

# Castle Street

## Foul Water Strategy:

**Foul Discharge**  
Generated foul flows are to connect into the existing private foul sewer within the development boundary before discharging into the Thames Water adopted foul sewer beneath Castle Street to the north.

**Existing Foul Water Discharge**  
Existing connection from adjacent site to be retained if live.

**Exceedance Pathways**  
Wherever possible exceedance pathways should direct runoff away from the proposed building and towards areas of green amenity space or permeable car parking, providing some attenuation capacity for exceedance events. Beyond the capacity of the site, exceedance flow would continue off the adopted highway at the sites northern and eastern boundaries as per existing conditions.

**Surface Water Strategy:**  
Retained private surface water connection to the existing surface water network, subject to remedial works to correct a joint displacement at connection.

**Flow Control**  
Proposed surface water control chamber to restrict flows up to 100yr return period and discharge up to 5.0 l/s (or as close to greenfield as practicable). Control flows are proposed to discharge into the surface water network to the north within the Castle Street. 4500 oversized pipe to enable surcharged runoff to back up to the attenuation tank and permeable paving within the parking court.

**Exceedance Flows**  
Beyond the capacity of the site, flows would continue off site as per existing brownfield conditions, albeit at a reduced rate and not or volume.

**Rainwater Down Pipes**  
Indicative locations for RWP only

**Underdrained Permeable Paving**  
Proposed underdrained permeable paving to receive surface runoff from access road and parking court. To provide treatment and further storage upstream of proposed cellular attenuation tank with fin drain to convey flows into the surface water network.

**Additional capacity within PPA2-5 allocated for some exceedance storage.**

**PPA5 Exceedance Route**  
Cover level of PPA5, or part thereof, to be 96.50mAOD to act as low point within private surface water network to allow re-emergence beyond the 200yr 40%CC event.

**Cellular Attenuation**  
Cellular tank to receive flows from external hard paving and roof catchments. Chambers immediately upstream of tank to include all traps.

**Maintenance**  
Geocellular Attenuation to be fitted with access tunnels for maintenance of features. Minimum 1m cover to be vented in accordance with manufacturer recommendations.

**Area Summary Schedule**

Exst. Impervious Catchment	0.477 ha
Prop. Impervious Catchment	0.308 ha
<b>Equivalent Brownfield rate:</b>	

Existing brownfield based on max discharge of the existing 2250 l/s at minimum grade:

Brownfield Discharge Rate:	39.8 l/s
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**Equivalent Greenfield Runoff Rates**

The greenfield runoff rates have been assessed for the net developable area using the FEH Method. The calculation excludes large areas of open space which will remain undeveloped.

Return Period	Greenfield Rate (l/s)
2yr	0.7
30yr	1.9
100yr	2.6

As far as practicable the site will seek to knit back to greenfield runoff rates based max discharge of 5.0 l/s as agreed with Thames Water

**Attenuation Summary**

PPA 1 Porous Paving Catchment	0.037 ha
Hydraulic Control	502 Office @IL+0.000m
Porosity Paving Porosity	30%
Porosity Paving Dimensions	17m <sup>2</sup> x 0.5m deep
<b>Complex Storage Catchment</b>	0.271 ha
Hydraulic Control	Hydrabrick @IL+0.000m
Ref.	MD-SHE-0101-5000-1300-5000
Cellular storage Porosity	95%
Cellular storage Dimensions	5.0 m x 27.0m x 1.0m deep
Over Sized Pipe Dimensions	4500 x 60m
PPA 2-3 Porous Paving Porosity	30%
PPA 2-3 Porous Paving Dimensions	78m <sup>2</sup> x 0.5m deep
PPA 4-5 Porous Paving Dimensions	96m <sup>2</sup> x 0.5m deep
100yr+40% Volume Required:	148.5 m <sup>3</sup>
100yr+40% Discharge Rate:	5.0 l/s (87% betterment over existing brownfield conditions)

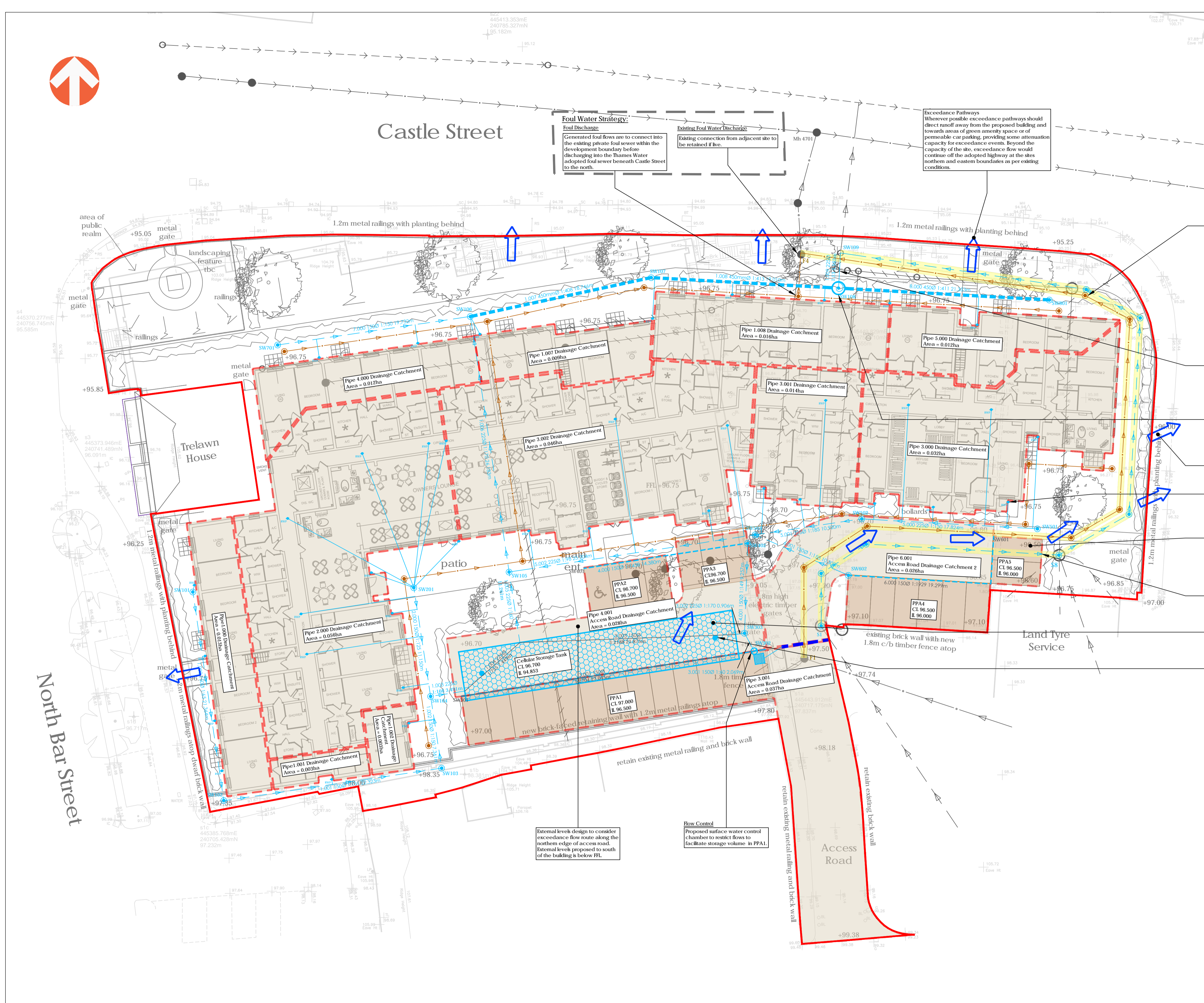
- The proposed development has been assessed in line with the National Planning Policy Framework, to allow the planning application to be progressed and to show that the development can be undertaken in an acceptable manner from a flood risk perspective.
- The proposed development is located within Flood Zone 1 and is not known to be susceptible to flooding from pluvial groundwater, infrastructure or artificial sources.
- To ensure the development is safe throughout its lifetime, the surface water strategy accounts for runoff in up to the 1 in 100 year return period.
- The strategy also safeguards against climate change (40%), providing betterment over existing conditions, where the rate and volume of runoff would continue to increase due to climate change.
- The existing ground conditions preclude the use of soakaways. Instead, storm water runoff will be attenuated on site and will discharge via the existing site connection to the TW stormwater sewer to the north of the site within Castle Street.
- The impervious drained catchment will reduce though the development, also reducing the peak rates and volumes of runoff from the site.
- The attenuation requirements for the site are being delivered by a combination of cellular attenuation, oversized pipe and under-drained permeable pavements. The use of permeable pavements will offer treatment of runoff from trafficked areas prior to discharge.
- The proposed drainage strategy for this site reduces peak flows as close to the equivalent greenfield rates as is practicable, providing significant betterment compared to existing brownfield conditions.
- Following a pre-application enquiry, Thames Water (TW) has agreed to the re-use of existing sewer connections and graded surface water discharge to the surface water sewer in Castle Street.
- Beyond the 100-year critical storm, exceedance runoff will be directed towards any residual areas of open space and/or car parking, where any residual capacity or aboveground storage can be utilised.
- Foul flows generated by the proposed development will be served by a new private gravity network, utilising the existing connection to the TW foul sewer network. Suitable capacity has been confirmed by TW.
- Existing drainage connections from the commercial building to the southeast of the development (Land Tyre Service) will be retained and diverted to avoid conflict with the development. Where possible it is recommended that this is dealt with privately on-site to avoid a S185 sewer diversion application.
- Any potential drainage connections from Trelawn House will be accommodated by the proposed development, with the ability to introduce a high-level weir within the stormwater network to assist in managing any additional inflows from Trelawn House roof catchment.
- All on-site proposed drainage will remain private and will be designed in accordance with Building Regulations Part H and CIRA C753 and will become the responsibility of the building operator.
- As the development will be safe from flooding throughout its lifetime and will actively reduce the flood risk to properties within the downstream catchment, it is recommended that the Local Planning Authority confirm they have no objections to the proposed development.

**Manhole Information**

Manhole Name	Cover Level	Invert Level
S101	96.750	95.500
S102	97.350	95.170
S103	98.350	95.000
S104	96.750	94.876
S105	96.750	94.775
S106	96.750	94.629
S107	96.750	94.583
S108	96.750	94.537
S109	96.490	94.270
S201	96.750	95.040
S301	96.750	95.250
S302	96.750	95.120
S303	96.750	95.040
S401	96.750	94.840
S501	96.750	94.589
S1	97.470	96.350
S8	96.660	95.450
F1	97.540	96.670
F4	96.650	93.230

**Proposed and retained existing private drainage maintenance schedule (to be undertaken by building operator or appointed management company):**

Maintenance Schedule	Required Action	Recommended Frequency
Regular Maintenance	Inspect and identify any areas that are not operating correctly. Take remedial action where required.	Monthly for 3 months, then 6 monthly
	Remove debris from gullies, manholes and flow controls.	Every 6 months
	Remove debris from catchpits upstream of private attenuation/soakaways.	Every 6 months
	Inspect gullies, manholes, flow controls, attenuation and soakaways.	Annually
Occasional Maintenance	Jetting of pipes.	Every 5 years
	Internal inspection of pipes (CCTV).	Every 10 years
	Repair/rehabilitate gullies, pipes, manholes and flow controls.	As required



**Key**

	Site Boundary		Existing Foul Water Sewer		0450 Surface Water Sewer
	Impermeable Drainage Catchment		Private Surface Water Inspection Chamber		Flow Control
	Underdrained Permeable Paving		Private Foul Water Drain		Overland Exceedance
	Cellular Storage Tank		Overland Exceedance		Formavoid or similar approved
	Private Surface Water Sewer		Private Foul Inspection Chamber		Private Foul Inspection Chamber

**Flow Control**  
Proposed surface water control chamber to restrict flows to facilitate storage volume in PPA1.

**External levels design to consider exceedance flow route along the northern edge of access road. External levels proposed to south of the building is below FFL.**

REV	DATE	DESCRIPTION	BY	CHK	APD
D	14.06.2022	UPDATED TO SUIT LATEST CLIENT COMMENTS	VS	LB	CY
C	01.04.2022	UPDATED TO SUIT LATEST CLIENT COMMENTS	TMR	LB	CY
B	07.12.2021	UPDATED TO SUIT NEW LAYOUT	RF	LB	CY
A	15.11.2021	INITIAL ISSUE	RF	LB	CY

CLIENT: CHURCHILL RETIREMENT LIVING

DRAWING STATUS: PLANNING APPLICATION

PROJECT: CASTLE STREET, BANBURY

TITLE: PRELIMINARY DRAINAGE LAYOUT

PROJECT No: 1260

DRAWING No: 01-PDL-1001

REV: E

SCALE @ A1: 0 1:200 10 metres

DESIGN BY:

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