INFRASTRUCTURE DESIGN LTD
EST 2000

Residential Development at Tormead 27 Dene Road, Northwood, HA6 2BX

Application no: 9043/APP/2022/2490

Pre-Commencement Conditions 5 Summary Report

Surface Water Drainage

Issue 1: 13th February 2025

1.0 Introduction

1.1 Infrastructure Design Ltd (IDL) has been appointed by Gavacan Homes to prepare a Surface Water design for their proposed apartment scheme in order to satisfy the planning condition imposed on the above Planning Consent.

1.2 A Surface Water Management Report prepared by Flo Consult UK Ltd was granted with condition.

1.3 This summary report supplies the information required to satisfy pre-commencement conditions 5.

2.0 Condition 5

Notwithstanding the submitted Basement Impact Assessment and Surface Water Management Report by Flo Consulting Ltd, prior to the commencement of construction work (excluding site clearance and demolition), a scheme for the provision of sustainable water management and water efficiency shall be submitted to and be approved in writing by the Local Planning Authority.

The scheme shall:

i. Provide information about the design storm period and intensity, the method employed to delay and control the surface water discharged from the site and the measures taken to prevent pollution of the receiving groundwater and/or surface waters;

Condition 5 (i) Response

The drainage system has been designed with FEH 2022 rainfall methodology and carried out drainage calculation for storm events up to 1 in 100 years + 40% climate change and their critical storm events.

SuDS features such as permeable paving and below-ground attenuation storage have been used to store the surface water runoff before discharging it to the receiving system.

Permeable paving with a subbase lined in an impermeable membrane will be used to form the new parking areas. This will delay runoff into the cellular storage and outfall via perforated pipes surrounded by granular material while improving water quality.

The below-ground cellular storage is approximately (7m x 9.0m x 1.2m) 75.6 m3, which will store the surface water runoff for storm events up to 1 in 100 years plus 40% climate change.

The control manhole (an orifice manhole) will restrict the proposed surface water runoff to 0.7 l/s as agreed in the approved drainage strategy by the Flo consultant, dated June 2022.

The proposed runoff rate from the site will be:

0.3 l/s for 1 in 1 storm event
0.3 l/s for 1 in 2 storm event
0.5 l/s for 1 in 30 storm event
0.6/s for 1 in 100 storm event
0.7 l/s for 1 in 100 + 40% climate change storm event

Note that there is no flooding at any point on the system for all storm events, including the 1 in 100 years + 40% climate change event.

Refer to Appendix A for detailed plans and Appendix B for the latest drainage calculation.

ii. Include a timetable for its implementation; and

Condition 5 (ii) Response

The proposed drainage system will be constructed and maintained during the construction to ensure no pollution and flooding occur within the onsite and receiving system.

iii. Provide a management and maintenance plan for the lifetime of the development which shall include the arrangements for adoption by any public authority or statutory undertaker and any other arrangements to secure the operation of the scheme throughout its lifetime. The scheme shall also demonstrate the use of methods to minimise the use of potable water through water collection, re-use and recycling and will:

Condition 5 (iii) Response

A maintenance and management regime of all drainage elements, including the SuDS feature and control manhole, has been included in Appendix C.

Please note that the responsibility for maintaining all elements of the development remains with Gavacan Homes until it is handed over to the Management Company. Following the handover, the Management Company is responsible for all aspects of the maintenance. Handover of the building to the Management Company typically takes place 4-8 weeks after the first occupation.

iv. Provide details of water collection facilities to capture excess rainwater;

Condition 5 (iv) Response

Water butts are to be used to store and re-use surface water when required.

v. Provide details of how rain and grey water will be recycled and re-used in the development;

Condition 5 (iv) Response

Due to insufficient space within the development, recycling and re-using rain and grey water are not possible. As stated in the above response, water butts have been used to store rainwater and re-use within the landscape area when required.

vi. Provide details of how the dwellings will achieve a water efficiency standard of no more than 105 litres per person per day maximum water consumption.

Condition 5 (vi) Response

We request that the optional requirements to be imposed as part of the planning approval for this matter. Gavacan Homes will provide fittings that do not exceed the flow rates given in Building Regulation G2 Table 2.2 (Refer to the extract below). The water consumption will not exceed 110 litres/person/day

WATER EFFICIENCY ONLINE VERSION G2

Optional requirement

2.8 The optional requirement only applies where a condition that the dwelling should meet the optional requirement is imposed as part of the process of granting planning permission. Where it applies, the estimated consumption of wholesome water calculated in accordance with the methodology in the water efficiency calculator, should not exceed 110 litres/person/day.

2.9 The person carrying out the work must inform the ***BCB*** where the optional requirement applies.

2.10 As an alternative to calculating the water consumption (as paragraph 2.8), a fittings approach that is based on the water efficiency calculator methodology may be used.

2.11 Where the fittings approach is used, the water consumption of the fittings provided must not exceed the values in Table 2.2. If they do, the water efficiency calculator must be completed to demonstrate compliance. Similarly, where a shower is not to be provided or where a waste disposal unit, a water softener or water re-use is to be provided the water efficiency calculator must be completed.

2.12 Where the fittings approach is used, the notice given under regulation 37 should state "Less than 110 litres/person/day using fittings approach".

Table 2.2 **Maximum fittings consumption optional requirement level**

Water fitting	Maximum consumption
WC	4/2.6 litres dual flush
Shower	8 l/min
Bath	170 litres
Basin taps	5 l/min
Sink taps	6 l/min
Dishwasher	1.25 l/place setting
Washing machine	8.17 l/kilogram

Notification of water efficiency calculation to the *BCB*

2.13 Where regulation 36 applies, regulation 37 of the Building Regulations and regulation 20(1) and (4) of the Building (Approved Inspectors etc.) Regulations require that a notice specifying the calculated potential consumption of ***wholesome water*** per person per day relating to the dwelling as constructed be given to the appropriate ***BCB***.

2.14 In most cases, this notice must be given to the ***BCB*** no later than five days after the completion of the ***building work***. However, where the ***BCB*** is an Approved Inspector and the dwelling is occupied before completion, the notice must be given no later than the day that the initial notice ceases to be in force in consequence of regulation 18 of the Building (Approved Inspectors etc) Regulations when this is earlier than five days after the completion of the work.

2.15 It is permissible for the notice to be served on the ***BCB*** electronically provided the ***BCB*** has stated its willingness to receive the document by those means and it is delivered to the electronic address that the body has specified.

2.16 Local authorities are unlikely to be able to give a completion certificate for the building until the notice required under regulation 37 of the Building Regulations has been received. Approved Inspectors are unlikely to be able to give a final certificate until the equivalent notice under regulation 20(1) and (4) of the Building (Approved Inspectors etc.) Regulations has been received.

.

Thereafter the development shall be implemented and retained/maintained in accordance with these details for as long as the development remains in existence.

REASON
To ensure the development does not increase the risk of flooding in accordance with Policy DMEI 10 of the Hillingdon Local Plan Part 2 (2020) and Policies SI2 and SI 13 of the London Plan (2021).

Appendix A

Levels Layout, Drainage Layout and Construction Details

Appendix B

Surface Water Drainage Calculations

Appendix C – Maintenance and Management Requirements

The Management Company

The responsibility for maintenance of all elements of the development remains with Gavacan Homes until handed over to the Management Company. Following the handover, the Management Company is responsible for all aspects of the maintenance. Handover of the building to the Management Company typically takes place 4-8 weeks after the first occupation. At handover, the Management Company and Managing Agent receive as-built information and operating and maintenance manuals detailing all maintenance protocols.

Within the first two years from the first occupation, there is a two-year warranty on the communal parts of the building. There is also a two-year warranty on the individual apartments, which commences from the date of legal completion of the individual apartment. Defects should be reported to the House Manager, who is an employee of the Management Company, and they will log the defect with Gavacan Home's Customer Services team

Crate Attenuation system (and surface water drainage system generally)

The principle means of surface water disposal from the development is by way of attenuation to the infiltration techniques. Surface water storage will take the form of buried crate soakaway-based storage system

The Management Company will ensure that the following measures are undertaken to ensure the longevity of the surface water drainage system;

Quarterly

i) Inspect the performance of the cellular system by lifting the cover of the chamber(s) immediately upstream of each feature and check that the outlet pipe (into the crates) is free of obstruction and visible (ie not submerged). If the outlet pipe is submerged then remedial action may be required. Remedial advice to be sought from a suitably qualified consulting infrastructure engineer.

Every 6 months

i) Remove silt build up from ***all*** catchpits and silt traps

Annually

i) Select approx. 20% of the development's surface water inspection chambers (situated in accessible non-private areas) and inspect for blockages / silt build up. Remove silt and debris. Rotate on a 5 yearly cycle to cover all such chambers over this period.

Every 2-5 years (depending on outcome of aforementioned inspections)

i) Commission a CCTV survey and report on condition of the surface water piped drainage system upstream of the soakaways to check for structural integrity and hydraulic fluidity. Carry out promptly any remedial work as advised by CCTV company.

Permeable Paving

Access Roads and parking areas are to be constructed of permeable block paving. This approach serves to;

a) Delay the surface water runoff from these areas, into the ground below, and
b) Enhance the quality of the rainwater percolating through the surface before discharging into the downstream drainage system.

The Management Company will ensure that the following measures are undertaken to ensure the longevity of the pervious pavement;

Quarterly

i) Inspect the pervious pavement for signs of ponding and ensure there is no migration of soils from adjacent landscaped areas or other deleterious material that may prematurely clog up the jointing stone situated in the gaps between the blocks. Ideally this type of inspection should be undertaken immediately following a heavy rainfall event.

ii) Commission vacuum sweeping and brushing of the pervious pavement to ensure joints are kept free of silt. Minimum 3 sweeping per year, thus;

a) End of Winter (April) – to collect winter debris
b) Mid-Summer (July/August) – to collect dust, flower and grass-type deposits.
c) After Autumn leaf fall (November)

The company commissioned to carry out this work should ensure that their vacuum equipment is adjusted accordingly to avoid removal of jointing material. Any lost material should be replaced promptly to avoid the blocks from being dislodged.

Last Resort Remedial Action

i) Should a portion of the pervious pavement become substantially impervious due to excessive siltation, the following procedure should be followed;

a) Lift block paving and laying course
b) Break out underlying bitmac base layer and replace with similar compacted depth of course aggregate subbase material to BS EN 13242:2002 Type 4/20, wrapped in geotextile as Terram 1000 or similar.
c) Renew laying course, replace blocks and renew jointing material

NB. Material removed from the voids or the layers below the surface may contain heavy metals and hydrocarbons and as such may need to be disposed of as 'controlled waste'. Sediment testing should be carried out before disposal to confirm its classification and appropriate disposal methods.

<u>Flow Control Chamber (Orifice Manhole)</u>

Flow control chambers are to be maintained. Their maintenance regime shall be as follows:

Following installation of the Flow Controls any extraneous material i.e. Building materials are removed from the unit and the chamber. After the system is made live, the unit is to be inspected monthly for three months and thereafter at six monthly intervals with hose down if required.

The chambers are to be cleared checked for structural integrity at the six monthly interval. Any damage/problems should be made good as per the original design drawings.