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20th March 2026

Katherine Parkin
Gravesham Borough Council
Civic Centre
Windmill Street
Gravesend
Kent
DA12 1AU

Dear Ms Parkin,

**Re: Land at Dalefield West
Discharge of Conditions 6 and 7 (Surface Water Drainage and SuDS)
Our Reference: 24024/KL/01**

Thank you for your consultation response in relation to the above-referenced planning application and the discharge of Conditions 6 and 7.

Information was submitted at the application stage addressing the majority of these points. For clarity, each of the points raised in KCC response is addressed below, with an explanation of where the information is provided and how the requirements have been met, together with clarification where information is presented across multiple sections or drawings.

1. Non-technical summary / overview of the drainage design approach

A clear overview of the historic surface water drainage strategy for the wider area was set out in section 5 of the FRA. Section 6 describes the proposed drainage for the site in details and includes:

- The overall SuDS-led approach adopted for the site
- The hierarchy of surface water disposal considered
- The rationale for the discharge from the site
- How flood risk is managed on-site for all storm events up the 100 year plus allowance for climate change

The information in the FRA fulfils the first requirement explaining the design philosophy and drainage principles.

2. Detailed drainage layout drawings and key drainage features

The detailed drainage layouts were provided with the discharge application, which were supported by the FRA which contains the greenfield and proposed drainage calculations for the development combined they identify:

- The surface water drainage network arrangement
- Key SuDS features integrated within the site layout
- Locations of attenuation and treatment features
- Discharge points and flow controls

While the drawings in the FRA were presented at an outline level to support the planning application, the submitted drawings for discharge of condition shows clearly how surface water is managed across the site. Detailed pipe route, manholes and final invert levels are provided on the drawings in the submission pack.

3. Design inputs and supporting information

The FRA includes the key design inputs requested, such as greenfield runoff rates, permeable area pre and post development. The FRA show the following information

- Existing and proposed impermeable areas
- Greenfield runoff calculations
- Ground conditions and infiltration feasibility

Infiltration is not proposed given the high-water table encountered during the investigations and depth of made ground anticipated across the site. Also, the planning conditions do not allow for infiltration to ground unless it can be demonstrated there is no risk to controlled waters. Based on this infiltration was discounted.

4. Network calculations and performance for design storm events

Surface water calculations demonstrating the performance of the proposed drainage system are included within the FRA. These confirm that the drainage strategy has been assessed for:

- 1 in 1 year event
- 1 in 10 year event
- 1 in 30 year event
- 1 in 30 year event plus 20% climate change allowance
- 1 in 100 year event
- 1 in 100 year event plus 20% climate change allowance

The assessment demonstrates that runoff is appropriately controlled and that flood risk is not increased elsewhere. The design is compliant with the current national guidance, including Environment Agency climate change allowances.

5. Exceedance routing and flood risk management

The submitted Flood Risk Assessment contains a number of drainage assessments for different storm return periods, including the 1 in 30 year event. The assessment demonstrates that a storm event with a 1 in 30 year return period is fully contained within the proposed SuDS features, and therefore no exceedance of this event is predicted.

As such, an exceedance plan for the 1 in 30 year event is not required. However, in the unlikely event that exceedance was to occur during more extreme storm events, the site layout is open and allows flood flows to be conveyed naturally across the site towards the lower-lying areas and the adjacent ditch network.

6. Surface water quality and pollution control measures

The drainage strategy set out in the FRA includes SuDS elements consisting of permeable paving. Within section 6 of the FRA detailed consideration of the potential contamination is considered and how the proposed SuDS will treat the runoff. As well as the SuDS treatment additional measure by way of a petrol inceptor has also been incorporated into the design for added protection. Maintenance of the paving will be undertaken as per the SuDS manual C753, the freehold of the site will be responsible for ensuring the regime of maintenance is followed and adjusted if required. A schedule of the maintenance regime is included with this response. This demonstrates that the proposed drainage scheme adequately addresses both quantity and quality considerations.

7. Operation, maintenance and future management

The FRA confirms that the proposed drainage and SuDS features have been designed with maintenance and accessibility in mind. The FRA set out short term measures for maintenance during construction, and a maintenance schedule is provided with this response for long-term operation and maintenance requirements. The system will be owned and maintained by the freeholder of the land.

We trust the above satisfactorily addresses the comments raised by KCC and that you are now able to discharge to the planning condition, but should you require further information please do not hesitate to contact me.

Yours sincerely,
for Manhire Associates Limited

Kevin Lang

SUDS Management & Maintenance Regime

SUDS MANAGEMENT & MAINTENANCE

Regular inspection of the surface water drainage network for blockages and clearing unwanted debris/silt from the system should improve the performance of the surface water network and decrease the need for future repairs. In the event of blockages, high pressure water jets can be used to clear the gullies and pipes to ensure they are functioning correctly, this should be undertaken by certified trained professionals.

The level and frequency of maintenance required on site is dependent on the type of facility. The type of maintenance will fall into one of three categories “regular maintenance”, “occasional maintenance”, and “remedial maintenance”.

Regular Maintenance of the drainage and SuDS features will include, inspections, removal of litter/debris and sweeping of the surfaces. Occasional maintenance will include removal of sediment etc. and remedial maintenance may include structural repairs and infiltration reconditioning if required.

The drainage and SuDS elements after an initial inspection following construction should be inspected on a monthly basis for the first 12 months and after large storms, thereafter the following maintenance regime should be applied and adjusted if the 12-month monitoring process has identified any issues.

Following completion of the development, the freeholder or tenant of the land will be responsible for the maintenance on the permeable paving. The following maintenance regime is recommended for the SuDS features in the development and should be adjusted suit site requirements following the initial inspections if required.

Inspection, Manhole, Catchpit Chambers and Pipes

The appropriate health and safety equipment must be used when accessing manholes. Confined space certificates must be held by any personnel entering a manhole and the appropriate permits should be obtained.

Pipes are intended to be the main conveyance across the development. They are intended to be dry except for during rainfall events. These have been designed to be self-cleaning where possible for smaller diameter pipes, and for larger diameters the risk is reduced due to the overall pipe size.

For the Inspection, Manhole, Catchpit Chambers and Pipes, the following maintenance will be required.

Manhole / Pipe Maintenance Schedule		
	Required Action	Typical Frequency
Regular maintenance	Inspect for evidence of poor operation via water level in chambers. If required, take remedial action.	3-monthly, 48 hours after large storms.
	Check and remove large vegetation growth near pipe runs.	Monthly or as required
	Remove sediment from structures.	Annually or as required
Remedial Actions	Rod through poorly performing runs as initial remediation.	As required
	If continued poor performance jet and CCTV survey poorly performing runs.	As required
Monitoring	Inspect/check all inlets, outlets, to ensure that they are in good condition and operating as designed.	Annually
	Survey inside of pipe manholes for sediment build-up and remove if necessary	Every 5 years or as required

Table 1 – Manhole, Catchpit and Pipes Maintenance

Drainage Channels and Gullies

For the Inspection, drainage channel and gullies, the following maintenance will be required.

Channel and Gully Maintenance Schedule		
	Required Action	Typical Frequency
Regular maintenance	Litter and debris removal	Monthly or as required
	Check and remove large vegetation growth near channel runs	Monthly or as required
	Inspect for evidence of poor operation and/or weed growth. If required, take remedial action. Inspect silt accumulation rates and establish appropriate brushing frequencies.	3-monthly, 48 hours after large storms
Remedial Actions	Inspect access/outlet boxes and rod through poorly performing channels and outlets as initial remediation.	As required
Monitoring	Inspect/check all inlets, outlets, to ensure that they are in good condition and operating as designed.	Annually
	Survey inside of gullies for sediment build-up and remove if necessary	Every year or as required

Table 2 – Channel and Gully Maintenance

Permeable Paving

For permeable paving areas, the following maintenance is recommended.

Permeable Paving Maintenance Schedule		
	Required Action	Typical Frequency
Regular maintenance	Remove debris and leaves etc.	Once a year, after autumn leaf fall, or reduced frequency as required, based on site-specific observations of clogging or manufacturer's recommendations – pay particular attention to areas where water runs onto pervious surfaces from adjacent impermeable areas as this area is most likely to collect the most sediment.
Occasional maintenance	Stabilise and mow contributing and adjacent areas	As required
	Removal of weeds	As required- once per year on less frequently used pavements
Remedial Actions	Remediate any landscaping which, through vegetation maintenance or soil slip, has been raised to within 50 mm of the level of the paving	As required
	Remedial work to any depressions, rutting etc	As required
	Rehabilitation of surface and upper substructure	Every 10 to 15 years or as required (if infiltration performance is reduced due to significant clogging)
Monitoring	Inspect for evidence of poor operation and/or weed growth - if required, take remedial action.	Three-monthly, 48 hours after large storms in the first six months
	Inspect silt accumulation rates and establish appropriate frequencies for rehabilitation	Annually
	Monitor inspection chambers	Annually

Table 3 – Permeable Paving Maintenance Schedule