

Relating drainage reports to BREEAM

The purpose of this guidance note is to help assist BREEAM Assessors relate the contents of a drainage report to the Surface water run-off and Minimising watercourse pollution criteria in Pol 03 (Flood and surface water management) in the BREEAM UK New Construction 2018 scheme. This note and the accompanying template can be used by the BREEAM Assessor as supporting evidence for their assessment of the building and award of BREEAM credits.

Note:

- Completing this template is optional, it is not a requirement for demonstrating compliance with Pol 03 only an aid.
- This form is not applicable to the 'Flood resilience' section of this issue.

Instructions

The **BREEAM Assessor must complete Section A Contact details** and the **appropriate consultant must complete all other sections**, including section E 'Signature of Validation'.

If the form is incomplete and / or unsigned it will not be accepted as evidence supporting a BREEAM assessment.

The below sections to be completed by the project's BREEAM Assessor

Section A: Contact Details

Consultant/Engineer Details

Company name:	Furness Partnership
Company address:	20 Britton Street, London EC1M 5TX
Contact name:	Leon Furness
Contact telephone number:	: +44 (0)20 7490 4353

Developer/Client Details

Company name:	Reading Borough Council
Company address:	Civic Offices, Bridge Street, Reading, RG1 2LU
Contact name:	Andrew Lockwood
Contact telephone number:	

Development Details

BRE project reference number (if known):	BREEAM-0085-4950
Development name:	Palmer Park Leisure Centre
Development address:	Wokingham Road Reading RG6 1LF

All of the following sections of the template to be completed by the appropriate consultant

Section B: Assessment Information

1.	Where the assessed building is part of a larger development of buildings there are a number of options for assessment of the surface water run-off and minimising watercourse pollution credits. Please tick one of the following boxes to confirm the approach taken:
☒	A. An individual building is being assessed independently where the run-off is being dealt with on a building by building basis (i.e. each building has its own dedicated sub-catchment that serves only that building).
☐	B. This assessment is part of a larger site with a number of buildings (which can include domestic and/or non-domestic buildings), and this template covers the drainage from the local sub-catchment serving all those dwellings/buildings within the sub catchment. To do this the site has been split up into smaller pockets of land covering one or several buildings ¹ . Please confirm the number of assessed areas within the site (you will need to complete this template for each assessed area) ² . Number of assessed areas: _____
OR	
☐	C. The whole development has been assessed for compliance on a site wide basis.

Site Information

2.	A. Please provide the site area ³ (select unit of measurement in drop-down list)	0.333	hectare ▼
	B. Please provide the impermeable area of the site pre-development (select unit of measurement in drop-down list)	0.191	hectare ▼
	C. Please provide the impermeable area of the site post development (select unit of measurement in drop-down list)	0.333	hectare ▼

3.	Tick one or both of the following to confirm if some or all of the highways will be omitted from the impermeable areas in the calculations for one of the following reasons ⁴ :		
	☐	A. The highways are being adopted.	
	☒	B. The building(s) will be located beside existing highways already adopted.	

1 Note: proportioning cannot be used to calculate the percentage of run-off discharging into the local sub-catchment resulting from just the assessed building.

2 It would aid the QA process to provide a site plan highlighting each assessment area and highlighting which area is being assessed in this report.

3 The site area will include all areas within the boundaries of the site, including both permeable and impermeable areas. If box 1A or 1B has been ticked, the 'site area' will be only that for which this template demonstrates compliance.

4 Refer to the Definitions section for 'Adoptable highways'.

Section C: Consultant's qualifications

Appropriate Consultant

Prerequisite

1.	☒	I can confirm that I am an appropriate consultant, as defined by BREEAM ⁵
2.	☒	I can confirm that all surface water run-off design solutions are bespoke, taking account of the specific site requirements and natural or man-made environment of and surrounding the site.

Section D: Awarding of credits

1.	What type of site is this?		
	☐	Greenfield site (Note: drainage measures need to be specified so that the run-off from the site to water courses is no greater for the developed site than it was for the pre-developed site.)	
	☒	Brownfield site (Note: drainage measures are specified so that the peak rate of run-off from the site to the watercourses shows a 30% improvement for the developed site compared with the pre-developed site.)	
2.		A. Please provide the pre-development peak rate of run-off for the 1 year return period event ⁶	15.9 l/s
		B. Please provide the post-development peak rate of run-off for the 1 year return period event ⁵	10.8 l/s
		C. Please provide the pre-development peak rate of run-off for the 100 year return period event ⁵	50.6 l/s
		D. Please provide the post-development peak rate of run-off for the 100 year return period event ⁵	11.1 l/s
3.	☒	Please tick this box to confirm that the building meets the 5l/s compliance criteria.	
4.	If, post-development, it is necessary to reduce the peak rate of run-off to meet the BREEAM criteria, please provide a brief explanation below describing how the peak rate will be reduced. For example, 'soakaways reduce the peak rate of run-off to pre-development levels'. All runoff from the NEW areas of the Palmer Park development (i.e. new building, new permeable car park, new coach parking area) will be collected into a separate surface water drainage network and restricted to a rate of peak rate of 11.1l/s for all return periods up to and including the 1 in 100 year event (+40% climate change). This provides a minimum 30% betterment on the pre-development condition for all return periods. ☐ N/A		
5.	☒	Please tick this box to confirm that the post development peak rate of run-off calculations include an allowance for climate change in accordance with current best practice planning guidelines.	

⁵ Refer to the BREEAM UK New Construction technical manual for the definition of an appropriate consultant.

⁶ Peak rate of run-off calculations should be carried out for the range of storm durations up to and including the 6 hour storm. The peak rate of run-off for the storm event will then be the 'worst case' run-off rate from the range of storm durations. The climate change allowance should be added only to the post development calculations.

SECOND CREDIT: Volume of Run-off			
☒	Please tick this box if this credit within the Pol 03 issue is not being sought.		
Designing for Local Drainage System failure (criteria 10)			
6.	☐	Tick here to confirm that flooding of property will not occur in the event of local drainage system failure (caused by extreme rainfall or lack of maintenance). ⁷	
Volume requirements - criteria 11-12 and 15-16			
7.	☐	Please tick this box to confirm that the following post development volume of run-off calculations include an allowance for climate change in accordance with current best practice planning guidelines.	
	☐	Please tick this box to confirm that the following volume of run-off calculations are for the 100 year event of 6 hour duration.	
8.	A. Please provide the pre-development volume of run-off		m ³
	B. Please provide the post development volume of run-off caused by the new development prior to mitigation		m ³
	C. Calculate the additional predicted volume of rainwater caused by the new development prior to mitigation (= 8B – 8A)		m ³
	D. If the answer to 8C is greater than zero, please provide a brief explanation below describing how you have reduced the additional volume discharged from the developed site, for example, 'soakaways will infiltrate all of the additional volume':		
	☐	N/A	
	☐	Please provide the additional volume of run-off discharged from the site when all (if any) mitigation measures described in 8D are in place.	m ²

⁷ Refer to the Evidence section of the technical guide for details on the evidence that would be required to demonstrate that this has been considered fully.

9.		A. Where there is an increase in the volume of run-off as a result of the development and criteria 11 and 12 cannot be fully satisfied via infiltration or other SuDS techniques (as listed below), please provide an explanation under the following headings (evidence to support the reasoning should be provided in/via the hydrological report):
		Soakaways: Porous/Pervious paving: Rainwater re-use/harvesting: Green Roof: Other surface infiltration techniques: ☐ N/A (all additional volumes of run-off have been dealt with)

Volume requirements – Criteria 13-14⁹ (and 15-16)

10.		Where it has not been possible to reduce all of the additional volume by infiltration or other SuDS techniques, the volume of run-off should be discharged in accordance with one of the following rates of run-off, whichever is the higher. Please tick one of the boxes below to confirm the level of flow control that has been achieved:
	☐	A. The peak discharge rate has been reduced to pre-development 1 year peak flow rate Please state the pre-development 1-year peak flow rate _____ l/s
		OR
	☐	B. The peak discharge rate has been reduced to the site's estimated mean annual flood flow rate (Qbar). Please state Qbar: _____ l/s
	☐	C. The peak discharge rate has been reduced to 2l/s/ha. Please state the peak discharge rate at 2l/s/ha: _____ l/s
		OR
	☐	D. The limiting discharge rate requires a flow rate of less than 5l/s at a discharge point, therefore a flow rate of up to 5l/s has been used.

⁹ Note that criteria 11-12 (and 15-16) must be satisfied as far as possible prior to then applying criteria 13-14 (and 15-16).

THIRD CREDIT: Minimising Watercourse pollution		
11.	☐	Please tick this box if this credit within the Pol 03 issue is not being sought.
	☒	Tick this box to confirm that there will be no discharge from the developed site for rainfall up to 5 mm. Please provide a brief explanation as to how this is being met. Where this is N/A please also provide a brief explanation. Permeable paving is specified for the car park area which will prevent runoff for small rainfall events through evapotranspiration. Where feasible small sections of hardstanding from new development (i.e. paths) will discharge into the surrounding landscaping to prevent runoff from development. ☐ N/A
	☒	Tick this box to confirm the specification of Sustainable Drainage Systems (SUDs) or source control systems such as permeable surfaces or infiltration trenches where run-off drains are in areas with a relatively low risk source of watercourse pollution. Please provide a brief explanation as to how this is being met. Where this is N/A please also provide a brief explanation. Drainage from new building and coach parking to discharge into tank underneath permeable paving. Permeable paving to provide source control and treatment for new car park area. Where feasible small sections of hardstanding (i.e. paths) will discharge into the surrounding landscaping to reduce runoff from development. ☐ N/A
	☒	Tick this box to confirm the specification of oil/petrol separators (or equivalent system) in surface water drainage systems, where there is a high risk of contamination or spillage of substances such as petrol and oil. Please provide a brief explanation as to how this is being met. Where this is N/A please also provide a brief explanation. Permeable paving designed in accordance with the CIRIA SuDS manual has been specified in the overspill car park to provide the necessary two stage treatment required for discharge into a receiving surface water body. The car park is classed as a low pollution risk as it will only be used when all other car parking facilities at the site are full. ☐ N/A
	☐	Tick this box to confirm that, where present, chemical/liquid gas storage areas have a means of containment. Please provide a brief explanation as to how this is being met. ☒ N/A
	☒	Tick this box to confirm that all water pollution prevention systems have been designed and detailed in accordance with the recommendations of documents such as the SuDS manual and other relevant industry best practice. Please provide a brief explanation as to how this is being met. Where this is N/A please also provide a brief explanation. All drainage components including permeable paving have been designed in accordance with the CIRIA SuDS manual and the Design and Construction of Concrete Block Permeable Pavements guidance document. ☐ N/A

12.	☒	Tick this box to confirm that a comprehensive and up-to-date drainage plan of the site will be made available. (NOTE: Evidence from the developer will be required to confirm that this drainage plan will be made available for the building/site occupiers) <i>Please provide a brief explanation as to how this is being met. Where this is N/A please also provide a brief explanation.</i> Refer to the latest drainage drawing attached and previous email/letter from the developer confirming that up to date plans will be kept on site. ☐ N/A
	☒	Tick this box to confirm that relevant maintenance agreements for the ownership, long term operation and maintenance of all specified SuDS have been / will be put in place. <i>Please provide a brief explanation as to how this is being met. Where this is N/A please also provide a brief explanation.</i> A proposed maintenance schedule has been prepared and submitted. This is a living document and will be finalised and implemented following confirmation by the contractor. ☐ N/A
	☐	Tick this box to confirm that, where present, all external storage and delivery areas are designed and detailed in accordance with the current best practice planning guidelines. <i>Please provide a brief explanation as to how this is being met. Where this is N/A please also provide a brief explanation.</i> New new storage/delivery areas are required to be drained. ☒ N/A

Section E: Signature of Validation

Signature

The following declaration should be signed by the appropriate consultant responsible for ensuring that the development meets the Pol 03 surface water run-off and minimising watercourse pollution criteria, where applicable.

I confirm that the information provided in this document is truthful and accurate at the time of completion.

Name of appropriate consultant:

Michael Herbert

Signature of appropriate consultant:



Date:

27/07/2021