DRAINAGE STRATEGY NOTE

FOR PROPOSED DEVELOPMENT AT

CHANCTONBURY NURSERY

ASHINGTON

1. INTRODUCTION

1.1 This drainage strategy note has been prepared to support the planning application for the Proposed development at Chanctonbury Nursery, Ashington.

2. SURFACE WATER DISPOSAL

2.1 The NPPF Planning Practice Guidance advises that Sustainable Drainage Systems (SuDS) should be used to control surface water runoff close to where it falls as well as to mimic natural drainage as closely as possible with surface runoff discharged as high up the following hierarchy of drainage options as reasonably practicable.

- into the ground (infiltration);
- to a surface water body;
- to a surface water sewer, highway drain, or another drainage system;
- to a combined sewer.

7.2 The pro-forma sets out a hierarchy for the discharge of surface water runoff. The methods of discharge are summarised in *Table 1* below with an assessment of each methods suitability.

Table 1: Surface water discharge assessment.

System	Assessment
Infiltration to Ground	The site investigation report by Ground and Water (Ref: GWPR5759) demonstrates that the underlying soils are clay. As such disposal of surface water by infiltration is not considered feasible. This is supported by the Flood risk Assessment by GTA Civils and Transport Limited (Ref:10725)
To a surface water Body	To the south of the site there is an existing ditch which flows to the west and connects into Lancing Brook. As such is it considered suitable to discharge the surface water run-off from the proposed development at a restricted rate.
To a surface water sewer	It has been established that the site will drain into an existing watercourse to the south of the site and as such discharge to a surface water sewer does not need to be considered.
To a combined sewer	It has been established that the site will drain into an existing watercourse to the south of the site and as such discharge to a combined sewer does not need to be considered.

3. SURFACE WATER DRAINAGE STRATEGY

3.1 As set out in Section 2 the site is to discharge surface water to the existing ditch along the southern boundary of the site at a restricted rate.

3.2 The discharge rate for the scheme was determined by GTA Civils and Transport in their Flood Risk Assessment (Ref:10725). This set the discharge rate to 5.7l/s which closely matches the Qbar Greenfield runoff rate for the site.

3.3 An assessment of suitable SuDs techniques for the site was undertaken, as seen in Table 2 below:

Table 2: SuDs Suitability Assessment

SuDs element	Suitability	Reason
Rainwater harvesting	×	Would provide limited benefit but water butts could be considered.
Infiltration systems	×	It has been demonstrated infiltration is not feasible as part of the development
Blue/ Green Roofs	×	There are pitched roof profiles
Filter Strips	×	There is limited space adjacent to hard standing.
Filter Drains	×	There is limited space adjacent to hard standing.
Bioretention Systems	×	There is limited public open space to incorporate.
Permeable Paving	✓	The proposed shared driveways would lend themselves to being permeable paved.
Swales	×	There is limited space on the site
Basins/ Ponds	✓	Whilst there is limited space there is sufficient space to the south of the site to fit a small balancing pond.
Attenuation Tanks	✓	These would be suitable given the limited space for open features.
Propiretary treatment Systems	✓	These would be suitable but, preference would given to other SuDs techniques first.

3.4 This assessment determined that the most suitable SuDs techniques for the scheme were as follows: Attenuation Basin, Permeable Paving and Geocellular attenuation tanks.

3.5 Based on the assessment of suitable surface water disposal systems, discharge rate and the suitability of SuDs features a drainage strategy for the site has been developed. This is as follows:

- Surface water runoff from proposed roof areas will be collected via a new below ground drainage network and conveyed towards the south of the site. Surface water run off from hard landscaped areas will be collected via a series of gullies, channel drains and permeable paving. These will be connected into the proposed surface water network which conveys flows to the south.
- As surface water runoff is conveyed south it will pass through a series of flow control chambers. An initial flow control chamber in the middle of the site assists with reducing the flow to the network further south. The final discharge from the site is split into 2 outfalls due to the proposed site levels. The flow control device at the outfall to the west of the site restricts flow to a maximum 1.0l/s for all storm events up to and including the 1 in 100-year storm event plus a 40% allowance from climate change. The flow control to the east of the site restricts flow to a maximum of 4.7l/s for all storm events up to and including the 1 in 100 year storm event plus a 40% allowance for climate change. These flow controls combined ensure that the site discharges at a maximum of 5.7l/s as set out in the GTA Civils and Transport limited FRA.
- All excess flows from the development are attenuated in a mix of attenuation basins, permeable paving sub-base and Geocellular attenuation tanks throughout the development.

All attenuation features have been designed to store all excess flows up to and including the 1 in 100-year storm event plus a 40% allowance for climate change.

Hydraulic Analysis

3.6 The Network facility in the MicroDrainage software package has been used to size the Network and attenuation structures. The surface water MicroDrainage calculations are included as part of this submission.

3.7 Within the calculations FEH 2013 rainfall data has been used to best model predicted runoff with the CV value set to 1 and the MADD factor set to 0.

Maintenance

3.8 The relevant property owner/(s) will be responsible for the maintenance of the private drainage systems serving the properties.

3.9 All drainage infrastructure outside of the property boundaries will be under the management of a Management Company.

Foul water Disposal

3.10 Foul water flows generated by the development are discharged directly to the existing Southern Water foul sewer located in Rectory Lane. The northern half of the site drains via gravity to the existing foul water sewer. However, due to levels the southern half of the site drains to a new package pumping station which pumps back through the site and connects into the new northern network where it is then discharged into the foul water sewer.