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## **Walnut Way, Merthyr Tydfil**

### *Drainage Strategy and SuDS Compliance Statement*

on

### *Proposed Residential Development*

for

### *Merthyr Valley Homes*

Date

November 2021

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*Drainage Strategy and SuDS Compliance Statement*

**Document Control**

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| Approval                                                                                                                | Director          | Andrew Villis       |                                          |                                                                                     |
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**Revision History**

| Revision | Date          | Purpose/Status | Approved |
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| B        |               |                |          |
| C        |               |                |          |
| D        |               |                |          |
| E        |               |                |          |
| F        |               |                |          |

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## 1.0 INTRODUCTION

The proposed development consists of the construction of a new dwellings with associated parking. The site area of the proposal parcel is 0.075ha incorporating a footprint of 0.025ha for the proposed dwellings and carparking.

A site location plan showing the extents of the development can be seen in Figure 1.

The proposed development is bounded to the North, South and West by existing residential development. An area of public open space to the East borders the adjacent Golan Uchaf Park.



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## **2.0 DRAINAGE**

A schematic drainage layout is attached, detailing the proposals for the drainage strategy outlined in the following sections.

### **2.1 Foul Drainage**

The proposed foul network will discharge into the existing Welsh Water (DCWW) foul sewer crossing the site and be subject to a Section 104 adoption agreement.

### **2.2 Proposed Surface Water Drainage**

Permeability tests (BRE365) undertaken as part of the site investigation works demonstrated that the ground was not suitable for drainage systems based on fully permeable ground techniques. (Reporting in this respect can be found in the appended documentation).

The surface strategy is to collect, hold and discharge the development surface water into the existing watercourse located within Golan Uchaf Park at a controlled maximum rate of 2.0l/s.

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**3.0 COMPLIANCE WITH THE NATIONAL SuDS STANDARDS S1 – S6**

**3.1 Standard S1 – Surface Water Run-off Destination**

**Priority Level 1**

The use of a SuDS planter is proposed to intercept roof runoff and act as a point of source control. This will allow a limited re-use of rainwater to facilitate the planter and associated flora. The wider reuse is not considered necessary due to available local potable water network and low risk of drought conditions are associated water rationing.

**Priority Level 2: Infiltration to Ground**

Ground conditions have been demonstrated to be unsuitable for the use of drainage systems based on permeable ground techniques. Testing to BRE365 has confirmed infiltration as unviable

**Priority Level 3: Discharge to a Surface Water Body**

The development is proposed to utilise a local watercourse located in the parkland to the Northeast of the site for Surface Water discharge

**Priority Level 4: Discharge to a Surface Water Sewer, Highway Drain, or other Drainage System**

Deemed not required/applicable for this development.

**Priority Level 5: Discharge to a Combined Sewer**

Deemed not required/applicable for this development.

**3.2 Standard S2 – Surface Water Runoff Hydraulic Control**

**SuDS System Sizing for 100 Year Return Period Rainfall Event, Plus Climate Change**

It is proposed that the attenuation system be designed such that it is sufficient to store critical storm duration flows in the 100yr+30% event. Calculations are appended. As noted above there have been no reductions made to the sizing of the attenuation to reflect reductions afforded by the drainage blankets or operation of the SuDS planters. Therefore, allowing for a worst-case scenario.

**First 5mm Interception**

Interception mechanisms will be required to ensure compliance with the requirement of zero runoff for the first 5mm rainfall for 80% of storm events during the summer and 50% in winter.

The provision of SuDS planter features and rain gardens along with flows through permeable drive subbase will contribute to the objective of first 5mm interception. Deemed to comply with the SAB standards.

**Exceedance/Blockage**

Any exceedance flows will follow surface topography. The topography is such that any excess flows from the attenuation system will be directed toward the area of parkland and existing watercourse to the Northeast of the site.

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**3.3 Standard S3 – Water Quality**

The proposed SuDS treatment train devices (SuDS planters, Rain Gardens) will deliver the requisite cleansing and filtration of runoff for this residential (low pollution hazard level) development.

**3.4 Standard S4 – Amenity**

The soft suds features (SuDS planters, Rain Gardens) will be carefully designed and integrated into the landscaping scheme for the development, to promote aesthetics and well-being as well as any designed drainage function.

The development is located adjacent to a significant area of existing green space that is to be retained, augmented and included within the development proposals.

**3.5 Standard S5 - Biodiversity**

The soft suds features (Bio-Retention Planters, Rain Gardens etc) will be carefully designed with gradients/profiles, planting species and soil properties selected to ensure suitable habitat is delivered to promote biodiversity. Planting information is included within the SUDS planter operational information. These proposals will augment the green infrastructure element of the design proposals to demonstrate a robust response to this Standard.

**3.6 Standard S6 - Construction, Operation and Maintenance and Structural Integrity**

Generally, the infrastructure maintenance will be dealt with at a property level as much of the systems employed are contained within a single curtilage application. All of the proposed SuDS infrastructure is in accessible areas for ease of maintenance.

The suds devices are low maintenance surface/shallow items with established regular maintenance regimes.

*The proposed design solution has been designed in accordance with the SuDS manual and is generally served by shallow SuDs features and accessible details. There are no inherent safety issues with the proposed scheme.*

The on-property drainage infrastructure will be managed by the Tenant / Housing Association. The principal issue is the management of the SuDS planters, which primarily involves periodic inspection to check the overflows are clear and ensure the free-flowing operation. These inspections will also serve to monitor the build-up of any silt in the system to facilitate any cleaning required.

**APPENDIX A  
INFILTRATION TESTING RESULTS**

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### 10.5 Storm Water Drainage

During the site investigation one soakaway test was undertaken in general accordance with BRE DG 365:2016. The soakaway test was carried out in trial pit TP01 within natural materials.

The soakaway test recorded insufficient infiltration and was subsequently terminated early.

Soakaway storm water drainage is therefore not recommended at the site.

Extract from Terra Firm Site Investigation report – 16811

BMS QUALITY FORM  
Ref: QF-033V1 Issued: Nov 2020  
Reviewed: Nov 2020**SOAKAWAY TEST**Site Name: Walnut Way  
Project Number: 16811  
Date: 12/11/2021  
Engineer: Elliot

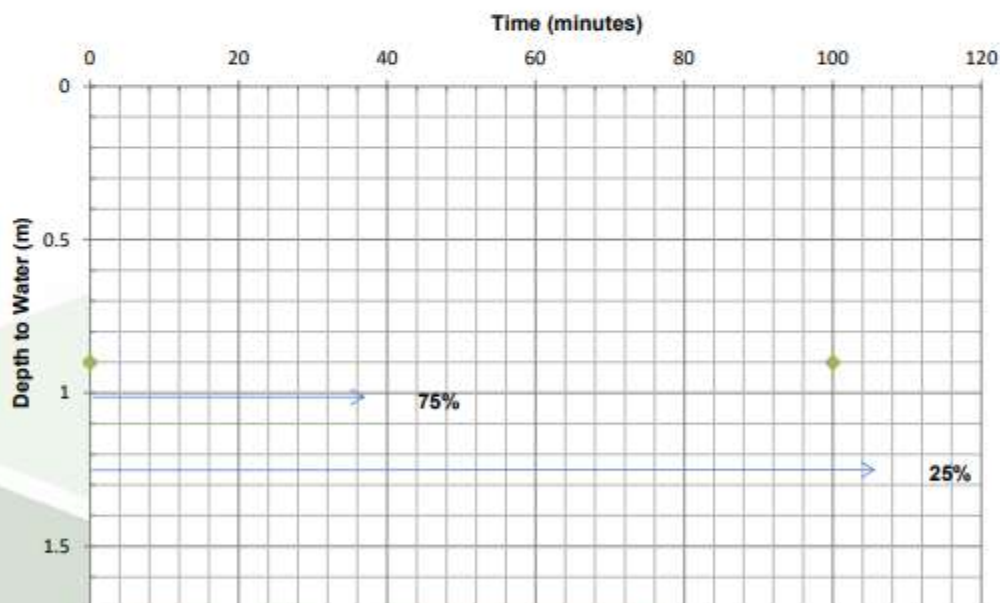
TrialPit: TP01

**TEST 1**

|            |        |
|------------|--------|
| Length     | 2.00 m |
| Width      | 0.60 m |
| Depth      | 1.40 m |
| Fill Level | 0.90   |

|              |                      |
|--------------|----------------------|
| $V_{p75-25}$ | 0.071 m <sup>3</sup> |
| $a_{p50}$    | 0.754 m <sup>2</sup> |
| $t_{p75-25}$ | 0 minutes            |

Soil Infiltration Rate,  $f$  insufficient flow to calculate infiltration rate**REMARKS:**

Test carried out in general accordance with BRE DIGEST 365 (2016)