

Mr and Mrs J Rennick

Land Adjacent to Playford, Much Marcle, Herefordshire

Proposed camping site and
associated buildings

Surface Water Strategy and Foul Drainage Strategy

July 2017

Report Prepared For:

Mr and Mrs J Rennick
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Report Prepared by



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EXPERIENCE & QUALIFICATIONS

BCL is an independent consultancy specialising in all aspects of hydrogeology and hydrology, water supply and environmental issues.

Paul Burfitt (the author of this report) holds a first degree [Geophysics (Geology)] conferred by Liverpool University, 1992 and a Master of Science Degree [Hydrogeology], Birmingham University, 1998.

Staff of BCL have provided specialist services and advice to industry since 1990. During this time experience has been gained from involvement in the study of hydrogeological and hydrological systems in connection with planning matters at over 150 sites throughout the United Kingdom and Ireland.

1 INTRODUCTION

1.1 BACKGROUND

- 1.1.1 A planning application seeking permission for the development of a camping site and associated buildings, has been prepared by Mr and Mrs J Rennick (MMJR) for an area of land adjacent to Playford, Much Marcle, Herefordshire (the Site). The planning application is being prepared on behalf of MMJR by Mr C Knock, Planning and Architectural Consultant (CK).
- 1.1.2 The Site, which is centred upon NGR SO 668 324, currently comprises a roughly quadrilateral shaped grassed field, located to the north of the B4024 to the east of Much Marcle (*figure 1*, all figures to this report are included at *appendix 1*).
- 1.1.3 The overall development covers an area of approximately 1.9 hectares (ha) and will comprise the construction of a hardstanding access road, 10 cabins, amenity buildings, creation of areas for camping and touring caravans, a temporary dwelling, garage and hub room. A drawing depicting the proposed development is provided at *appendix 1* - Chris Knock drawing ref. 1317:1827:03.
- 1.1.4 Pre-application advice has been sought from the Planning Authority (Herefordshire Council [HC]) and this has highlighted the need for both a surface water strategy and foul drainage strategy to be developed in relation to the proposed development.
- 1.1.5 This document has been prepared to present the requisite strategies, including specific design considerations to ensure adequate control of site discharge and for treatment of foul drainage.

2 SURFACE WATER DRAINAGE STRATEGY

2.1 BACKGROUND

- 2.1.1 A surface water strategy is required for the developed site to provide a viable scheme for control of rainfall runoff and ensure no increase in prevailing rates of runoff and/or increase in flood risk to others.
- 2.1.2 The Pre-application response from HC highlights a number of aspects for consideration including: i. Demonstration how surface water will be managed for

between the 1 in 1 year and up to the 1 in 100 year rainfall event, including allowance for climate change, ii. How the strategy will incorporate Sustainable Drainage Systems (SUDS) [Policy SD3 of the Core Strategy], iii. Consideration of more extreme events that overwhelm the surface water drainage system *and* iii. Control of potential pollution from washdown/parking areas.

- 2.1.3 All elements of the proposed drainage system will be located within the site boundary and hence on land under the applicants control. The applicant shall have sole responsibility for the undertaking of works described in the strategy document, including ongoing maintenance of any drainage measures.

2.2 SUDS DESIGN CALCULATIONS AND LAYOUT

- 2.2.1 The creation of the hardstanding/access areas and other structures proposed for the site have the potential to increase the rate of runoff from the Site in its prevailing state (the Greenfield Runoff Rate). To address this issue, in accordance with SUDS guidance for runoff, attenuation controls have been incorporated into the site design.
- 2.2.2 The controls have been presented in the Flood Risk Assessment conducted for the proposed development (BCL Report ref. B/CKNK/PLAYFORD/FRA/001/17) using the methodology detailed in: "Rainfall Runoff Management for Developments", October 2013, joint DEFRA / EA Flood and Coastal Erosion Risk Management R&D Programme, Report SC030219. The methodology has been drawn together within the "UK Sustainable Drainage Tools website¹".
- 2.2.3 For the developed Site the calculations indicate an attenuation volume of some **203m³** would be required to balance a 1 in 100 year storm event (including 30% increase allowance for climate change). This has been incorporated into the drainage scheme for the Site as an attenuation area in the southeastern (lowest) section (**appendix 1** - Chris Knock drawing ref. 1317:1827:03).
- 2.2.4 A series of soakaway tests have been conducted at the Site, the results of which indicate disposal of runoff via infiltration is not a viable option, reflecting the relatively high clay content of the subsurface. The attenuation feature (providing some 200m³ volume) will therefore include facility to pump accumulating water to a

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HR Wallingford UK SUDS website - Guidance and Tools: <http://www.uksuds.com>

secondary pond (a minimum of some 50m³ volume) on the southern boundary of the Site. Discharge from the secondary pond will be made under gravity to roadside drainage running along the northern side of the highway and linking into the main watercourse draining the locality, some 60m downstream.

- 2.2.5 The pump will be rated to limit the rate of discharge from the attenuation area to the prevailing Greenfield Runoff Rate to ensure no increase in downstream flood risk (**5l/s/ha - 9.5l/s** for the Site).
- 2.2.6 The attenuation area has been located within the naturally lowest section of the Site. It is expected the development will be adequately drained by overland flow. Should additional controls prove to be required (such as for the wider hardstanding areas), it is recommended that runoff is directed to subsurface French Drains to enable efficient transfer of runoff to the attenuation area.
- 2.2.7 The Site drainage scheme will provide a closed system, with water only discharged offsite through pumping. Although the proposed onsite activities are not considered to represent a significant risk in terms of pollution, the management system will allow containment of any accidental spillage within the Site, for subsequent remedial action without discharge to the wider surface water environment.

2.3 SUDS MAINTENANCE

- 2.3.1 Maintenance of the drainage elements at the Site, including the attenuation area and any subsurface drains, will be required in order to allow effective operation.
- 2.3.2 The maintenance that will be required for the drainage system is not overly complex reflecting the straightforward nature of the development. A summary of requirements is provided at **table 1** below.

Table 1. Drainage infrastructure maintenance and monitoring requirements (based on The SUDS Manual, table 6.7 & 9.2)		
Issue	Action	Frequency
Monitoring	Inspect water level within attenuation ponds and pump out as required	Daily
	Inspect inlets, outlets & inspection points for blockages, clogging, standing water and structural damage	Six Monthly
	Inspect silt level in pond and note rate of sediment accumulation	Quarterly in first year; then half-yearly
Regular maintenance	Remove sediment & debris from attenuation area.	Annually (or as required)
	Service discharge pump	Annually (or as required by manufacturer)
	Cut back any excessive vegetation from attenuation area	Annually
Remedial actions	Replacement of pump and or pipework, if performance deteriorates or failure occurs	As required

2.4 RESIDUAL ISSUES

2.4.1 The drainage scheme has been designed to meet the 1 in 100 year storm Return Period event (including allowance for climate change) using current calculation methods. The water control measures could be exceeded under more extreme conditions such as a storm event with a Return Period in excess of the design standard.

2.4.2 In the event of more extreme rainfall events and exceedance of the storage capacity of the attenuation area, excess water will be allowed to pass southwards to the existing drainage in accordance with the prevailing situation.

2.4.3 Following abatement of any such flood conditions, an inspection of the attenuation area should be undertaken and any remedial action put in place to remove excess silt/reinstate the attenuation volume.

3 FOUL DRAINAGE STRATEGY

3.1 BACKGROUND

3.1.1 A foul water drainage strategy is required for the developed site to accord with HC Policy SD4 of the Core Strategy, to demonstrate how foul drainage will be managed.

3.1.2 The pre-application response from HC highlights a number of aspects for consideration within the foul drainage strategy including: i. the need to demonstrate that contaminated water will not get into the surface water drainage system, ii. locational restrictions with regard to septic tanks and package treatment plants.

- 3.1.3 As with the surface water controls, all elements of the proposed foul drainage system will be located within the site boundary and hence on land under the applicants control. The applicant shall have sole responsibility for the undertaking of works described in the strategy document, including ongoing maintenance of any foul drainage measures.

3.2 FOUL DRAINAGE SYSTEM AND LAYOUT

- 3.2.1 Foul drainage from both the temporary dwelling, hub and amenity buildings will be directed to an appropriately sized package treatment works. The treatment works has been located sufficiently distant from any surface water bodies or watercourses to comply with the locational guidance highlighted by HC.
- 3.2.2 Calculations have been undertaken to enable a provisional design for the package treatment works using the “British Water : Flows and Loads” methodology. Full calculations are provided at *appendix 2*.
- 3.2.3 For the purposes of this strategy document, the unit size has been based on 3 residential users and a maximum of 60 people staying in a combination of tents, cabins and touring caravans at the site. This represents the expected peak demand for the development.
- 3.2.4 The final unit will be specified following consultation with the manufacturer to ensure most appropriate design and specification.

3.3 DISCHARGE AND REGULATION

- 3.3.1 The treated discharge from the package treatment unit will be passed via a reed bed system to the attenuation pond, from where discharge will be pumped offsite to the roadside drain described above.
- 3.3.2 The discharge from the treatment plant is expected to require consent from the Environment Agency as the expected peak flow rate is greater than 5m³/day and will be made to a surface water.

3.4 EQUIPMENT MAINTENANCE

- 3.4.1 Maintenance of the drainage elements at the Site, including the package treatment works, will be required in order to allow effective operation.

3.4.2 The maintenance that will be required for the foul drainage system is not overly complex reflecting the straightforward nature of the development. A summary of the anticipated requirements are provided at **table 2** below.

Table 2. Foul drainage infrastructure maintenance and monitoring requirements		
Issue	Action	Frequency
Monitoring	Monitoring of treatment works operation (recommened the installation includes an alarm for highlight of equipment failure etc)	Weekly
	Inspect inlets, outlets & inspection points for blockages, clogging and structural damage	Six Monthly
Regular maintenance	Maintenance of package treatment works to be conducted in accordance with manufacturer guidelines	Annually (or as required)
	Cut back any excessive vegetation from reed bed area	Annually (or as required)
Remedial actions	Replacement of elements within package treatment unit and or pipework, if performance deteriorates or failure occurs	As required

4 SUMMARY

4.1.1 Strategies are presented for management of surface water and foul drainage to be installed for the proposed campsite development at Much Marcle, Herefordshire.

4.1.2 The surface water drainage strategy has been designed to incorporate current SUDS guidance to enable management of runoff within the Site and to ensure no increase in runoff from the Site for up to the 1 in 100 year storm event plus allowance for climate change (in accordance with Herefordshire Council Policy SD3 of the Core Strategy).

4.1.3 The foul water drainage strategy has been designed in accordance with Policy SD4, directing all foul drainage for treatment via an appropriately sized package treatment plant, prior to offsite discharge .

4.1.4 Maintenance requirements for both the surface water and foul water systems have been detailed. Maintenance for the package treatment works will be required according to the specific installation and manufacturers recommendations.

Paul Burfitt

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BCL Consultant Hydrogeologists Limited

Mr and Mrs J Rennick

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Much Marcle, Herefordshire**

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**APPENDIX 1
Figures**

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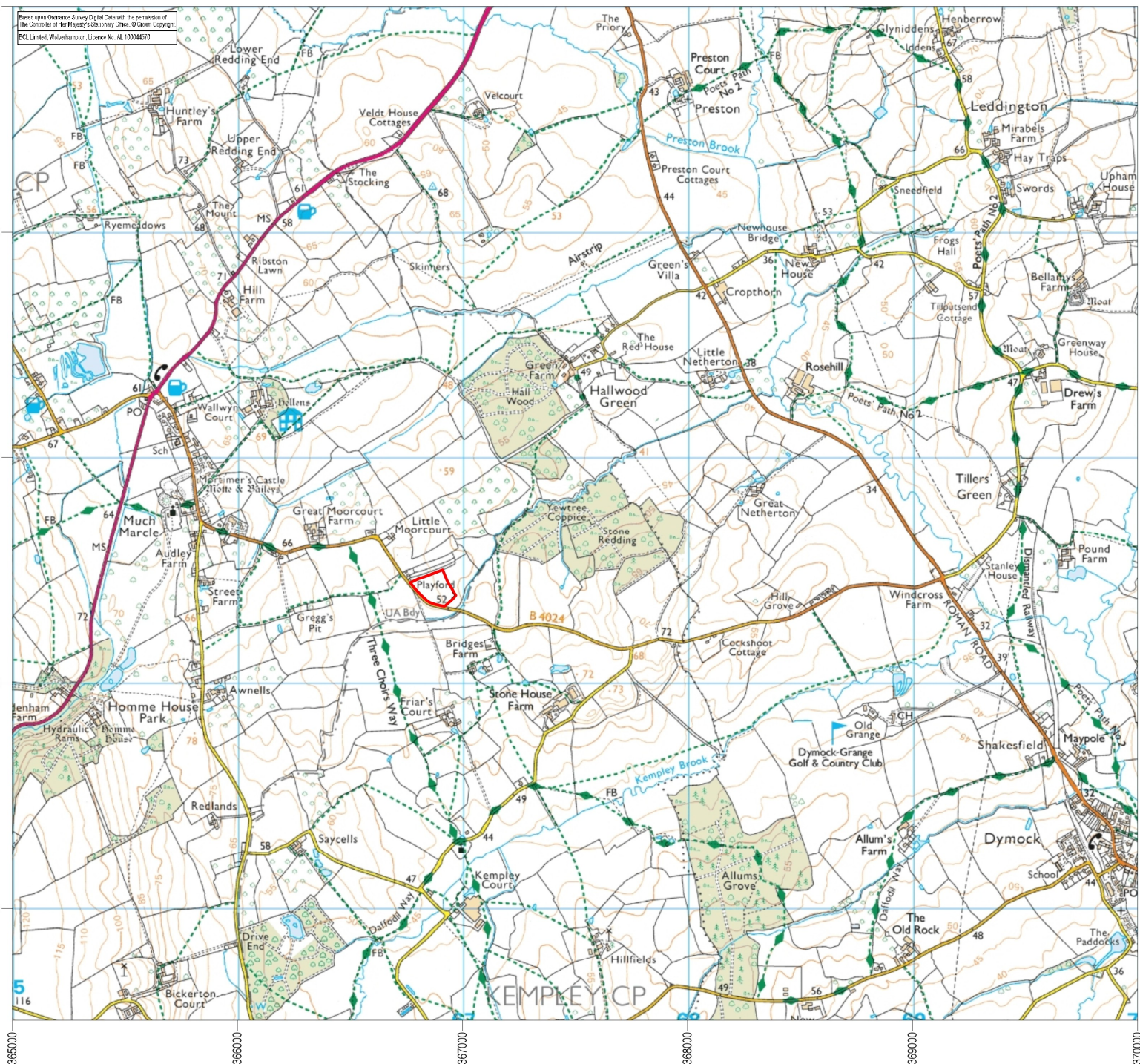
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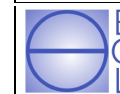
Site boundary

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Location Plan

Drawn By:	PB	Scale (at A4):	1:25,000
Date:	July 2017	Figure No.	1

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APPENDIX 2
Preliminary sizing for package treatment works

