

**Operation & Maintenance Plan  
For Surface Water Drainage System  
Pioneer House School – New Build & MUGA Pitch 2023**

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## 1.0 INTRODUCTION

It is proposed to construct a new building within existing campus of Pioneer House High School to provide additional teaching facilities. The building is to be located within an area which is presently a hard standing games area / playground.

A new Multi Use Games Area (MUGA) pitch is proposed to replace the existing games area.

## 2.0 SURFACE WATER DRAINAGE COMPONENTS

Refer to Drawing No 30580/1 for details

- Underground Pipes: a system of linked pipes are provided within the development to convey flows from the proposed building to the underground attenuation tank & MUGA pitch through to the outfall into the existing drainage installed to serve the previous phase
- Vortex Flow Control unit: there are two vortex flow units within separate manholes , one on the piped outfall from the MUGA pitch ( MH S3) and the other prior to the connection into the existing school drainage network (MH S2). The vortex flow control units ensure the flows generated by the development are limited to the 50% pre-development flows. The flow control devices have internal orifice sizes in excess of 100mm ( min 143mm dia) to reduce blockage risk
- Porous asphalt surfacing has been specified for the MUGA Pitch. Half of the MUGA pitch area is to have a deepened subbase with a pipe outlet connection to the proposed surface water drainage network.  
  
This will allow the MUGA pitch to take advantage of any available infiltration to ground whilst the area with deepened sub base will provide attenuation volume for the surface water system.
- Underground On-Line Cellular Storage additional attenuation volume within the proposed surface water system is also provided by cellular underground tank located offline from the main pipe system

### **3.0 SUDS OWNERSHIP RESPONSIBILITY**

The surface water drainage network & associated components are to be maintained by the School Maintenance Team alongside the existing drainage which also feature the same components

### **4.0 OPERATION AND MAINTENANCE REQUIREMENTS**

As with all traditional drainage systems, SuDS need to be inspected and maintained regularly to ensure that they operate correctly and efficiently. If SuDS are not properly maintained then there is a risk that the components become overloaded during periods of prolonged heavy rainfall potentially resulting in localised flooding within the development. Recommendations for the maintenance of the SuDS components are detailed in the following section.

As part of this process it is recommended that inspection and maintenance records are retained by the School Maintenance Team to track the progressive performance of the SuDS over time. The inspection records should include the following:

- Sediment condition and depth
- Water observations (sheen, smell, etc.)
- Unscheduled maintenance needs
- Components that do not meet performance criteria and require immediate maintenance
- Common problem areas, solutions and general observations
- Aesthetic conditions

For Health and Safety reasons as well as practicality, SuDS systems should be maintained during periods of dry weather wherever possible. Adhering to the recommended maintenance regimes outlined below will minimise the risk of maintenance activities being required when a fault becomes apparent, usually during a rainfall event.

#### **Vortex Flow Control Unit**

As described above there are two control manholes which each of which contains a vortex flow control unit on the outfall.

The following describes the likely management & maintenance requirements:

**Table 2.1 Control Manhole incorporating vortex flow control unit.**

| Maintenance Schedule | Required Action                                                                                                                                                                   | Typical Frequency                                                                      |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| Regular Maintenance  | From Surface Visual inspection of manhole through open cover to ensure no obvious build-up of silt or other blockages. Check to ensure there is no standing water in the chambers | Monthly for first 3 months, then six monthly thereafter (and after large storm events) |
|                      | Check the penstock by pass within the flow control control open and close free. ( Ensure penstock is in closed position flowing check)                                            | Monthly for first 3 months, then six monthly thereafter                                |
| Remedial Actions     | De-silt tank and inlet catch-pit as required.                                                                                                                                     | As required                                                                            |
| Monitoring           | Inspect/check all upstream drainage inlets and outlets to ensure that they are in good condition and operating effectively                                                        | Annually and after large storm events                                                  |
|                      |                                                                                                                                                                                   |                                                                                        |

### **Porous asphalt surfacing**

Porous Asphalt surfacing has been specified for the MUGA Pitch. Half of the MUGA pitch area is to have a deepened subbase with a pipe outlet connection to the proposed surface water drainage network.

The following operation and maintenance requirements refer to the recommendations in The SUDS Manual (CIRIA C753) and from the manufacturer. Regular inspection and cleaning of the porous surfacing is required to ensure the long-term effectiveness

**Table 2.2 Porous Asphalt Surfacing**

| Maintenance Schedule | Required Action                                                                                                    | Typical Frequency                  |
|----------------------|--------------------------------------------------------------------------------------------------------------------|------------------------------------|
| Regular Maintenance  | <b>Cleaning-</b> Brush regularly and remove sweepings from all hard surfaces                                       | Monthly                            |
|                      | Cleaning – Brush and vacuum surface once a year to prevent silt blockage and enhance design life                   | Annually                           |
| Monitoring           | Monitor effectiveness of porous asphalt and when water does not infiltrate immediately consult cleaning specialist | Monthly & after large storm events |
|                      |                                                                                                                    |                                    |

|               |                                                                                                                                       |                                       |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|
| Remedial Work | Recent experience within the industry suggests jet washing and suction cleaning will substantially reinstate paving to 90% efficiency | Annually and after large storm events |
|               |                                                                                                                                       |                                       |

### **Underground Cellular Systems**

As detailed above, flows will enter via a catch-pit manhole. The cellular units will be wrapped in an impermeable geotextile to ensure water from the surrounding ground cannot enter the system.

The following operation and maintenance requirements refer to the recommendations in The SUDS Manual (CIRIA C753) and from the manufacturer. Regular inspection and maintenance is required to ensure the effective long-term operation of underground storage systems.

**Table 2.3 Underground Cellular System maintenance activities & schedule**

| <b>Maintenance Schedule</b> | <b>Required Action</b>                                                                                                                                                                   | <b>Typical Frequency</b>                                                               |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| Regular Maintenance         | Inspect and identify any areas upstream of the system that are not operating correctly (i.e. rainwater pipe gullies, silt traps, inspection chambers). If required, take remedial action | Monthly for first 3 months, then six monthly thereafter                                |
|                             | Visual inspection of silt traps to ensure no obvious build-up of silt or other blockages. Check to ensure there is no standing water in the chambers                                     | Monthly for first 3 months, then six monthly thereafter (and after large storm events) |
|                             | Visual inspection of surface cover to tank for signs of damage that may expose tank.                                                                                                     | Monthly for first 3 months, then six monthly thereafter                                |
| Remedial Actions            | Repair/rehabilitation of inlets, outlets and vents. De-silt tank and inlet catch-pit as required.                                                                                        | As required, de-silting six monthly.                                                   |
| Monitoring                  | Inspect/check all upstream drainage inlets and outlets to ensure that they are in good condition and operating effectively                                                               | Annually and after large storm events                                                  |
|                             | Survey interior of tank for sediment build-up                                                                                                                                            | 5 yearly                                                                               |