Proposed Design Statement

Address:

8 Downview Road,

Barnham,

PO22 0EE

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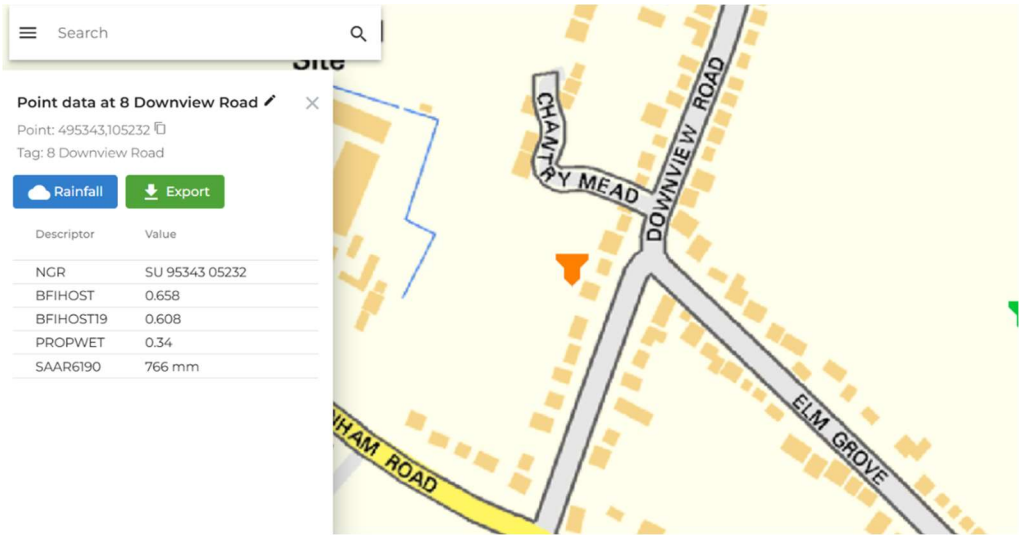
1. Design Criteria

- Climate Change Allowances.
  - 100-year climate change model: The council has a 100-year climate change model for flood risk with a 40% allowance.
- Urban Creep.
  - Includes a 10% allowance for urban creep applied to the design.
- CV Value (Runoff Coefficient).
  - All CV values set to 1 as per 'Designer Checklist' for surface water calculations.
  - Permeable or gravel driveways 0.50 CV values only as required.
  - Lawn areas 0.20 CV values only as required.
  - Paving 0.75 CV values only as required.
- Rainfall Data.
  - All rainfall data provided by FEH22, FEH (Flood Estimation Handbook) Data.
  - Source: UK Centre for Ecology & Hydrology (CEH).
- MADD Factor.
  - Based on ground conditions pending infiltration testing
  - MADD Factor; 1.15 to 1.25
  - 10-30% additional storage volume capacity.
- FEH Point Descriptors;
  - 

- FEH Catchment Descriptors;

VERSION	"FEH CD-ROM"
CATCHMENT	GB

CENTROID	GB
AREA	0.5675
ALTBAR	16
ASPBAR	169
ASPVAR	0.79
BFIHOST	0.689
BFIHOST19	0.624
DPLBAR	0.92
DPSBAR	10.2
FARL	1
FPEXT	0.1586
FPDBAR	0.564
FPLOC	0.579
LDP	2.43
PROPWET	0.34
RMED-1H	9.7
RMED-1D	34.9
RMED-2D	43.2
SAAR	775
SAAR4170	790
SPRHOST	30.55
URBCONC1990	0.588
URBEXT1990	0.0507
URBLOC1990	1.401
URBCONC2000	0.667
URBEXT2000	0.0859
URBLOC2000	1.344
C	-0.02578
D1	0.40796
D2	0.24782
D3	0.39524
E	0.30857
F	2.33402
C(1 km)	-0.025
D1(1 km)	0.4
D2(1 km)	0.246
D3(1 km)	0.4
E(1 km)	0.307
F(1 km)	2.337

2. Basic Design Intent

Refer to separate drawing and below information for surface water proposed design. Further details will be provided as required by Arun Council.

- The drainage system has been designed to operate on a gravity-fed basis, eliminating the need for pumps and ensuring long-term reliability and minimal maintenance.
- The proposed rainwater harvesting filter is capable of managing runoff from a roof area of up to 750m^2. It is equipped with a high-efficiency sieve insert mesh with an aperture size of 0.35mm to ensure effective debris filtration.
- No conflicts or clashes with existing or proposed infrastructure have been identified, confirming compatibility with the overall site layout.
- Self-cleaning velocities will be incorporated into the detailed design to optimize the system's efficiency and minimize maintenance requirements.
- The discharge rate has been calculated to closely align with a target flow rate of 2.0 L/s, ensuring compliance with design parameters and downstream drainage capacity.
- The rainwater harvesting tank could be situated below peak groundwater levels. To address this, a concrete pad with integrated anchors or alternative ground anchors will be considered during detailed design to prevent flotation under high groundwater conditions.
- Both the rainwater harvesting tank and the attenuation crates are to be centrally installed within the rear garden, as indicated in the drainage proposals. This positioning ensures a minimum clearance of 10–12m from the nearest existing or proposed vegetation, effectively mitigating any risk of root interference with the system.
- The proposed attenuation structure will consist of modular crates with a height of 500mm, installed as a single layer to maximize surface area for infiltration. The installation will include 300–450mm of soil cover above the crates, appropriate for a domestic garden setting, while ensuring adequate structural stability and support for surface activities. To comply with design requirements, a freeboard of 1m from the base of the attenuation structure will be maintained. Based on this configuration, peak groundwater levels are anticipated to range between 1.8m and 1.95m below ground level. Ongoing site investigations, including infiltration rate testing and groundwater monitoring, will confirm the suitability of the design and inform any necessary adjustments.

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3. Impermeable Area/ Catchment Plan & Drainage Layout

- Refer to separate attachment.
- Plan shows impermeable areas with m2.
- Plan shows proposed GRAF rainwater harvesting tank, HydroPlanter Raingarden system & proposed infiltration crate system.