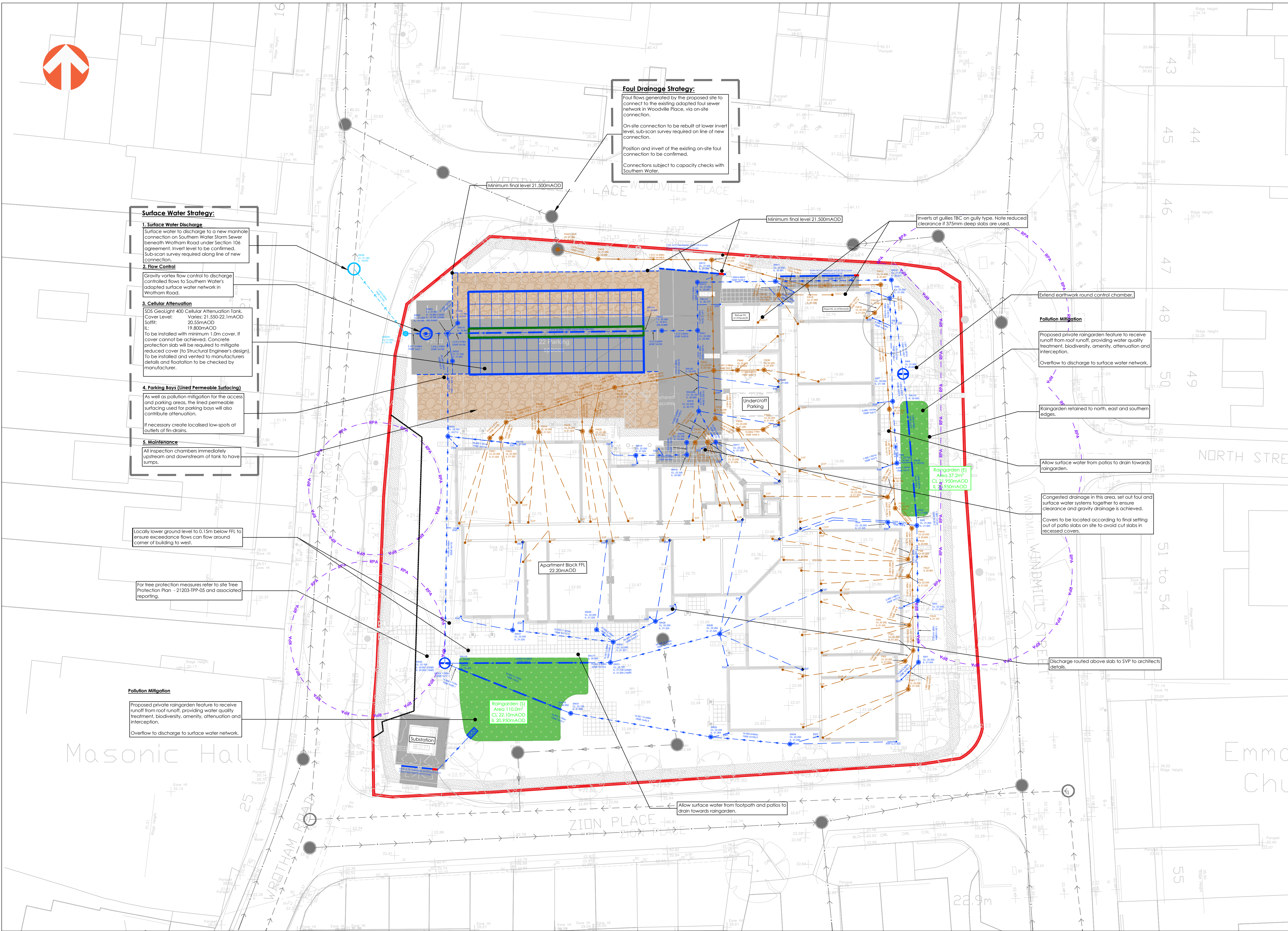




Area Summary Schedule

Net Developable Area	0.362 ha
Proposed Impermeable Catchment	0.210 ha

Pre-Development Runoff

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

The brownfield runoff rates have been assessed, using the Modified Rational Method, for a contributing area (0.283 ha) that is considered likely to discharge to the existing drainage network on site.

Return Period	Brownfield Rate
1yr	33.7 l/s
30yr	95.2 l/s
100yr	126.5 l/s

The site proposes to restrict flows to 2.1 l/s, providing 88% betterment over the estimated throttled brownfield discharge rates (17.8 l/s) based on a single 150mm site connection at a gradient of 1 in 100. This also provides more than the 50% betterment required within the KCC Design Guide as required by the KCC Design Guide.

Attenuation Summary

As per the request of Kent County Council, a Cv value of 1.0 has been used within hydraulic model calculations.

Cellular Tank Catchment	0.210 ha
Hydraulic Control	Hydrobrake limited to 2.1 l/s @ 11. Ref: CIL SHE0062-21001-1403-2100 discharging at 2.1 l/s peak as modelled.
Parosity Dimension	25% Tank, 30% Gravel Trench
100yr + 45%CC Volume	Tank 2 no. 19.0m x 4.0m x 0.75m deep Gravel Trench 19.0m x 1.0m x 0.75m deep 112.7 m³

Permeable Paving

Hydraulic Control	Orifice Plate see drawing
Parosity	30%
Depth	0.370 m
Total Plan Area	247.9 m²
Total 100yr + 45%CC Volume	17.7 m³

Raingarden (E)

Hydraulic Control	Orifice 81L 825 mm
Plan Area	37.2 m²
Layers	Layer Depth (m) Parosity
	Freeboard 0.100 0%
	Void Depth 0.075 100%
	Mulch 0.075 30%
	Soil 0.350 15%
	Grill 0.050 30%
	Drainage 0.350 30%
	Total 1.000
100yr + 45%CC Volume	6.7 m³

Raingarden (S)

Hydraulic Control	Orifice 81L 840 mm
Plan Area	110.0 m²
Layers	Layer Depth (m) Parosity
	Freeboard 0.100 0%
	Void Depth 0.075 100%
	Mulch 0.075 30%
	Soil 0.450 15%
	Grill 0.050 30%
	Drainage 0.400 30%
	Total 1.150
100yr + 45%CC Volume	27.0 m³
Total 100yr + 45%CC Volume	164.1 m³

Water Quality

The proposed surface water drainage network includes permeable paving in parking bays, and two raingarden features to provide water quality treatment and interception of access areas and roof runoff, respectively. The raingarden features will also provide biodiversity and amenity benefit, in line with Kent County Council requirements.

Notes:

- 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 (45%), providing betterment over existing conditions, where the rate and volume of runoff would continue to increase due to climate change.
- The existing ground conditions may be susceptible to solution features and therefore advice indicates drainage strategies should consider discharges other than by infiltration.
- Where practicable, surface water runoff generated within the proposed development has been directed towards SUDS features, providing water quality treatment, prior to discharging into a belowground cellular attenuation tank, with flows subsequently discharged at restricted rates to the existing Southern Water surface water sewer beneath Wrotham Road.
- Flows from the cellular attenuation tank pass through a gravity vortex control limited to 2.1 l/s. This provides 88% betterment compared to existing 1 in 1-year brownfield conditions and thereby exceeds the 50% requirement outlined within the Kent County Council design guidance.
- The impermeable drained catchment is not being increased by the development, meaning Long Term Storage is not required.
- In line with comments received from Kent County Council a Cv value of 1.0 has been used, to provide a robust estimate of attenuation requirements.
- All surface water runoff will receive an appropriate level of treatment by means of SUDS features. This is considered a significant betterment over existing conditions, where the site has no pollution mitigation or stormwater attenuation. The proposed raingarden features will also contribute towards amenity and biodiversity enhancement.
- Beyond the 100-year critical storm, exceedance runoff will be directed towards any residual areas of open space and/or car parking, where any above ground storage can be utilised.
- Foul flows generated by the proposed development will be served by a new private gravity network, with existing connections to the Southern Water foul sewer to be prioritised for re-use.
- All on-site proposed drainage will remain private and will be designed in accordance with Building Regulations Part H and CIRIA C753 and will become the responsibility of the building operator or appointed management company.
- 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.

Key:

- Site Boundary
- RPA Root Protection Area
- Existing drainage: Surface Water Sewer, Foul Water Sewer, Surface Water Chamber
- Proposed drainage: Hardstanding Impermeable Catchment, Cellular Storage Tank and Gravel Trench, Under-drained permeable paving, Raingarden with permeable pipe & overflow, Surface Water Distribution Crate, Surface Water Land Drain / ACO, Surface Water Sewer, Foul Water Sewer, Permeable Paving Fin Drain
- Rainwater Butt, Private Surface Inspection Chamber, Private Foul Inspection Chamber, Private Flow Control Chambers, Adoptable Surface Water Manhole, Adoptable Surface Water Inspection Chamber, Adoptable Surface Water Sewer, Drainage to be abandoned

Notes:

Chamber Locations

Chamber locations typically in borders, and green landscaping where possible. Chambers located in patio areas to have recessed 450qa covers to avoid cut slabs in recessed covers. Location of chambers in patios to be determined on site according to final setting out of patio taking account of joint widths.

To be read in conjunction with Drgs 1305-03-CD-2001 to -2004

Typical Design Levels (mAOD)

	Apartments	Refuse	Plant
FFL:	22.20	21.975	21.975
SSL:	22.15	21.925	21.925
SLAB DEPTH:	375mm	375mm	200mm*
UoS:	21.775	21.55m*	21.725*
TOF:	21.25m	21.25m	21.25
INTERNAL SVP/DVP/RWP IL (UNO):	21.525		TBC GULLY TYPES.
EXTERNAL SVP/DVP/RWP IL (UNO):	21.500		

*Slab depth TBC note reduced underlab clearance for gully connection where 375mm deep slabs are used.

External Levels: FFL and immediate externals all quoted as 22.20mAOD however recommend patios and perimeter pathways are laid to fall away from the building threshold (1:60) with localised adjustments to drainage cover levels to sit flush with finished surfaces.

B	25.08.2026	REVISED IN LINE WITH CLIENT COMMENTS	JB	CPY	CPY
A	27.07.2026	ISSUED FOR CONDITION DISCHARGE	JB	CPY	CPY
P1	22.07.2026	INITIAL ISSUE	JB	CPY	CPY
REV	DATE	DESCRIPTION	BY	CHK	APD

CLIENT: CHURCHILL LIVING

DRAWING STATUS: DISCHARGE OF PLANNING CONDITIONS

PROJECT: WINDMILL STREET, GRAVESEND

TITLE: DRAINAGE PLAN

PROJECT No: 1305

DRAWING No: 03-DR-1001

REV: B

SCALE @ A1: 0 1:200 10 metres

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