Lead Local Flood Authority
Post Point CHN 215
Hertfordshire County Council
County Hall, Pegs Lane
Hertford SG13 8DN

Our Ref JTC/1943

18th June 2018

Dear Sir/Madam,

Re: 18/01383/DOC – Legion House, Paynes Park, Hitchin, Hertfordshire, SG5 1EH

We write with reference to the above development and following the response from the Sustainable Drainage System Office for the 8th June 2018 we would like to comment as follows;

Proposed Permeable Paving

We note the comment regarding your acknowledgement of the permeable paving to be used on the hard standing area, I can advise this will not be connected to the wider drainage network, however has been incorporated into the design in order to reduce the post development impermeable area at the site.

The permeable paving will not incorporate any inlet, outlet or provide attenuation for the wider area, thus only surface water landing on this permeably paved areas will be able to percolate through the pervious surface and into the ground, this will not impact upon the wider drainage system.

Maintenance Plan

With respect to your comment regarding a maintenance plan, please find attached a site specific maintenance plan for the above development incorporating details of responsible

parties and relevant maintenance requirements for each SuDS component including time scale in which maintenance should be carried out.

I trust the above information and attached maintenance plan is satisfactory in order to discharge condition 9 for the above development.

Yours Sincerely,

Shavonne Cooper
For and on behalf of
MTC Engineering (Cambridge) Ltd.

SuDS Maintenance Plan

for the Proposed Development

on Land East of Paynes Park, Hitchin

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1943 – SuDS Maintenance Plan

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SuDS Maintenance Plan

for the Proposed Development

on Land East of Paynes Park, Hitchin

1 Introduction to SuDS

SuDS are a new environmentally friendly approach designed to take advantage of the opportunities and benefits arising from surface water management. SuDS aim to:

- Control the quantity of runoff in order to manage flood risk and maintain the natural water cycle.
- Manage the quality of runoff in order to prevent pollution
- Generate amenity through the creation of better places for people
- Improve biodiversity by sustaining places for nature

2 SuDS at Paynes Park, Hitchin;

SUDS are engineered solutions that aim to mimic natural drainage processes. They help to reduce pollution of watercourses and localised flooding, as well as providing amenity benefit and biodiversity.

Areas of pathways will be permeably surfaced to allow water to percolate through a pervious surface into voided construction below to allow cleaning, storage and infiltration to the ground.

A cellular storage system will be provided at the proposed development, and allow for temporary storage for surface water runoff prior to discharge at a controlled rate.

The site will also incorporate an Aco MultiDrain system with sump in order to collect and convey surface from the site.

Finally a Hydrobrake flow control system will be provided at the development restricting flow to 9.1 litres per second during all events up to and including a 1 in 100 year plus 40% climate change event.

3 Managing the SuDS -

Communal SuDS – SuDS features proposed at the development will be located in communal areas and as such will be the responsibility of a management company set up to maintain all communal areas of the development.

Permeable surfacing provided at Paynes Park will require the following maintenance:

- A visual inspection of the paving should be carried out on a regular basis.
- The paving should be agitated (ie - brushed, vacuumed, etc) at least twice a year.
- The paving should be inspected after any heavy precipitation to ensure no displacement of any organic matter onto the surface of the pavement.
- Inspection of weed growth and removal.

The Cellular Storage system provided at Paynes Park will require CCTV inspection at every inspection point firstly, at regular intervals and after every major storm event. Additionally the silt trap should also be routinely inspected and cleaned out in order to minimise debris reaching the cellular storage structure.

The Aco MultiDrain system require routine maintenance to ensure continues operation to design performance standard. During the first few months systems should be visually inspected after rainfall events, with the amount of deposition measured to give an idea of the expected rate of sediment. After the initial period, systems should be inspected every 6 months, during the inspection any debris and silt should be removed when it reaches 75% of the capacity of the sump.

4 Key Factors to be Considered During Maintenance at Paynes Park, Hitchin

- Undesirable plants – all efforts should be made to prevent drains becoming blocked and the growth of unintentional vegetation which could be detrimental to the intentional plant regime, biodiversity aims and the building fabric.

- Regular site attendance for litter collection, grass cutting and checking of inlets, outlets and control structures.

- Drain heads and outlets – all drainage points must be checked every year and cleared out it if necessary to ensure optimum performance.

5 SuDS and Landscaping Maintenance – Summary -

	REGULAR MAINTENANCE	Frequency	Unit Rate	Total
1	LITTER MANAGEMENT			
1.1	Pick up litter in SuDs and Landscape areas and remove from site.	12 visits monthly		
2	INLET AND OUTLETS			
2.1	Inspect monthly, remove silt from slab aprons and debris. Strim 1m round for access.	monthly visits		
	OCCASIONAL TASKS			
3	INSPECTION AND CONTROL CHAMBERS			
3.1	Annual inspection, remove silt and check free flow.	1 visit		
4	SITE MANAGEMENT			
4.1	Excavate silt, stack and dry within 10m of the SuDS feature, but outside the design profile where water flows	As required		
5	**REMEDIAL WORK**			
5.1	Inspect SuDS systems regularly to check for damage or failure. Undertake remedial work as required	As Required		

6 SuDS Features Checklist at Paynes Park, Hitchin -

SuDS techniques include landscape features and control structures to manage runoff as it flows to site outfalls. The following lists the features which may be found on a site.

- **Cellular Storage** have dimensions of 1 x 0.5 x 0.4m and filled with stone that are designed to store stormwater prior to controlled discharge
- **ACO MultiDrain Systems** provide a channel drainage solution, with varying width, depths and lengths.
- **Permeable surfaces** such as permeable block paving, porous Asphalt, gravel or free draining soils that allow rain to percolate through the surface into underlying drainage layers. They must be protected from silt, sand, compost, mulch, etc.
- **SuDS flow control structures** are usually small orifices in control chamber, slots or V notches in weirs. They are usually near the surface so are accessible and easy to maintain. They may be in baskets, in small chambers or in the open.
- **Inlets and outlets structures** are often conveyance pipes protected with mesh guards. They must be free from obstruction at all times to allow free flow through the SuDS.
- I**nspection Chambers** and rodding eyes are used on bends or where pipes come together. They allow cleaning of the system if necessary.

SuDS design usually avoids below ground structures such as gully pots, oil separators and other sumps, which are a wildlife hazard, often ineffective and expensive to maintain. SuDS design also reduces pipework, manholes and interceptors. However water may be conveyed in surface features like rills and channels with changes in level managed in spouts or cascades. These hard landscape features require standard landscape maintenance.

7 Sustainable Drainage Maintenance Specification -

7.1 GENERAL REQUIREMENTS

- **Avoid** use of weedkillers and pesticides to prevent chemical pollution.
- **Avoid** de-icing agents wherever possible to allow bio-remediation of pollutants in permeable surfaces.
- **Protect** all permeable, porous and infiltration surfaces from silt, sand, mulch and other fine particles.

Exclusions:

- Maintenance of rainwater harvesting chambers, pumps, etc.

7.2 Attenuation Storage Tanks – Cellular Storage Systems

- **Geocellular structures, Plastic Arches, Oversized Concrete Pipes, Oversized Plastic Pipes** store surface water prior to controlled release.

GEOCELLULAR STRUCTURES, PLASTIC ARCHES, OVERSIZED PIPES	
Regular Maintenance	**Frequency**
Identify and inspect any areas not operating correctly and take remedial action	Monthly for 3 months then annually
Remove debris from the catchment surface	Monthly
Remove sediment from pre-treatment structures such as silt traps	Annually or as required
Monitoring	
Inspect/check inlets and outlets to ensure of good condition	Annually
Survey inside the cellular storage tank for sediment build up and remove if necessary	Every 5 years or as Required

Remedial Actions	
Repair/rehabilitate inlets, outlet and overflows	As Required

7.3 PERMEABLE SURFACES

PERMEABLE AND POROUS SUFRACES	
Regular Maintenance	**Frequency**
Brush regularly and remove sweepings from all hard surfaces	Once a year – After leaf fall or based upon site specific clogging.
Occasional Tasks	**Frequency**
Removal of weeds	As required
Monitoring	
Initial inspection	Monthly for 3 months after installation
Inspect for evidence of poor operation and weed growth – if required take action	Three monthly, 48hr after large storm in first six months
Inspect silt accumulation rates and establish appropriate brushing frequencies	Annually
Remedial Work	**Frequency**
Remedial work to any depressions, rutting and cracked or broken surfaces considered detrimental to the structure or hazardous to users.	As required
Rehabilitation of surface by remedial sweeping	Every 10 – 15 years or as required

7.4 INLETS, OUTLETS, CONTROLS AND INSPECTION CHAMBERS

- **Inlets and outlets structures** conveyance pipes must be free from obstruction at all times.

- **SuDS flow control structures** protected orifices near the surface to be accessible and easy to maintain in small chamber.

- **Inspection Chambers** and rodding eyes are used on bends or where pipes come together and allow cleaning of the system if necessary. They should be designed out of the system where possible.

INLETS, OUTLETS, CONTROLS AND INSPECTION CHAMBERS	
Regular Maintenance	**Frequency**
Inlets, outlets and surface control structures Inspect surface structures removing obstructions and silt as necessary. Check there is no physical damage. Strim vegetation 1m min. surround to structures and keep hard aprons free from silt and debris.	 Monthly Monthly
Inspection chambers and below ground control chambers	
Remove cover and inspect ensuring water is flowing freely and that the exit route for water is unobstructed. Remove debris and silt. Undertake inspection after leaf fall in autumn .	Annually
Occasional Maintenance	
Check topsoil levels are 20mm above edges of baskets and chambers to avoid mower damage.	As necessary
Remedial Work	
Unpack stone in basket features and unblock or repair and repack stone as design detail as necessary. Repair physical damage if necessary.	As required As required

7.4 SPILLAGE – EMERGENCY ACTION

Most spillages on development sites are of compounds that do not pose a serious risk to the environment if they enter the drainage in a slow and controlled manner with time available for natural breakdown in a treatment system. Therefore small spillages of oil, milk or other known organic substances should be removed where possible using soak mats as recommended by the Environment Agency with residual spillage allowed to bio-remediate in the drainage system.

In the event of a serious spillage, either by volume or of unknown or toxic compounds, then isolate the spillage with soil, turf or fabric and block outlet pipes from chamber(s) downstream of the spillage with a bung(s). (A bung for blocking pipes may be made by wrapping soil or turf in a plastic sheet or close woven fabric.)

Contact the Environment Agency immediately.