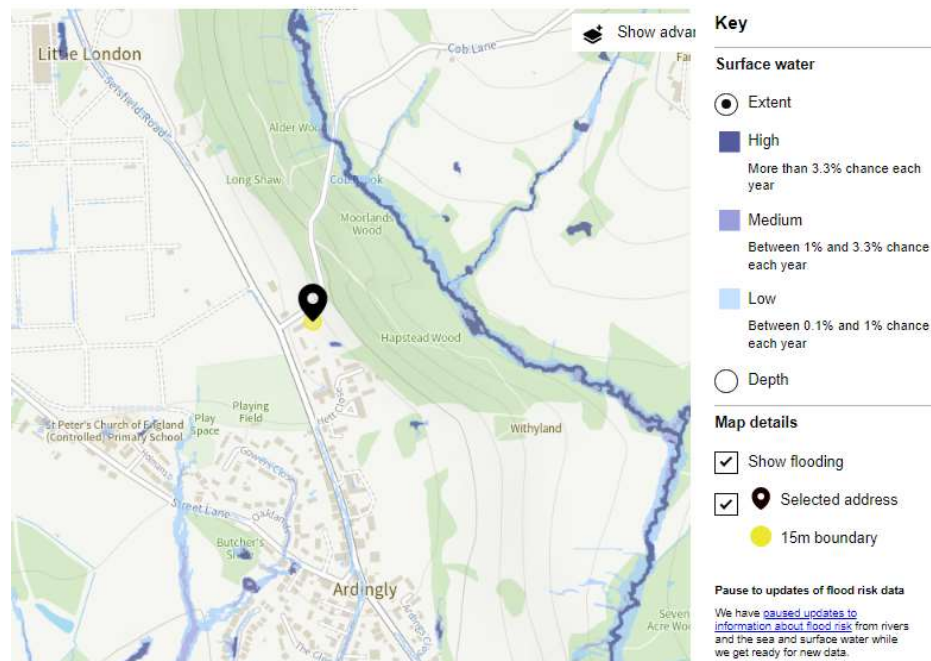
At the time of writing this report, a ground investigation was not available. However, the British Geological Survey indicates that the site sits near the boundary of three formations with no superficial deposits. These include: Cuckfield Stone Bed – Sandstone, Lower Grinstead Clay – Mudstone, and Ardingly Sandstone Member – Sandstone. The red line outlines the site in the centre of the figure.



3.3 Flood Risk

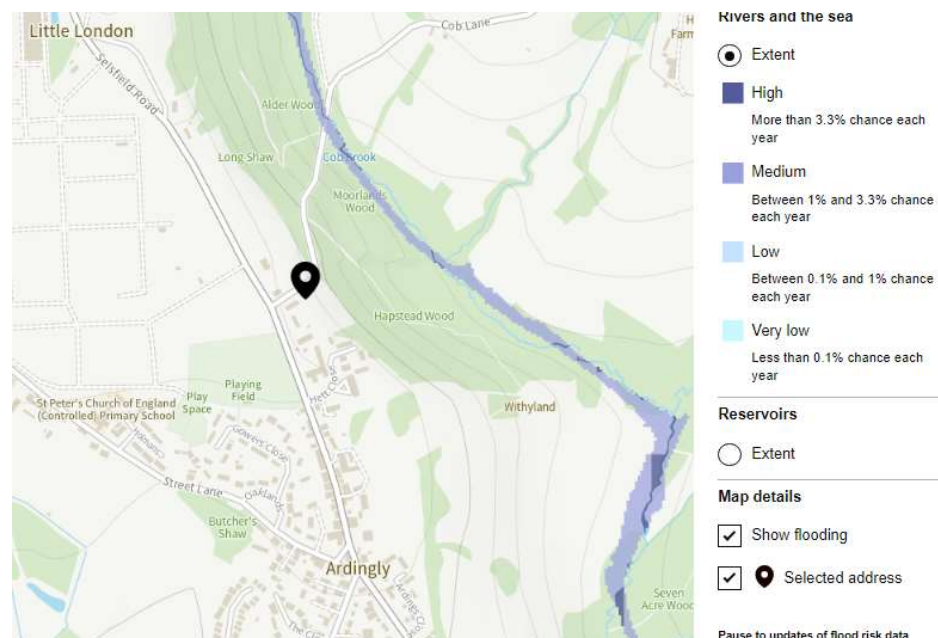
Pluvial Flooding

The extract from Environment Agency flood mapping opposite indicates the extent of pluvial flooding. The site is marked in the center of the map, with a key to the colouring next to the figure. The site sits in an area with a very low risk of pluvial flooding.



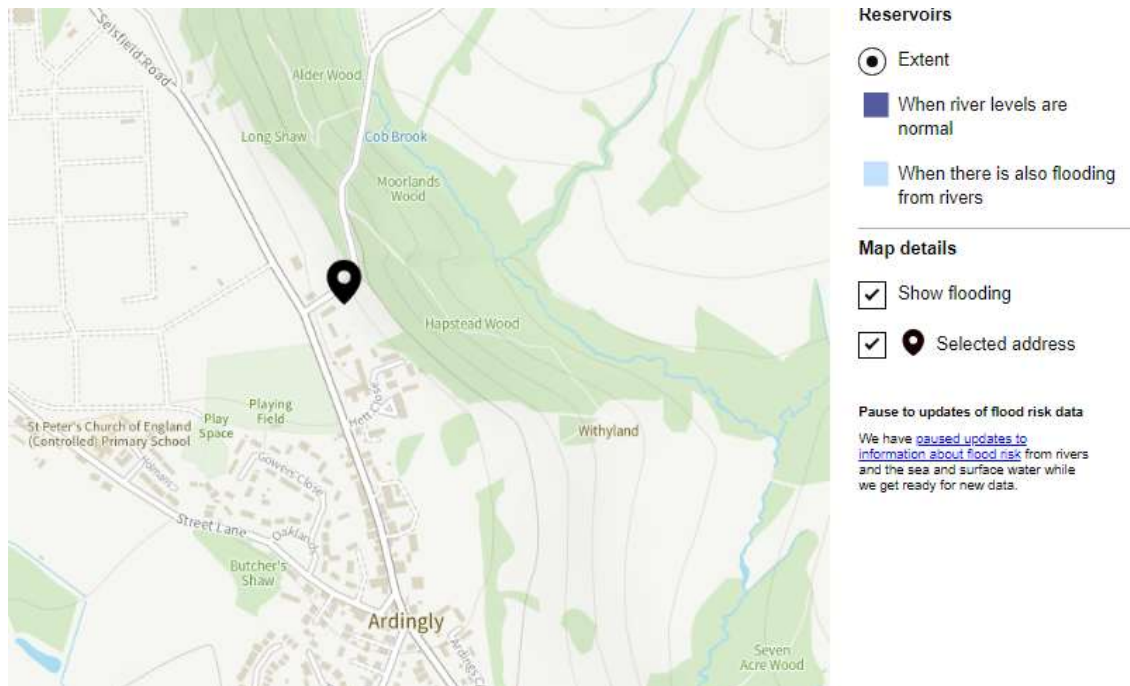
Fluvial Flooding

The figure from Environmental Agency flood mapping opposite shows the extent of fluvial flooding. The site is marked in the centre of the map. The Environment Agency website confirms that the site sits in flood zone 1 and at very low risk of flooding from rivers or the sea.



Flooding from Reservoirs

The figure from Environmental Agency below shows the extent of flooding from groundwater and reservoirs. The site is at very low risk of flooding from groundwater and reservoirs.



4.0 Surface Water Drainage

4.1 Existing Surface Water Drainage

The topographical site survey indicates there are no surface water inspection chambers serving the existing property. At the time of writing this report a drainage survey of the existing surface water drainage was not available. It is assumed that the existing surface water is discharged to the ground via a soakaway, this should be confirmed on site with a drainage survey before the drainage design is progressed to RIBA Stage 4.

4.2 Surface Water Management Options

The obligation in The SuDS manual is to design drainage to minimize flooding both on and off the site and each proposal must follow a hierarchy for dealing with, and managing surface water as follows:

Table 1: SuDS Hierarchy

Hierarchy	Strategy	Comments
1	Retain on site. The most preferred option	Due to the risks involved with children being around deep water, and limited space, retaining water on site, i.e. a pond, would not be possible for this specific project.
2	Infiltrate to the ground	The BGS indicates that the ground conditions are sandstone and clay, at the time of writing this report a ground investigation was not available. We have assumed that infiltration to the ground is a viable option, this should be confirmed on site with a ground investigation before the drainage design is progressed to RIBA Stage 4. This would be the most preferred option.
3	Discharge to a watercourse	There is no watercourse in close proximity to the site. The nearest water course is about 200m north-east of the site through third party land.
4	Discharge to a stormwater sewer	There is no readily available information to suggest a surface water sewer is near the site.
5	Discharge to a combined sewer The least preferred option	There is no readily available information to suggest a combined sewer is near the site.
6	Discharge to a foul sewer.	Not permitted

4.3 Proposed Surface Water Drainage

Using the SuDS hierarchy at item 3.2 above and a study of available information, the proposed method of dealing with surface water, from roofs and hard landscaped areas, will be a gravity-based system discharging into the ground via a soakaway. See Appendix C, drawing 1945-401 for proposed surface water drainage runs and their connection to the soakaway.

Although a treatment-train is not mandatory outside the SPZ's it is good practice to intercept debris and sediment before the soakaway, to preserve its effectiveness. Gullies with traps should be installed to all rainwater down pipes along with catchpits (manhole chambers with sumps) upstream of the soakaway. See Appendix C Drawings 1945-400 and 1945-401 for details.

The driveway will be permeable with a buildup to mitigate pollution from cars, see Appendix C Drawing 1945-400 for details. All other hard landscaped areas such as footpaths, patios etc, which are only accessible to pedestrians, will direct run-off water to soft landscaped areas or channel drains which lead to the proposed soakaway.

4.4 Soakaway Sizing

The soakaway volume has been calculated in accordance with BRE Digest 365, based on:

- A 6 hour, 1:100year storm event + 40% Climate Change Factor (CCF), and
- An impermeable catchment of 400m² (Roof & Hard Landscaping)
- An infiltration rate of 10.0x10⁻⁶ for Sandstone rock taken from Table 2.1a: Typical Infiltration rates (CIRIA, 2007), see Appendix G for Table 2.1a.

The required volume of the soakaway is 28.25m³ and the volume provided using Polypipe crates will be 45.60m³ (nominally 10m x 4m x 1.2m deep). See Appendix D for calculations and Appendix E for typical crate details.

4.5 Exceedance Flow

In the event that the capacity surface water of the drainage system is exceeded, all surface water would run off site to the north-east following the pre-existing topography. To the north-east of the site is an ancient woodland in which the surface water runoff enters Cob brook, which then connects to the river Ouse some 6km to the south-east. See Appendix C drawing 1945-410 for the exceedance flow plan.

5.0 Foul Drainage

5.1 Existing Foul Water Drainage

The topographical site survey indicates there are two existing foul water inspection chambers serving the existing property. At the time of writing this report a drainage survey was not available. It is assumed that the existing foul water drainage connects to the Southern Water foul water sewer located in High Street, via an existing manhole, ExFWIC1. Refer to Appendix A for the existing topographical survey and Appendix F for the Southern Water Asset Plan.

5.2 Proposed Foul Water Drainage

The proposed foul drainage will be a predominantly gravity-based system utilising the existing connection to Southern Water's sewer network in High Street. Due to the topography of the site, there will be a small amount of pumped foul from the annex. Drawing 1945-400, Appendix C, shows details of the foul drainage runs and their connection to ExFWIC1.

6.0 Maintenance Plan

6.1 Drainage Maintenance Plan

The following table identifies various drainage features and their maintenance.

Item	Frequency	Responsibility
Buried Pipework Jet-wash foul and surface water pipe runs	Every 10yrs	Freeholder
Catchpit Lift chamber lid and remove build-up of silt and debris if loss of sump depth is greater than 50%	Annually	Freeholder
Gutters, RWP and Gullies Remove debris and check traps and remove silt as necessary	Annually	Freeholder
Litter Remove litter around and from drainage features such as gullies and the rain garden.	Monthly	Freeholder
Permeable paving Remove debris and build-up of fine material and leaf litter especially in the autumn.	Annually	Freeholder
Permeable paving If drop off in effectiveness of infiltration is noticed e.g. ponding, jet wash and suction clean to restore permeable pavement function	As required	Freeholder
Plant management Trim overhanging branches and remove growth or weeds or self-seeded plants around drainage features such as gutters and rainwater pipes, gullies or within permeable paving etc	Annually	Freeholder
Soakaway Check condition of soakaway chamber with CCTV survey. Surveyor to advise on condition and any remedial work, if required.	Every 10yrs	Freeholder

7.0 Glossary of Terms and Abbreviations

Term	Definition
AP	See Return Period
Aquifer	A subsurface zone or formation of rock or solid containing a body of water
Attenuation	Temporary storage and release of storm water at a pre-determined rate to a watercourse or sewer system.
BGS	British Geological Survey
Blue Roof	A roof construction that stores water for controlled release or re-use
Catchpit	A chamber with a sump to trap sediment and debris which allows water to flow through
CBR	California Bearing Ratio. Used as measure of ground bearing capacity. 2% or less is considered to be weak strata such as soft clay; anything over 30% is considered to be competent ground
CIRIA	Construction Industry Research and Information Association
Combined sewer	An underground pipe that conveys both foul and stormwater
Flood Risk Assessment (FRA)	An assessment of the risk of flooding on a development or caused by the development
Flood Defences	Structures designed to protect land, people and property from tidal and fluvial (river) flooding.
Flooding Fluvial	When the capacity of a watercourse is exceeded, causing flooding beyond the banks of the watercourse.
Flooding Pluvial	Overland flows which develop during a storm event when the capacity of the drainage system is exceeded
Flooding from Sea	Occurs when strong winds create large waves which breach natural or man-made coastal protection structures. Coastal flooding is usually more extreme when linked to a low-pressure system as a low-pressure system can raise sea levels by up to 1m leading to increased wave height.
Flood Zone Map	Environment Agency mapping which covers England and provides the general extent of Flooding in Zones 1, 2, and 3.
Flood Zone 1	Defined by the Environment Agency (EA) as Low Probability of flooding, having a less than 0.1% annual probability from river or sea flooding
Flood Zone 2	Defined by the EA as Medium Probability. Land having between a 1.0% and 0.1% annual probability of river flooding; or land having between a 0.5% and 0.1% annual probability of sea flooding.
Flood Zone 3	Defined by the EA as High Probability. Land having 1.0% or greater annual probability of river flooding; or Land having 0.5% or greater annual probability of flooding by sea.
Freeboard	Difference between water level and flood defence or flood mitigation device.
Green Roof	A roof with plants growing on its surface which promotes biodiversity, a degree of retention and evapotranspiration
Ground Water Flooding	When ground water rises to the surface or above the surface, causing damage to infrastructure such as basements and other sub-surface structures.

Hydrobrake	Device to manage discharge rates of stormwater from a development
Infiltration	Passage of surface water into the ground
Main River	Defined by the Environment Agency on the Main River map and relate to rivers where the EA has jurisdiction
mbgl	Metres below ground level
Major Development	Comprise: a) Winning and working of minerals or the use of land for mineral-working deposits b) Waste development c) Provision of 10 or more dwellinghouses or fewer, if the development site has an area of 0.5 hectares or more d) Provision of a building or buildings where the floor space is 1,000 square metres or more e) Development on a site having an area of 1 hectare or more.
Minor Development	Comprise: a) Extensions to industrial or commercial or leisure facilities that do not increase floorspace not more than 250 square metres. b) Alterations that do not increase the size of buildings such as a change to the appearance of a building. c) Householder development within the curtilage of the dwelling such as extensions or loft conversion or ancillary buildings but, excludes a proposed development that would create a separate dwelling within the curtilage of the existing dwelling sub-division into flats
OS	Ordnance Survey
Ordinary Watercourse	A watercourse which does not form part of a Main River. Works usually require consent from either the Lead Local Flood Authority and the Internal Drainage Board.
Q_{BAR}	The arithmetic mean, annual maximum flood.
Rain Garden	Also referred to as bioretention; a planted device or depression that allows water to pond temporarily before percolating into the ground or drainage system. Layers of sand and gravel provide treatment potential and can improve water quality.
Return Period	An estimate of the likelihood of a particular event occurring. For example, a 100-year storm refers to a storm that occurs on average once every 100 years. In other words, its annual probability of exceedance is 1% i.e., 1 in 100
Riparian	Relating to the banks of a natural watercourse
Soakaway	A subsurface structure into which water is conveyed and is designed to promote infiltration
SSSI	Site of special scientific interest
SPZ	Source Protection Zone. Areas where ground waters are used for human consumption and are protected from risk of pollution,
SuDS	Sustainable Drainage System. A combination or individual elements of a drainage system designed to convey, store, or treat surface water to minimize long term detrimental impacts from developments.
Swale	A shallow vegetated channel designed to convey, treat, and occasionally store surface water. Swales may also permit infiltration
Urban Creep	Increase in impermeable areas within a development site over time. Examples of this are extensions to dwellings, paving over gardens or soft landscaping areas and the addition of new roads and buildings. Urban creep gives rise to increased volumes and rates of surface water runoff.

Appendix A

(Existing Site)

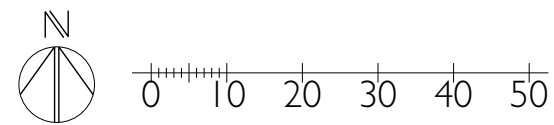


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— Site Boundary

Site Location Plan

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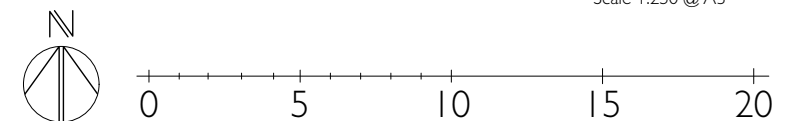


PMR
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Hove, BN3 1DD

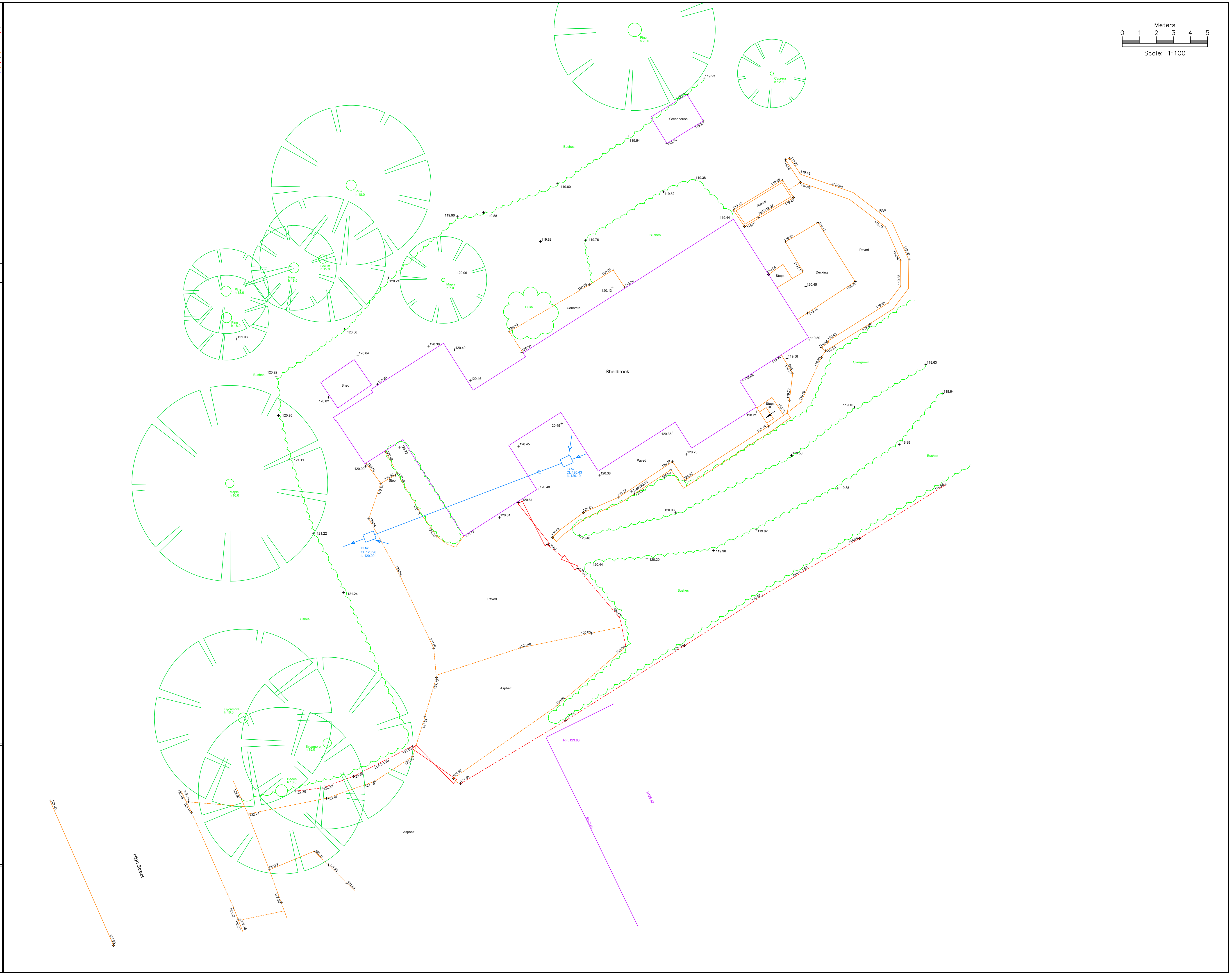
01273 980820
brighton@pmr-architecture.co.uk
www.pmr-architecture.co.uk

Client: Lisa & Chris Brotherton
Project: Shell Brook, High Street, Ardingly, Haywards Heath, RH17 6TG
Drawing Title: Site Location and Block Plan
Drawing No: 24.25_SK_01
Revision:
Date: December 2024
Status: DRAFT PLANNING
Scale: 1:1000, 1:250 @ A3



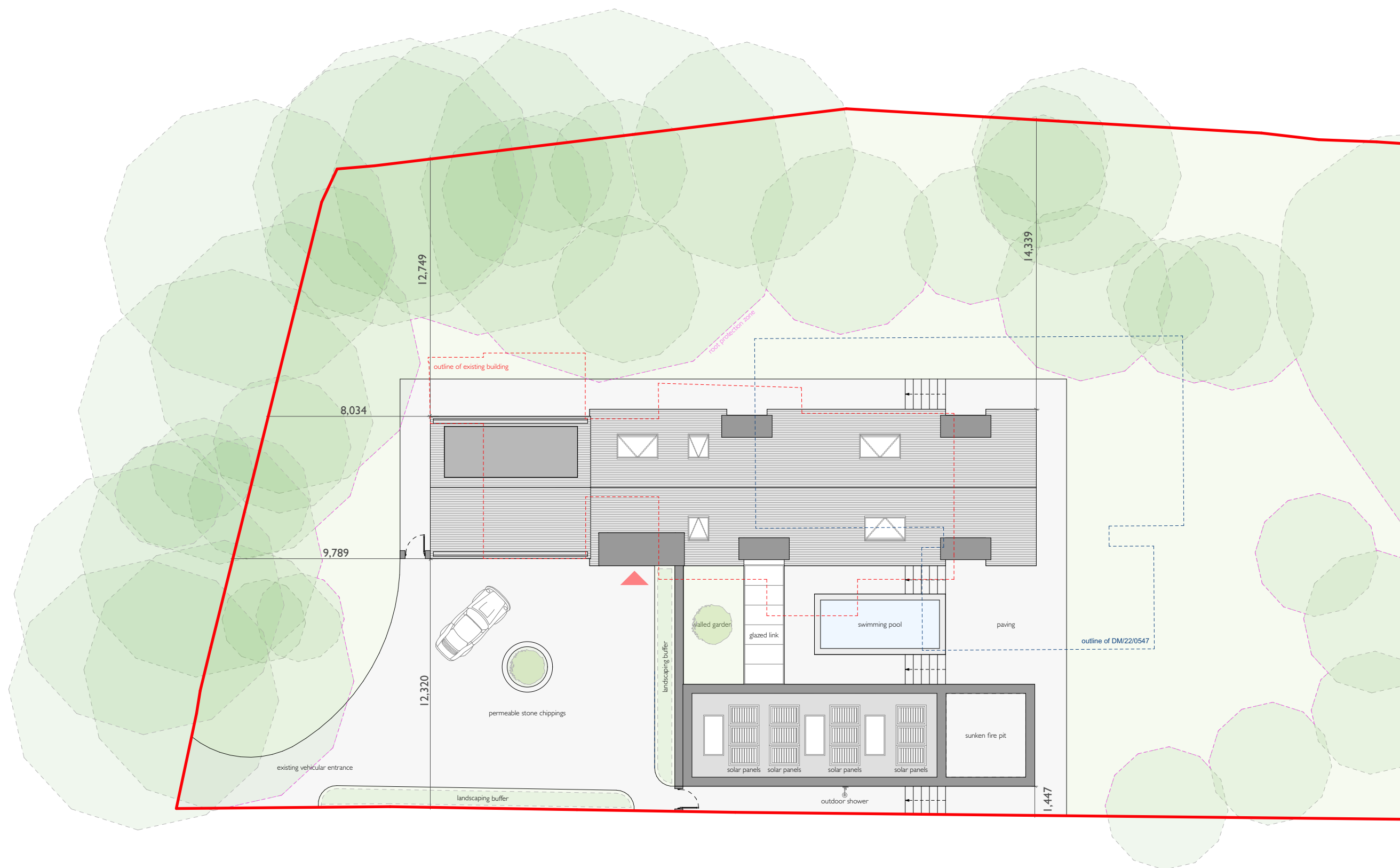
Block Plan

Scale 1:250 @ A3



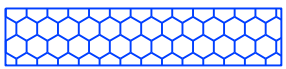
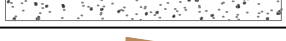
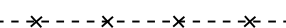
Appendix B

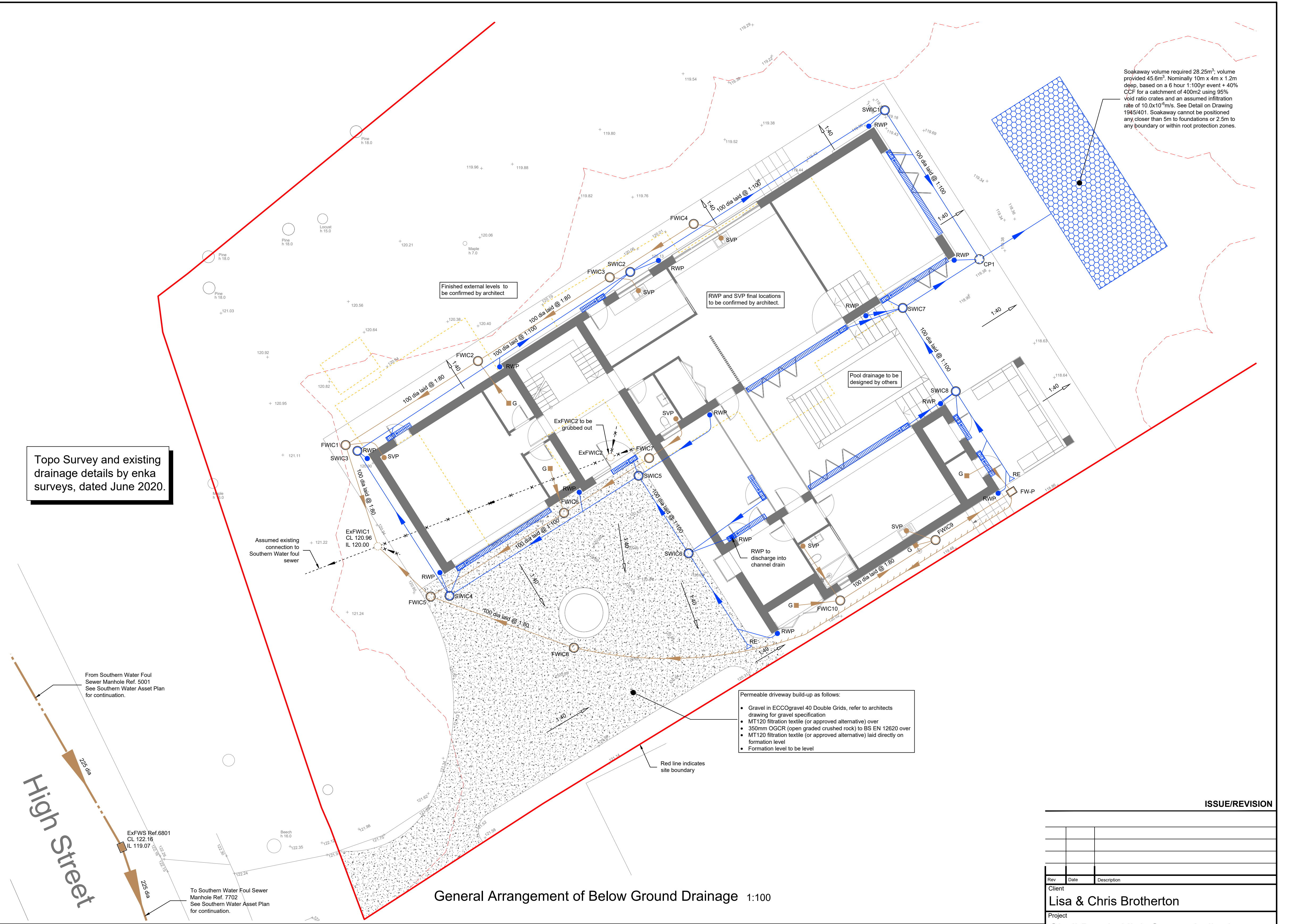
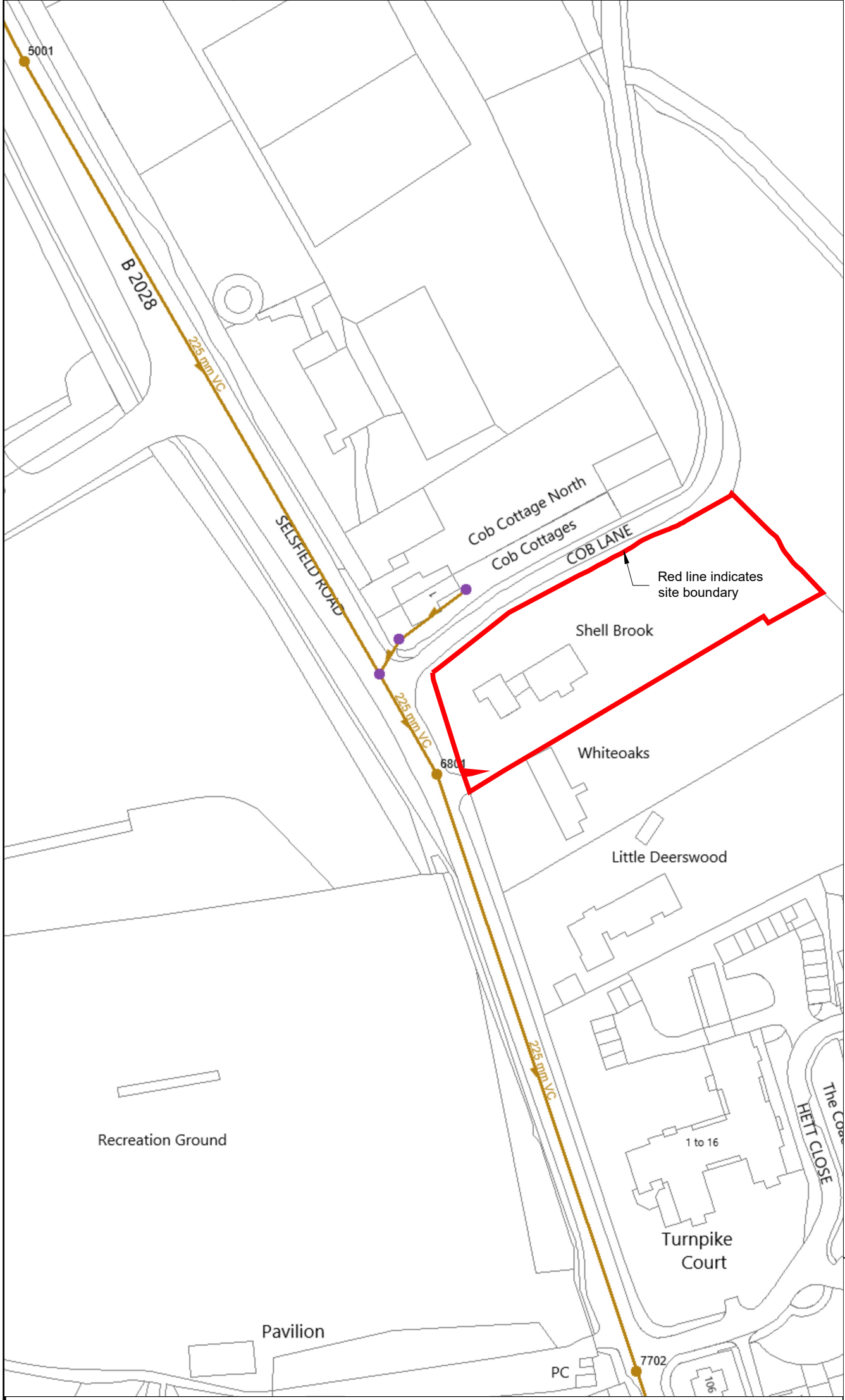
(Proposed Site)



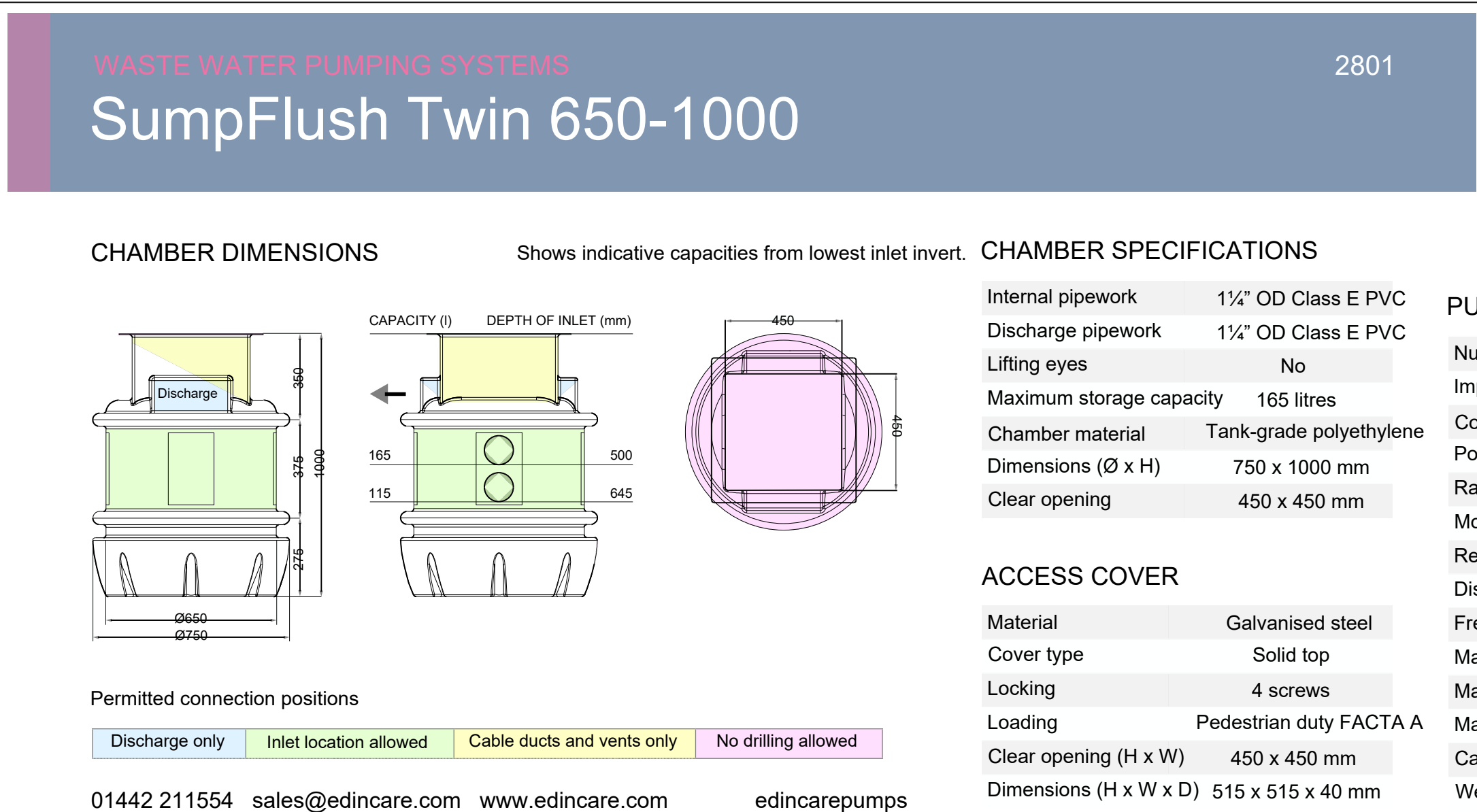
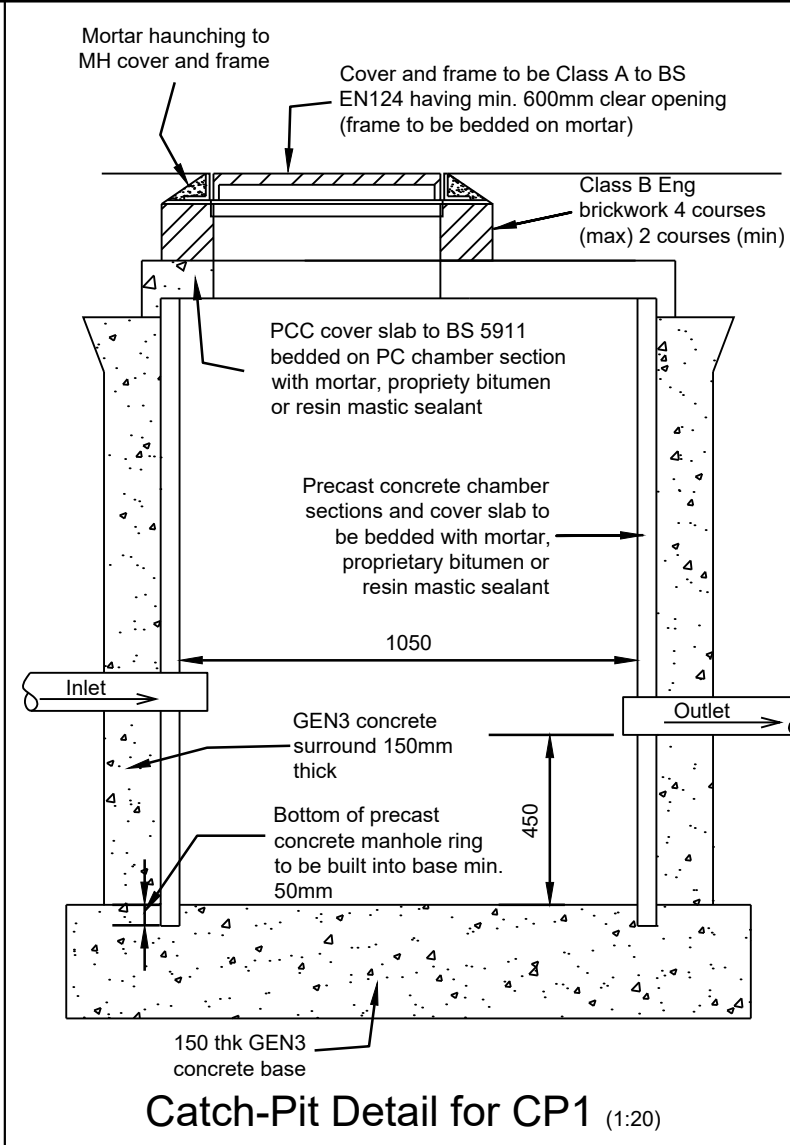
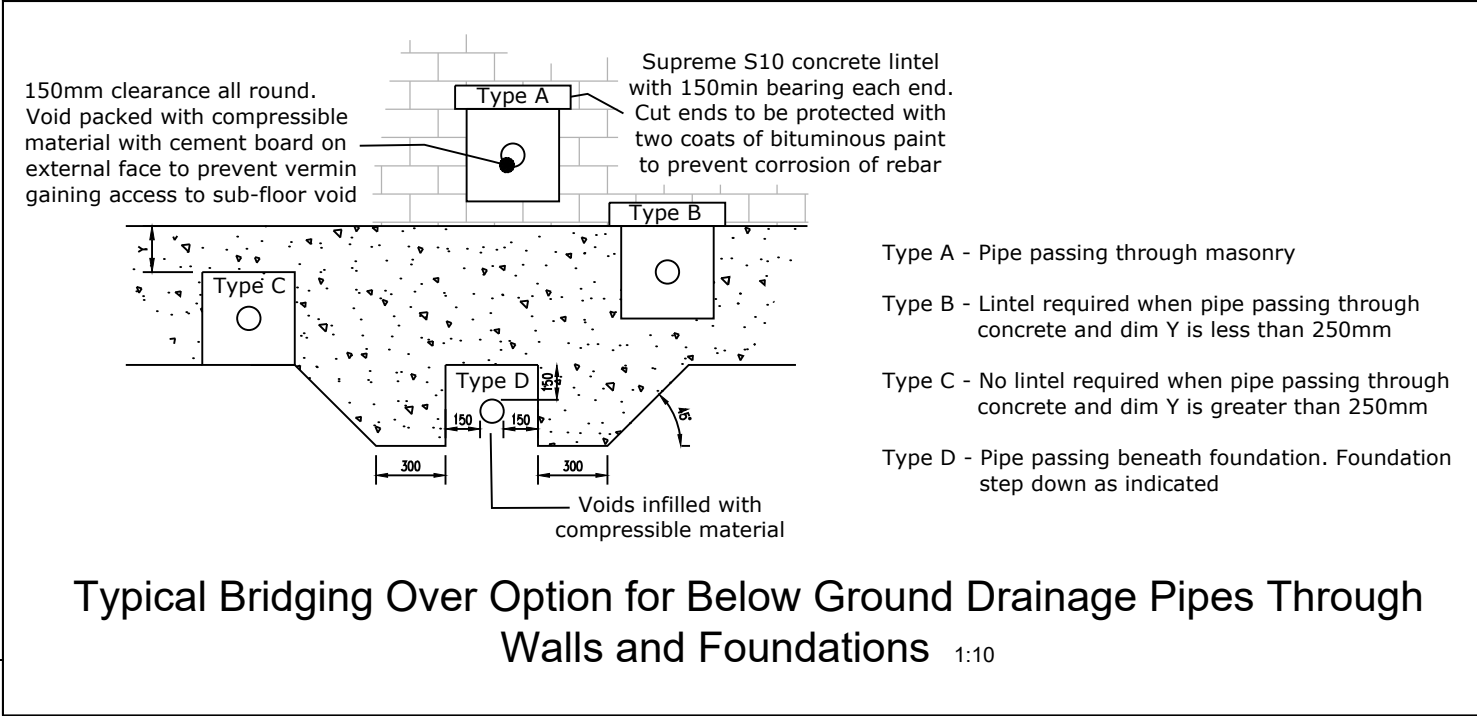
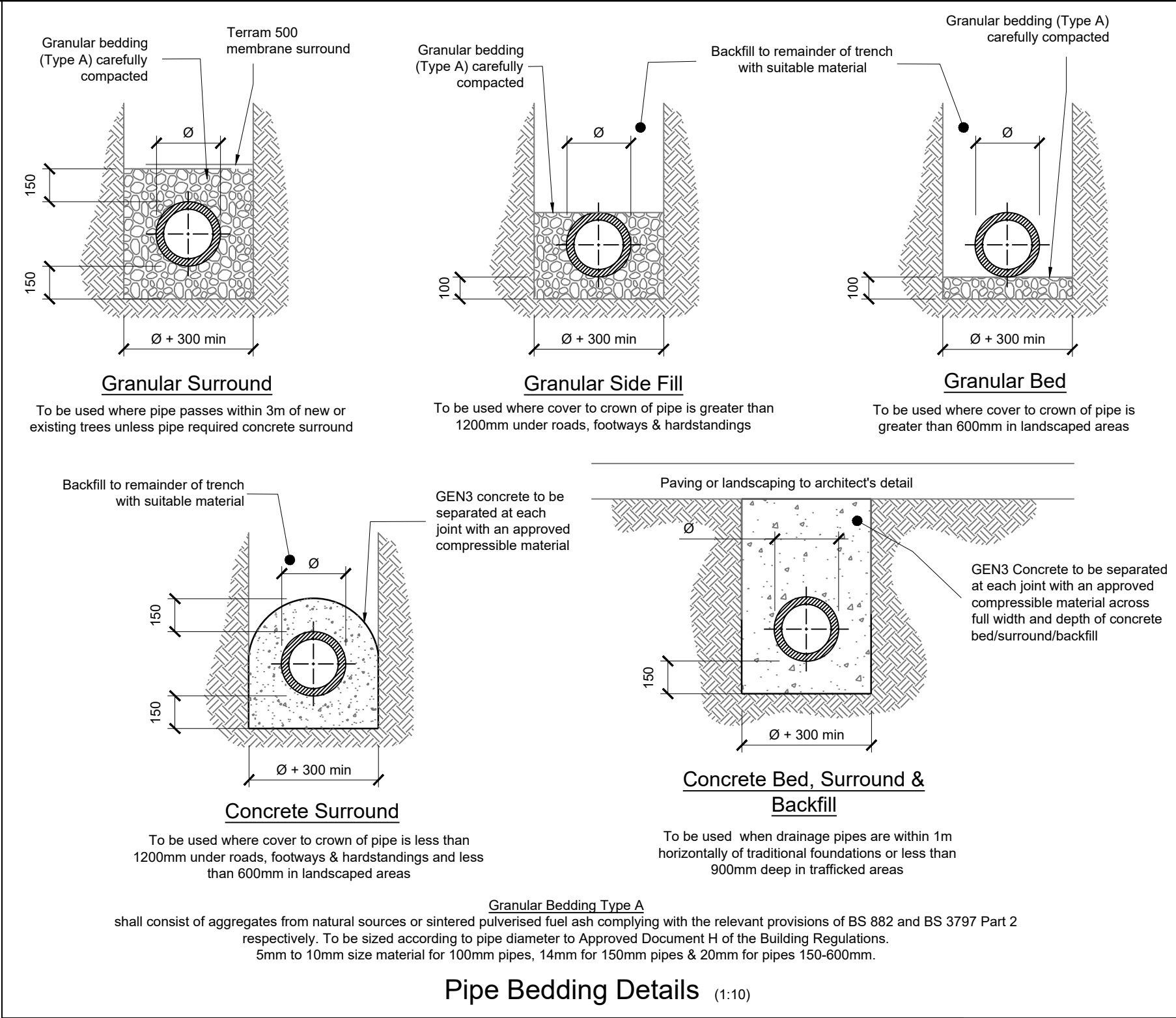
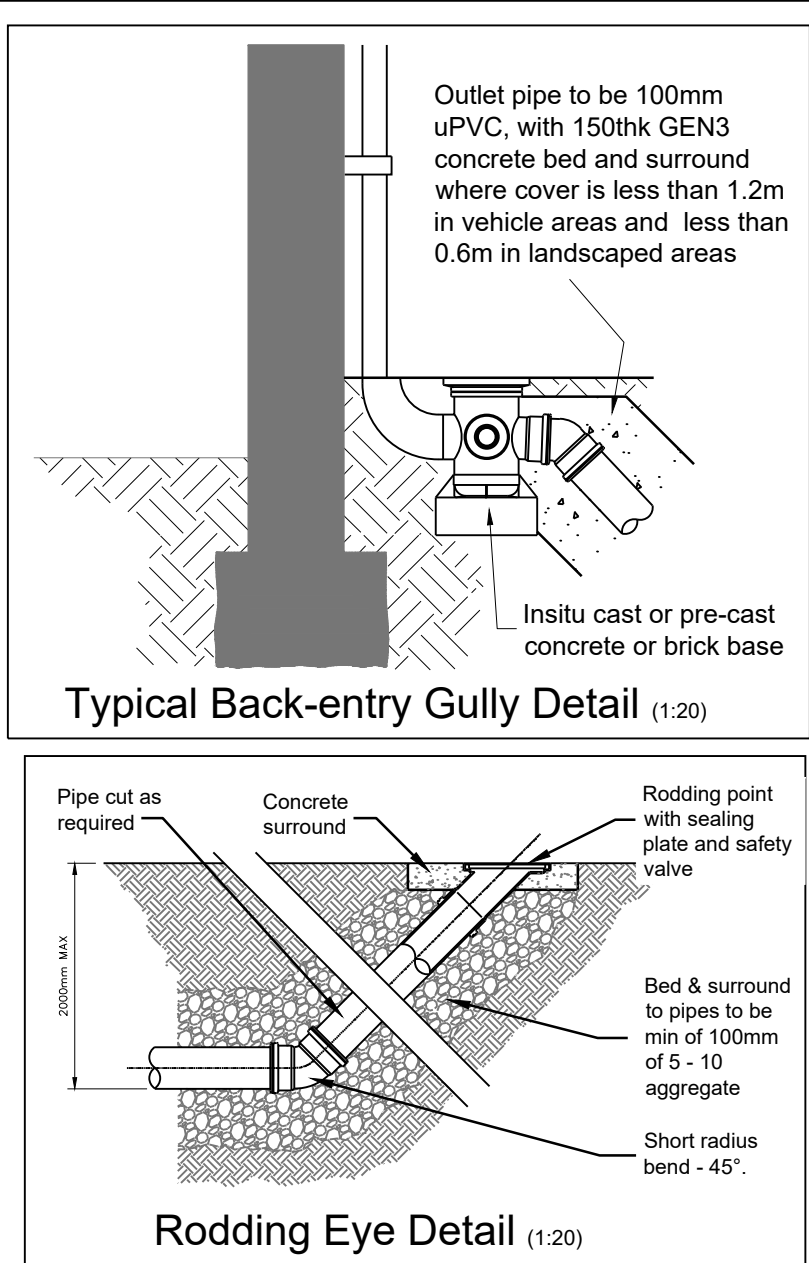
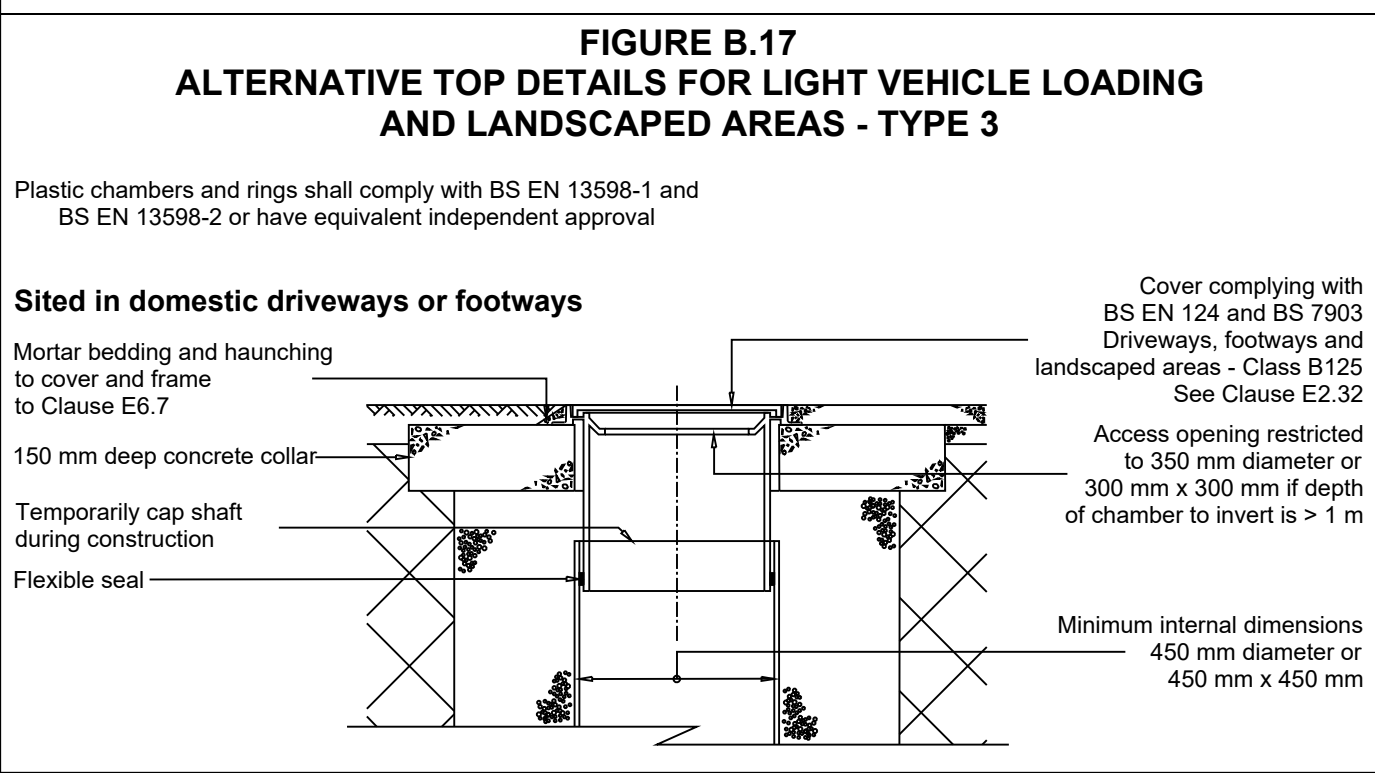
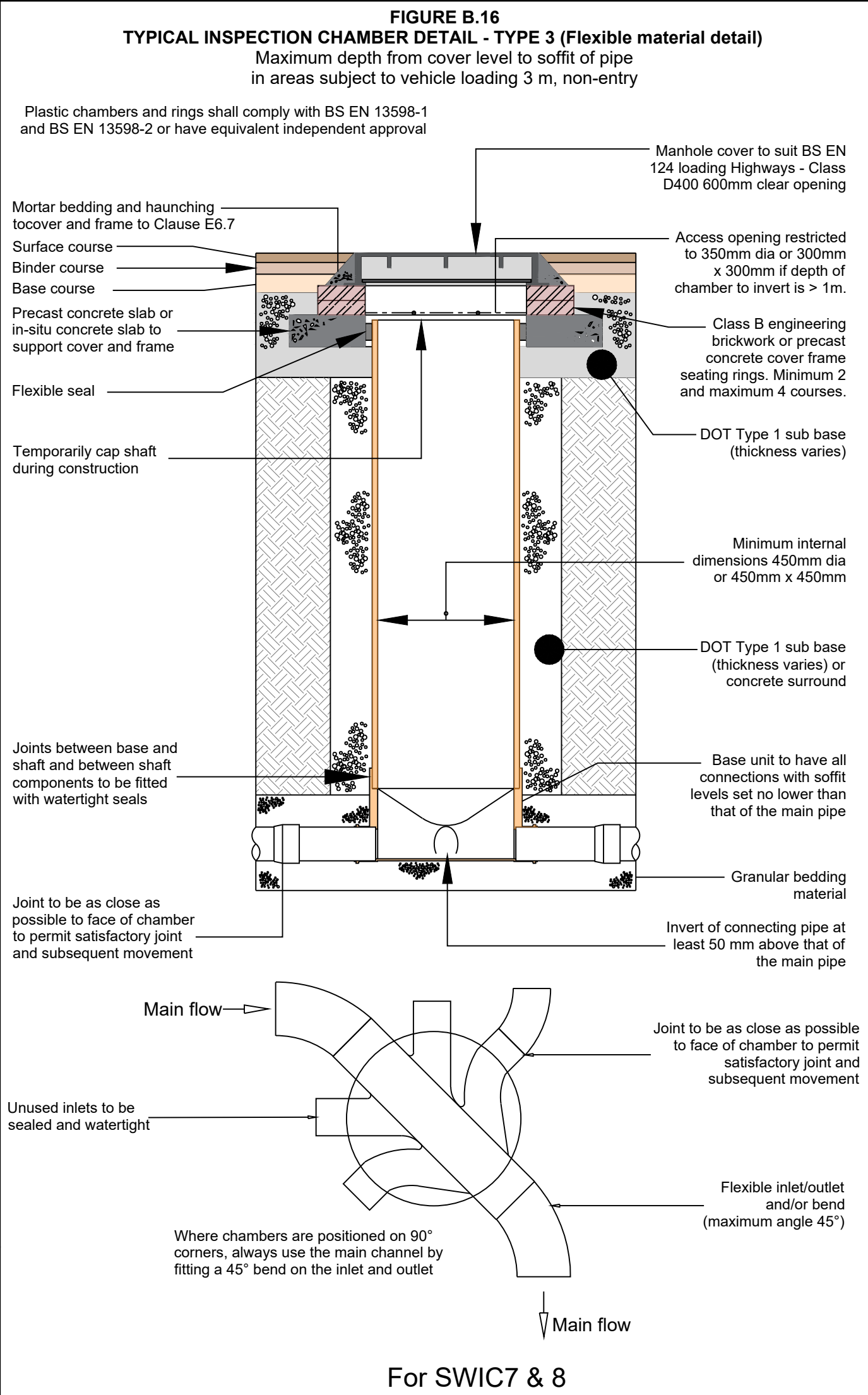
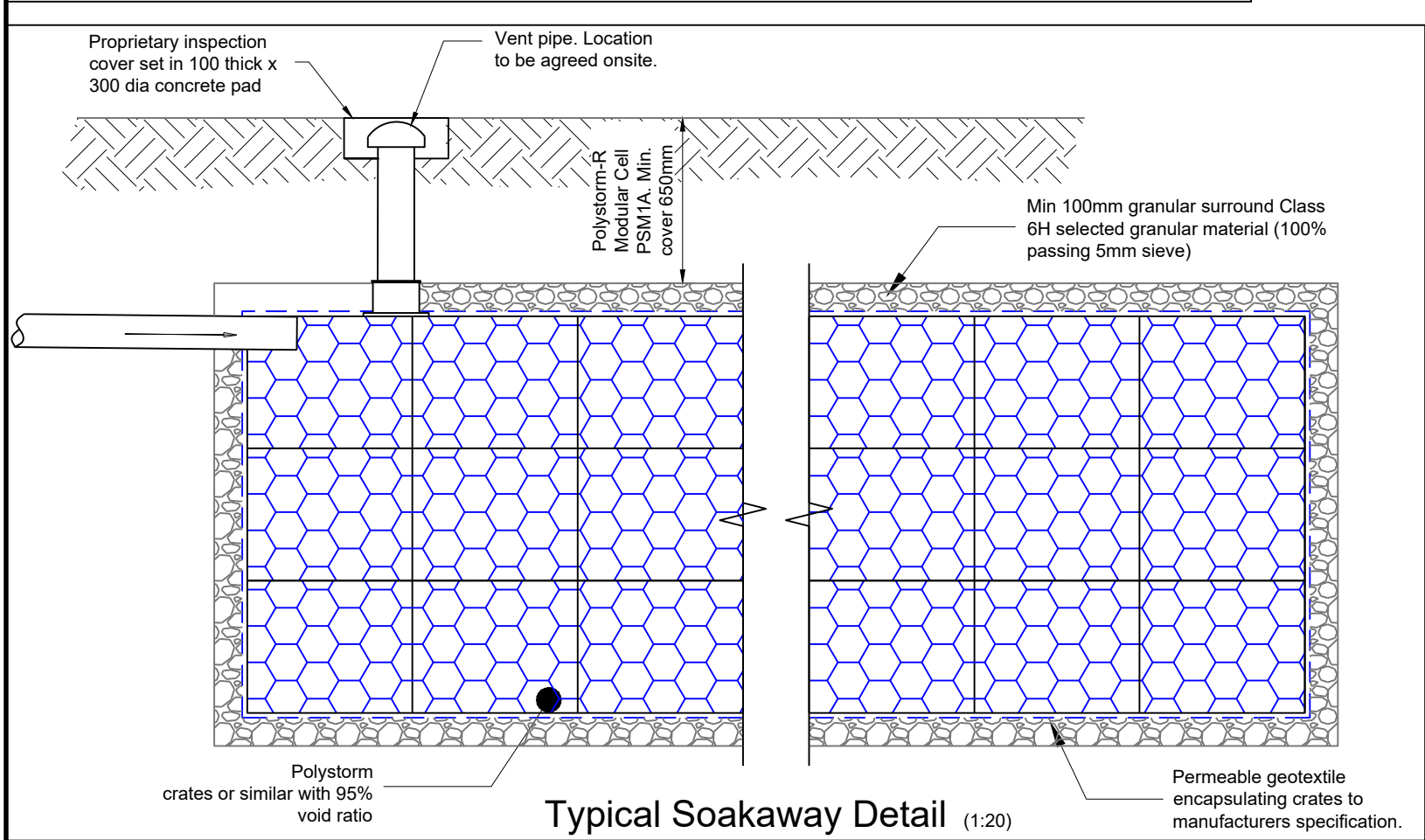
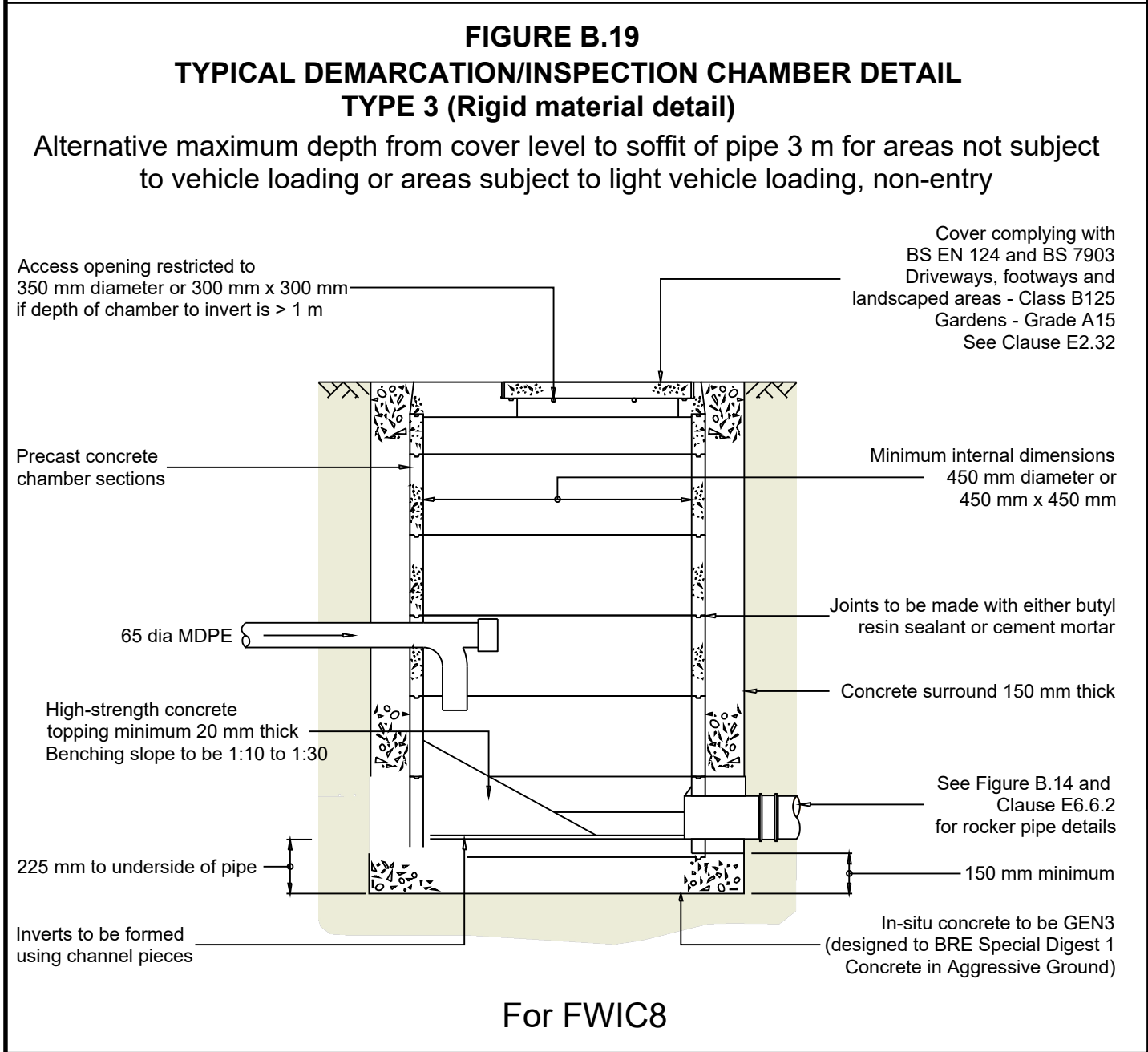
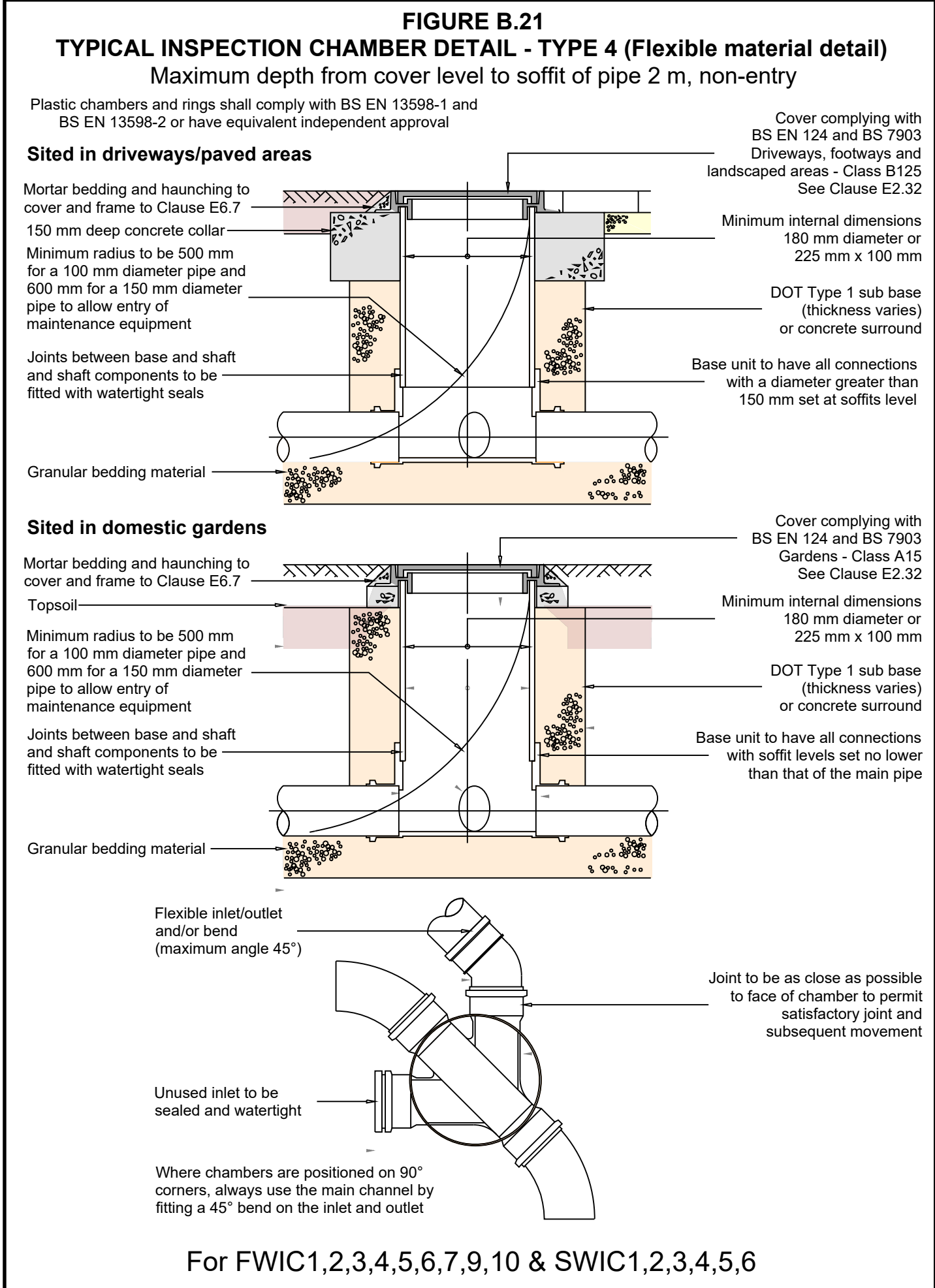
Appendix C

(Drainage Strategy)

Key	
	Proposed Surface Water Drainage with Direction of Flow
SWIC1 	Proposed Surface Water Inspection Chamber
CP1 	Proposed Catch-Pit
RWP 	Proposed Rainwater Down Pipe
	Proposed Soakaway
	Proposed Channel Drain with Sump Unit
RE 	Proposed Rodding Eye
	Proposed Foul Water Drainage with Direction of Flow
	Proposed Pumped Foul Water Drainage with Direction of Flow
FWIC1 	Proposed Foul Water Inspection Chamber
FW-P 	Proposed Foul Water Pump - SumpFlush Twin 650-1000. See Drawing 1945/401 for details
G 	Proposed Foul Water Gully
SVP 	Proposed Soil Vent Pipe
	Proposed Permeable Driveway
	Existing Thames Water Foul Water Sewer
ExFWS Ref.6801 	Existing Southern Water Foul Water Sewer Manhole with Reference number
	Root Protection Areas taken from PMR Architecture dated January 2025
1:40 	Arrows indicate fall of proposed finished surfaces
	Existing Drainage to be Confirmed and Grubbed Out. Voids to be filled with GEN1 concrete.
	Existing Foul Water Drainage
ExFWIC1 	Existing Foul Inspection Chamber

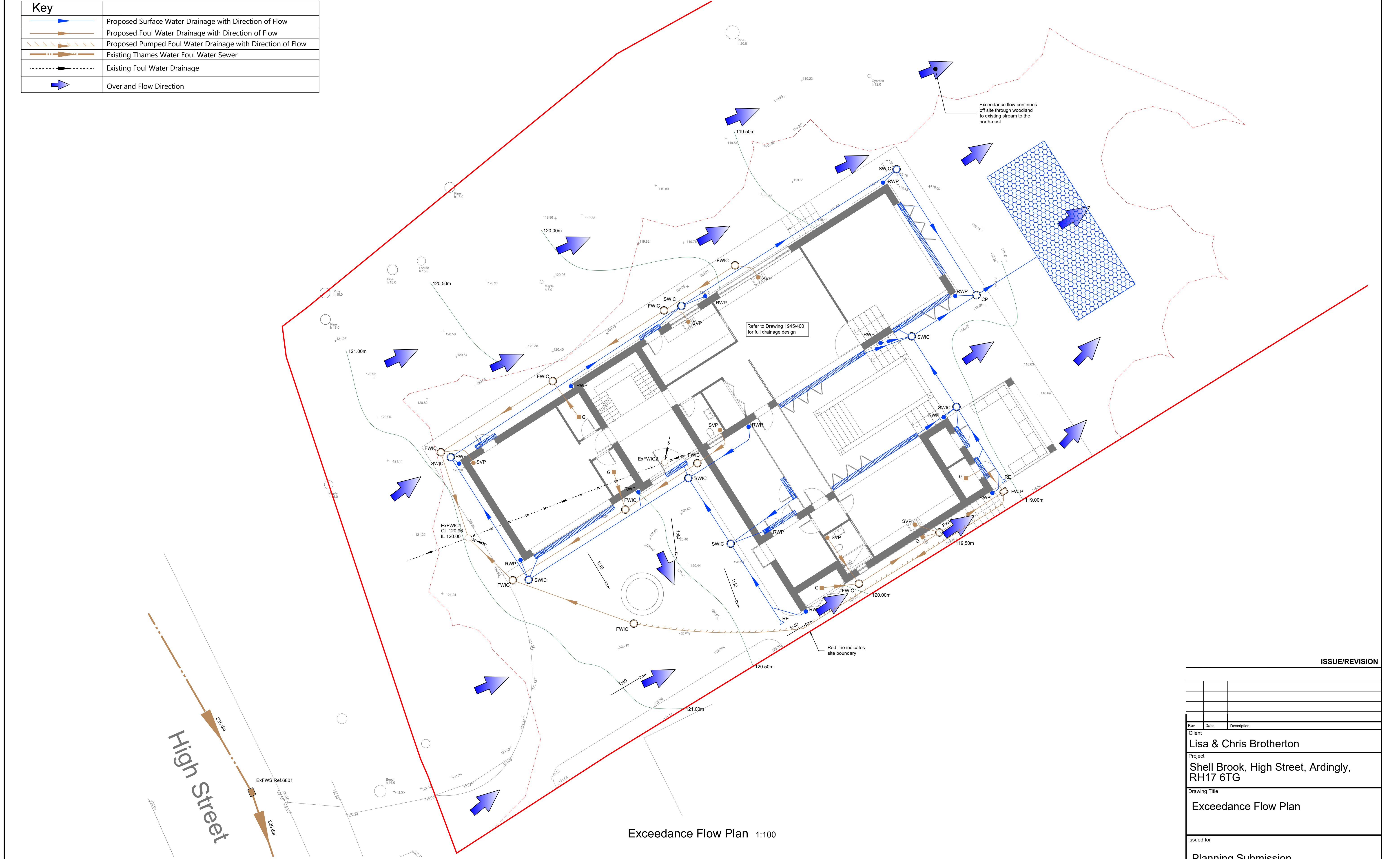


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Rev	Date	Description			
Client					
Lisa & Chris Brotherton					
Project					
Shell House, High Street, Ardingly, RH17 6TG					
Drawing Title					
Proposed Below Ground Drainage					
Issued for					
Planning Submission					
			Brighton: 01273 617117 Belfast: 028 9028 3060 solutions@haworthmccall.co.uk www.haworthmccall.co.uk		
Scale	As Shown	Designer	TC	Date	Drp No
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Rev	Date	Description	
Client			
Lisa & Chris Brotherton			
Project			
Shell Brook, High Street, Ardingly, RH17 6TG			
Drawing Title			
Proposed Drainage Details			
Issued for			
Planning Submission			
Haworth McCall CONSULTING		Brighton: 01273 617117 Belfast: 028 9028 3060 solutions@haworthmccall.co.uk www.haworthmccall.co.uk	
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Key	
	Proposed Surface Water Drainage with Direction of Flow
	Proposed Foul Water Drainage with Direction of Flow
	Proposed Pumped Foul Water Drainage with Direction of Flow
	Existing Thames Water Foul Water Sewer
	Existing Foul Water Drainage
	Overland Flow Direction



Exceedance Flow Plan 1:100

ISSUE/REVISION

Rev	Date	Description
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Client
Lisa & Chris Brotherton

Project
Shell Brook, High Street, Ardingly,
RH17 6TG

Drawing Title
Exceedance Flow Plan

Issued for
Planning Submission

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Scale	As Shown	Designer	TC	Date	Orig No	Rev
Original paper size A1		Drawn	TC	Jan-25	1945/ 410	-

Appendix D

(Soakaway Sizing)

Project Shell Brook, High Street, Ardingly, Haywards Heath				Job no. 1945	
Calcs for Soakaway				Start page no./Revision 1	
Calcs by TC	Calcs date 13/01/2025	Checked by BH	Checked date	Approved by	Approved date

SOAKAWAY DESIGN

In accordance with BRE Digest 365 - Soakaway design

Tedds calculation version 2.0.06

Design rainfall intensity

Location of catchment area London
 Impermeable area drained to the system $A = 400.0 \text{ m}^2$
 Return period Period = 100 yr
 Ratio 60 min to 2 day rainfall of 5 yr return period $r = 0.400$
 5-year return period rainfall of 60 minutes duration $M5_{60\text{min}} = 19.0 \text{ mm}$
 Increase of rainfall intensity due to global warming $p_{\text{climate}} = 40 \%$

Soakaway / infiltration trench details

Soakaway type Rectangular
 Minimum depth of pit (below incoming invert) $d = 1200 \text{ mm}$
 Width of pit $w = 4000 \text{ mm}$
 Length of pit $l = 10000 \text{ mm}$
 Percentage free volume $V_{\text{free}} = 95 \%$
 Soil infiltration rate $f = 10.0 \times 10^{-6} \text{ m/s}$
 Wetted area of pit 50% full $a_{s50} = l \times d + w \times d = 16800000 \text{ mm}^2$

Table equations

Inflow (cl.3.3.1) $I = M100 \times A$
 Outflow (cl.3.3.2) $O = a_{s50} \times f \times D$
 Storage (cl.3.3.3) $S = I - O$

Duration, D (min)	Growth factor Z1	M5 rainfalls (mm)	Growth factor Z2	100 year rainfall, M100 (mm)	Inflow (m ³)	Outflow (m ³)	Storage required (m ³)
5	0.37;	9.9;	1.91;	19.0;	7.58;	0.05;	7.53
10	0.52;	13.9;	1.97;	27.5;	10.98;	0.10;	10.88
15	0.63;	16.8;	2.00;	33.8;	13.51;	0.15;	13.36
30	0.80;	21.4;	2.02;	43.3;	17.30;	0.30;	17.00
60	1.00;	26.6;	2.00;	53.1;	21.25;	0.60;	20.65
120	1.21;	32.1;	1.95;	62.7;	25.08;	1.21;	23.87
240	1.45;	38.5;	1.90;	73.2;	29.28;	2.42;	26.86
360	1.60;	42.6;	1.87;	79.7;	31.88;	3.63;	28.25
600	1.79;	47.7;	1.83;	87.2;	34.89;	6.05;	28.84
1440	2.24;	59.6;	1.74;	104.0;	41.59;	14.52;	27.07

Required storage volume $S_{\text{req}} = 28.84 \text{ m}^3$

Soakaway storage volume $S_{\text{act}} = l \times d \times w \times V_{\text{free}} = 45.60 \text{ m}^3$

PASS - Soakaway storage volume

Time for emptying soakaway to half volume $t_{s50} = S_{\text{req}} \times 0.5 / (a_{s50} \times f) = 23\text{hr } 50\text{min } 34\text{s}$

PASS - Soakaway discharge time less than or equal to 24 hours

Appendix E

(Polystorm Crates)

2.2 Polystorm Lite

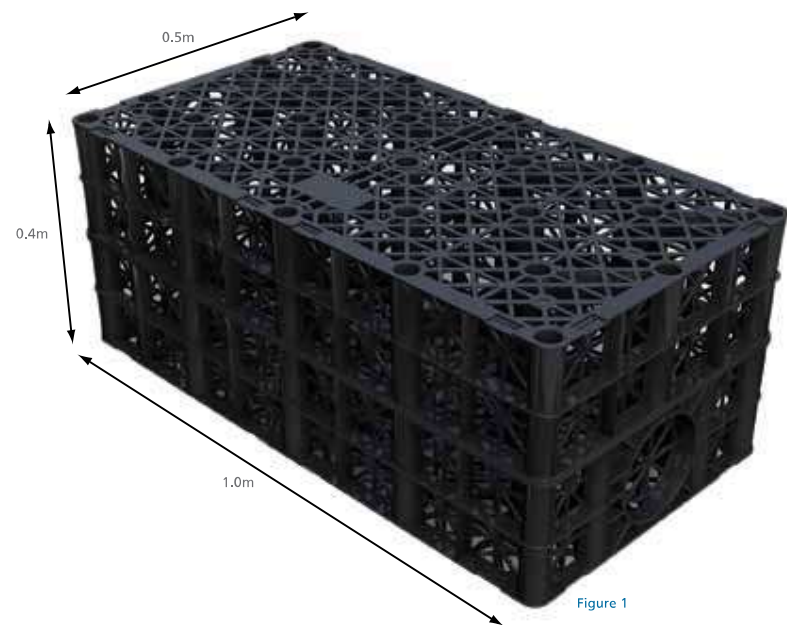


Figure 1

Designed for use in landscaped, pedestrian or other non-loaded applications with a load bearing capacity of:

20 tonnes

Technical specification overview	
Unit type	Polystorm Lite
Product code	PSM2*
Dimensions	1m x 0.5m x 0.4m high
Total volume	0.2m per cube
Unit weight	7kgs**
Cube storage volume	0.19m³ (190 litres)
Surface area	55% perforated
Compressive strength	Maximum 20 tonnes per sq metre
Maximum burial depth	2.5m***

* Each unit includes 4 clips and 2 shear connectors. Please note that brick bond connector may be required at additional cost.

** Pallet weight dependent upon order quantity and transport type.

*** In weak clay soil conditions the maximum burial depth is 1.5 metres. Polystorm Lite should not be installed below the water table.

Table 1



Figure 2

Polystorm Lite has been specifically designed for non-trafficked applications. With a 20 tonne per square metre compressive strength it will however take general maintenance vehicles such as grass cutters. Polystorm Lite can be used for both attenuation and soakaway applications. The modular structure receives rainwater collected from roofs or surface drains ready to release within a set drainage limit. Polystorm Lite can be used typically for landscaped areas, pedestrian or public open spaces such as underneath playgrounds.

Polystorm Lite		
Description	Code	Pack quantity
Polystorm Lite cell 1000 x 500 x 400mm	PSM2	15
Polystorm Lite flow control unit	PSMFC160/30	1
Brick bond shear connector	PSMBBSC	30
Clips	PSMCLIP	60
Shear connector	PSMSC	30
EN1401 flange adaptor - 110mm	PSMFA110	1
Ridgidrain flange adaptor - 150mm	PSMFA150	1
EN1401 flange adaptor - 160mm	PSMFA160	1
Basic silt trap	PSMST160	1
Advanced silt trap - 15 litres/sec	PSMSTA160/15	1
Mini silt trap for Polystorm Lite	PSMST110	1
Cover & frame (round)	UG501	1
Cover & frame (square)	UG502	1
450mm silt trap lid & frame	UG512	1
460mm lockable plastic cover & frame	UG511	1
Polypropylene cover & frame	ICDC1	1
Chamber riser section	ICDR1	1
Silt trap sealing ring	UG488	1

Table 2



Note: Minimum cover and burial depths may vary depending on load and ground conditions. Please contact Polypipe WMS for further information. All grades of Polystorm units may be used in situations outside of those recommended above, through the use of the appropriate protective measures designed to reduce the imposed loading on the proposed Polystorm structures.

Appendix F

(Southern Water Asset Plan)



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Date: 15/01/25

Scale: 1:1000

Map Centre: 534730.129943

Data updated: 20/12/24

Our Ref: 1660484 - 1

Wastewater Plan A1
Powered by digiSLD

The positions of pipes shown on this plan are believed to be correct, but Southern Water Services Ltd accept no responsibility in the event of inaccuracy. The actual positions should be determined on site. This plan is produced by Southern Water Services Ltd (c) Crown copyright and database rights 2025 Ordnance Survey AC0000808122. This map is to be used for the purposes of viewing the location of Southern Water plant only. Any other uses of the map data or further copies is not permitted.

WARNING: BAC pipes are constructed of Bonded Asbestos Cement.

WARNING: Unknown (UNK) materials may include Bonded Asbestos Cement.

solutions@haworthmccall.co.uk
Shell Brook



Appendix G
(Table 2.1a: Typical Infiltration rates (CIRIA,2007))

initial groundwater levels, may also affect the choice of the system type. Permeable hardstanding systems are commonly categorised into one of three types:

- Type A: There are no restrictions on infiltration, and the system infiltrates the runoff into the soil. The recommended minimum infiltration rate of the sub-grade should be greater than 10^{-6} m/s.
- Type B: The infiltration is limited and the system must incorporate some additional form of drainage or storage. The system provides both attenuation and infiltration of runoff. This type of system would be suitable for sub-grades having an infiltration rate between 10^{-8} and 10^{-6} m/s.
- Type C: There is no infiltration into the soil. The system will include an outlet and will only provide attenuation and treatment. This would typically apply where the infiltration rate of the sub-base is below 10^{-8} m/s.

Table 2.1a shows typical infiltration rates for various soil types. Precise rates are usually determined using an infiltration test (BRE, 1991). Given the importance of antecedent conditions, it is clear that common sense needs to be applied to the application of measured infiltration rates; for example, an infiltration rate measured during a prolonged dry period is unlikely to be representative of average conditions.

Table 2.1a: Typical Infiltration rates (CIRIA, 2007)

Soil type	Range of infiltration rates ($\times 10^{-3}$ m/s)
Gravel	10 – 1000
Sand	0.1 – 100
Loamy sand	0.01 – 1
Sandy loam	0.05 – 0.5
Loam	0.001 – 0.1
Silt loam	0.0005 – 0.05
Chalk	0.001 – 100
Sandy clay loam	0.001 – 0.1
Silty clay loam	0.00005 – 0.005
Clay	<0.0001
Till	0.00001 – 0.01
Rock	0.00001 – 0.1
Note - Type A: infiltration rate $> 0.001 \times 10^{-3}$ m/s Type B: infiltration rate between 0.001×10^{-3} m/s and 0.00001×10^{-3} m/s Type C: infiltration rate $< 0.00001 \times 10^{-3}$ m/s	

Once the general system type has been chosen, the design of the different layers is based on hydraulic and structural requirements as detailed below. In general, the more constraining design, either structural or hydraulic, is adopted.

Structural design

Permeable surfaces are designed to withstand different categories of loads. In the case of an area of private hardstanding, any permeable system must be suitable for domestic vehicles and would typically need a 130mm laying course (incorporating the permeable hardstanding and a bedding layer for adjustment) and a sub-base of 250mm. The depth of the sub-base can be increased up to 350mm if goods vehicle are expected. This

Appendix H
(Mid Sussex District Council Flood Risk and Drainage Information
Check List – Application Stage)

Flood Risk and Drainage Information Check List – Application Stage

This checklist is designed to support applicants within the planning process provide the information required by the flood risk and drainage team for them to provide a consultation response. This is not the complete planning validation list, however much of the information is also included with the validation list.

The level of detail provided to address each information point should reflect the scale and complexity of the development.

Receipt of this information does not guarantee the flood risk and drainage team will support an application or does it prevent a request for further information. It does, however, ensure the team has sufficient information to undertake a full review and provide detailed consultation response.

Table 1 - Application details

Application number	
Site address	
Site co-ordinates	
Site area in hectares	
Existing site usage	
Proposed development description	
Block plan	
Existing site plan	
Proposed development plan	

Table 2 - Flood Risk

Flood zone(s)	
Surface water flood risk(s)	
Flood risk assessment provided	Yes / No

The Environment Agency and the Department for Environment, Food and Rural Affairs (DEFRA) states that a Flood Risk Assessment is required for all development:

- within flood zones 2, 3 or 3b
- within flood zone 1 with a site area of 1 hectare or more
- within areas with critical drainage problems
- within flood zone 1 where your LPA's SFRA shows it will be at risk of flooding from rivers or the sea in future
- that increases the vulnerability classification and is in flood zone 1 where your LPA's SFRA shows it is at risk from other sources of flooding

Mid Sussex District Council's Strategic Flood Risk Assessment (SFRA) utilises the latest flood maps from the Environment Agency to determine flood risk.

Surface Water Drainage

At application stage the applicant must show that surface water drainage can, in principle be achieved on the site. The minimum information required is shown in Table 3.

If an applicant wishes to avoid a drainage condition, then full detailed drainage design is required at application stage. Details of the information needed for a detailed drainage design are set out in the Discharge of Conditions checklist.

Table 3 - Surface water drainage - minimum information

Proposed means of drainage	
Infiltration potential on site	
Drainage constraints plan <i>(showing any areas drainage cannot be located such as root protection zones, main sewer buffers etc)</i>	
Acknowledgement of design criteria <i>(sized to cater for 1 in 100-year plus climate change storm, any off-site discharge restricted to the Greenfield QBar rate for all events up to and including the 1 in 100-year plus climate change storm)</i>	
Water Authority's agreement in principle to connect surface water to public sewer. <i>(if applicable)</i>	
Drainage strategy plan	

Foul Water Drainage

At application stage the applicant must show that foul water drainage can, in principle be achieved on the site.

If an applicant wishes to avoid a drainage condition, then full detailed drainage design is required at application stage. Details of the information needed for a detailed drainage design are set out in the Discharge of Conditions checklist.

Table 4 - Foul water drainage - minimum information

Proposed means of drainage	
Public sewer records plan	
Drainage constraints plan <i>(showing any areas drainage cannot be located such as root protection zones, main sewer buffers etc)</i>	
Drainage strategy plan	
Outline on how non-mains drainage will meet Environment Agency's General Binding Rules for non-mains drainage. <i>(if applicable)</i>	