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**SURFACE WATER DRAINAGE
MANAGEMENT & MAINTENANCE PLAN**

FOR

**PARLIAMENT HILL SCHOOL, WILLIAM ELLIS
SCHOOL, & LA SWAP SIXTH FORM COLLEGE
LONDON**

MAY 2016

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CONTENTS		PAGE
1.0	Introduction	4
2.0	Drainage Operation and Maintenance Requirements	5

1.0 Introduction

Doran Consulting Ltd. have been commissioned by Farrans Construction to undertake the surface water drainage design for the proposed redevelopment of Parliament Hill and William Ellis Schools and La SWAP Sixth Form Consortium, London. The above schools are accommodated across one campus. For the purposes of this report, the site drainage system shall refer to the overall campus drainage system.

The Parliament Hill School development shall consist of the following:

- the demolition or partial demolition of existing buildings on site
- the construction of new permanent and temporary car parking
- the construction of a new school building (The Ribbon building)
- the construction of a new dining hall and kitchen
- the development of hard and soft landscaped areas

The proposals for William Ellis School involve the extension of the existing building and new associated hard and soft landscaping.

A new sixth form building will also be constructed for La SWAP Sixth form Consortium, a college established between both schools for sixth form educational provisions.

The surface water drainage for the development has been designed with an innovative and sustainable approach, incorporating a range of sustainable elements. This report aims to outline the management & maintenance requirements of the surface water drainage systems within the proposed development.

2.0 Drainage Operation and Maintenance Requirements

The following components are proposed to be incorporated within the development's Surface Water Drainage Design:

- Green Roof
- Filter/French Drains
- Permeable Paving
- Cellular Storage SUDS System
- Gullies
- Aco Channels
- Silt Pits
- Vortex Flow Control Units

Operation and maintenance requirements for each of these components are described in the table below. It is imperative that the systems are adequately maintained as failure to do so may result in reduced capacity/efficiency or a complete systems failure.

Component	Maintenance	Regularity
Green Roof	During establishment (ie year one), replace dead plants as required.	Monthly.
	Remove debris and litter to prevent clogging of inlet drains and interference with plant growth.	Six monthly
	Post establishment, replace dead plants as required.	Annually (in autumn).
	Remove fallen leaves and debris from deciduous plant foliage.	As required
	Remove nuisance and invasive vegetation, including weeds.	As required
	Mow grasses (if appropriate) as required. Clippings must be removed and not allowed to accumulate.	As required
	If erosion channels are evident, these should be stabilised with additional soil substrate similar to the original material. Sources of erosion damage must be identified and controlled	As required.
	If drain inlet has settled, cracked or moved, investigate and repair as appropriate	As required.

	Inspect all components including soil substrate, vegetation, drains, irrigation systems (if applicable), membranes, and roof structure for proper operation, integrity of waterproofing and structural stability	Annually/after severe storms
	Inspect soil substrate for evidence of erosion channels and identify any sediment sources	Annually/after severe storms
	Inspect drain inlets to ensure unrestricted runoff from the drainage layer to the conveyance or roof drain system	Annually/after severe storms
	Inspect underside of roof for evidence of leakage	Annually/after severe storms
Filter Strips / French Drains	Litter and debris removal	Monthly (or as required)
	Grass cutting – maintain a suitably low grass height	Monthly (during growing season)
	Manage other vegetation and remove nuisance plants	Monthly (at start, then as required)
	Inspect filter strip surface to identify evidence of erosion, compaction, ponding, sedimentation and contamination (eg oils)	Six monthly
	Check filter strip surface for even gradients	Six monthly
	Inspect gravel trench for clogging	Six monthly
	Check for poor vegetation growth due to lack of sunlight or dropping of leaf litter, and cut back adjacent vegetation where possible	Annually
	Re-seed areas of poor vegetation growth. Alter plant types to better suit conditions, if require	Annually
	Repair erosion or other damage by re-turfing or reseeded	As required
	Re-level uneven surfaces and reinstate design levels	As required
	Scarify and spike topsoil layer to improve infiltration performance, break up silt deposits and prevent compaction of the soil surface	As required
Permeable paving	Surface brushing for appearance and to reduce silt accumulation	Monthly
	Check outlets and control structures	Monthly depending on detail

	Initial inspection	Monthly for three months after installation
	Inspect for evidence of poor operation and/or weed growth. If required take remedial action	3-monthly, 48 h after large storms
	Inspect silt accumulation rates and establish appropriate brushing frequencies	Annually
	Monitor inspection chambers	Annually
	Brushing and suction sweep or jet wash and suction sweep particularly in autumn after leaf fall	Annually
	Mow grass edges to paving at 35-50mm and remove weeds and leaves	Fortnightly in season or As required
Cellular Storage SUDS System	Debris removal from catchment surface (where may cause risks to performance)	Monthly
	Inspect and identify any areas that are not operating correctly. If required, take remedial action.	Monthly for 3 months, then six monthly
	Inspect/check all inlets, outlets, vents and overflows to ensure that they are in good condition and operating as designed	Annually and after large storms
	Remove sediment from pre-treatment structures	6 monthly, or as required
	Jet clean distributor pipe	Annually or as required
	Repair/rehabilitation of inlets, outlet , overflows and vents	As required
Gullies	Litter and debris removal	Monthly (or as required)
Aco Channels	Litter and debris removal	Monthly (or as required)
	Jet cleaning along channel	Six monthly or after significant storm event
Silt Pits	Assess the depth of accumulated oil and silt	Monthly or after significant storm event
	Remove accumulated silt from bases of pits and dispose	Six monthly or

	of in appropriate manner.	after significant storm event
Vortex Flow Control Chambers	Assess the depth of accumulated oil and silt	Monthly or after significant storm event
	Move accumulated silt from bases of pits and dispose of in appropriate manner.	Six monthly or after significant storm event
Vortex Flow Control Units	Assess for rusting of parts or damage to inlet/outlet	Six monthly or after significant storm event
	Assess for any evidence of blockage	Six monthly or after significant storm event