

Peak Power Connections Ltd
Beeston Lodge
Beeston Lane
Spixworth
Norwich
NR10 3TN

Date

30th September 2016

Dear Sir

**Land adjacent Oaks Lane, Oaks Business Park, Stairfoot, Barnsley, S71 1HT
Drainage Strategy Letter**

Introduction

Peak Power Connections Ltd has proposals for a Short-Term Operating Reserve (STOR) facility for electrical generation at Land adjacent to Oaks Lane, Oaks Business Park, Barnsley, S71 1HT. The location plan and development proposals are included in Appendix A.

It has been assessed that the proposed development will not increase the impermeable area of the site. It is therefore assumed that surface water run-off from the site will either be retained at current rates and volumes, or reduced by the introduction of sustainable design features. In order to mitigate flood risk, it must be demonstrated there are suitable methods of safely discharging surface water.

This letter considers the availability of such means of surface water disposal and describes the proposed surface water drainage strategy for the development.

Surface Water Drainage Strategy

The management of surface water is considered an essential element of reducing future flood risk to both the site and its surroundings. In accordance with the NPPF, design proposals should seek to ensure that surface water run-off is managed as close to its source as possible in line with the following hierarchy of appropriate drainage techniques:

- Store rainwater for later use
- Infiltration devices
- Attenuate in open water features
- Attenuate in sealed water features (tanks)
- Discharge directly to watercourse
- Discharge directly to surface water drain
- Discharge directly to combined sewer

The existing surfaces of the site is of entirely impermeable (i.e. 0.48ha) and the total impermeable area for the proposed development is to remain the same.

In accordance with the National Planning Policy Framework (NPPF) and Strategic Flood Risk Assessment (SFRA), the drainage strategy should be developed to ensure that there is no increase in the surface water run-off from the site as a result of these impermeable areas.

The appropriate application of a SuDS scheme development is heavily dependent on the topography and geology of the site and careful consideration of the site characteristics is necessary to ensure the future sustainability of the adopted drainage system.

Consulting Engineers

Registered office: Delta House, 175–177 Borough High Street, London, SE1 1HR Registered in Cardiff No: 2901674
Robert West Consulting Limited (trading as Robert West) is a subsidiary of Robert West Group Limited





With that in mind, a surface water drainage strategy has been prepared (see drawing 5621-001-C-200-P1 in Appendix B), which consists of conventional surface water gravity drains with below-ground cellular storage attenuation (of approximately 150m³) and discharge to existing surface water drainage within the highway to the north-east of the site. Further investigation will be required to establish size, location and ownership of this existing drainage network. A flow control will limit the run-off rate to 53.6l/s, which represents a betterment from existing of 20%.

Initial drainage storage calculations demonstrate that additional flows from the 1 in 100year (+ 20% Climate Change) storm event are held within the network – see quick Micro-Drainage Calculations in Appendix B.

I trust that this provides sufficient information at this stage. Please contact me if you need any further information or clarification.

Yours sincerely

Richard Brunt
Associate

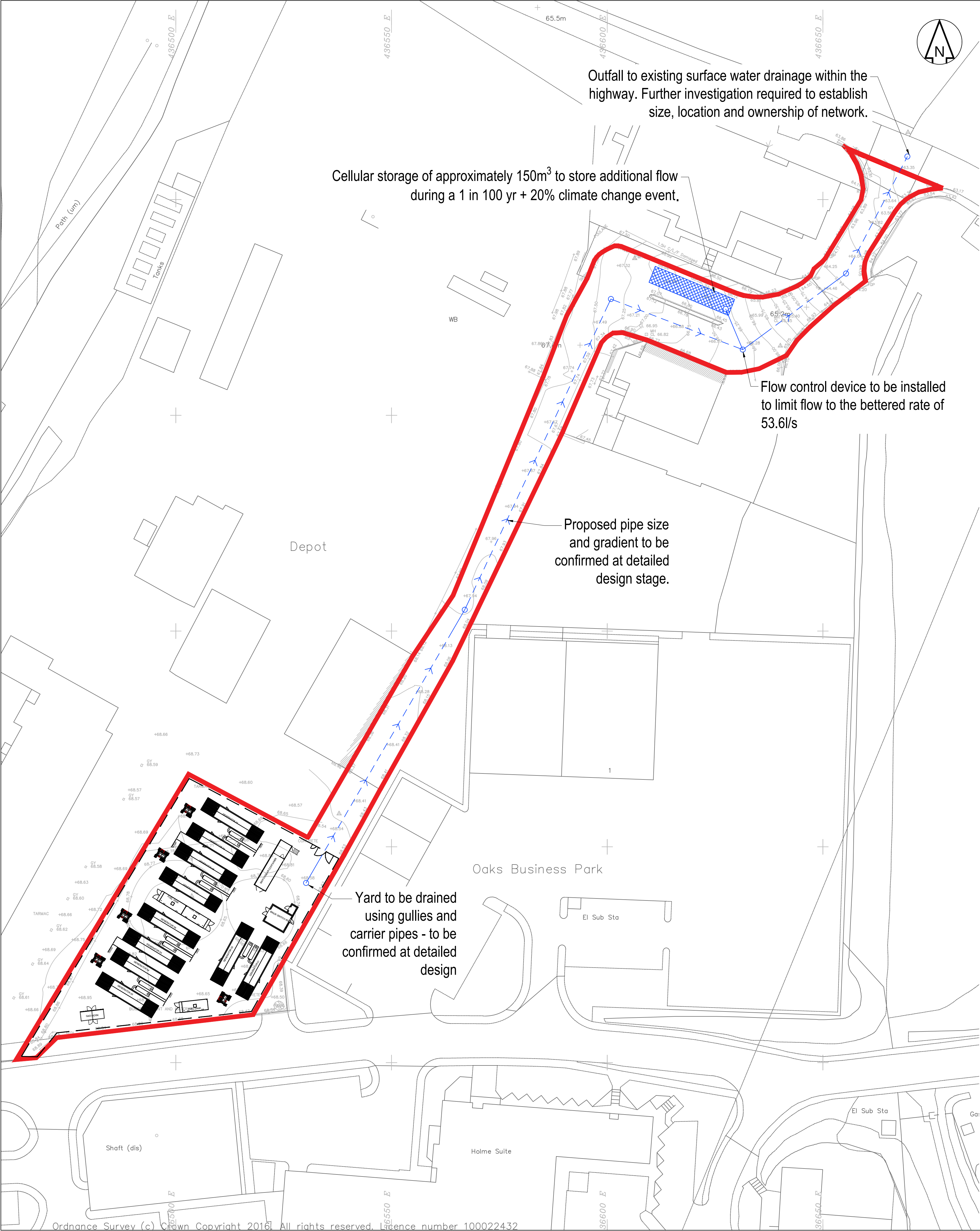
Appendix A – Location Plan & Development Proposals

3. ACCESS FROM EXISTING TARMAC ESTATE ROAD.



						CLIENT PEAK POWER CONNECTIONS LTD	TITLE SITE LAYOUT		
						PROJECT STAIRFOOT: OAKS LANE, BARNLEY, S71 1HT (GRID REF: SE364060)	DRAWING NO. G000281-1004-A-D03		
A	ORIGINAL ISSUE	12/09/16	MM	KC	AJ	The information in this drawing is the copyright of Sterling Power Utilities Ltd. It must not be copied or reproduced without the express permission of Sterling Power Utilities Ltd. © 2015 Sterling Power Utilities Limited.	TYPE PRELIMINARY	SCALE 1 : 500	
ISSUE	DETAILS	DATE	DRAWN	CHECKED	APPROVED				

Appendix B – Proposed Drainage Strategy



INITIAL STORM WATER DESIGN

The Site

- Site footprint measured at 0.4845ha
- Current site layout entirely impermeable
- No records of public sewers adjacent to the site

From BGS Report

- The subsurface - very significant potential for one or more hazards associated with infiltration.
- Superficial deposits are not identified
- Bedrock deposits (Oaks Rock) are likely to be free-draining (permeability is described as 'Moderate' to 'High')
- Groundwater not seasonally shallow, majority of the site > 5m
- Increased infiltration is unlikely to result in ground instability
- Run-off likely to percolate to groundwater through fractures and therefore latter has little potential for contamination

The Design

- Initial designs are based on a gravity piped system. Further investigations are required to BRE Digest 365 to understand the viability of infiltration.
- Based on the Modified Rational Method, the existing peak runoff rate has been calculated as 67l/s.
- A betterment of 20% has been applied to this rate, giving a proposed development runoff rate of 53.6l/s
- A flow control device will need to be installed to restrict the flow to 53.6l/s
- A quick storage estimate has been carried out in Microdrainage, which gives the required amount of storage to cater for a storm event of 1 in 100 year storm + 20%.

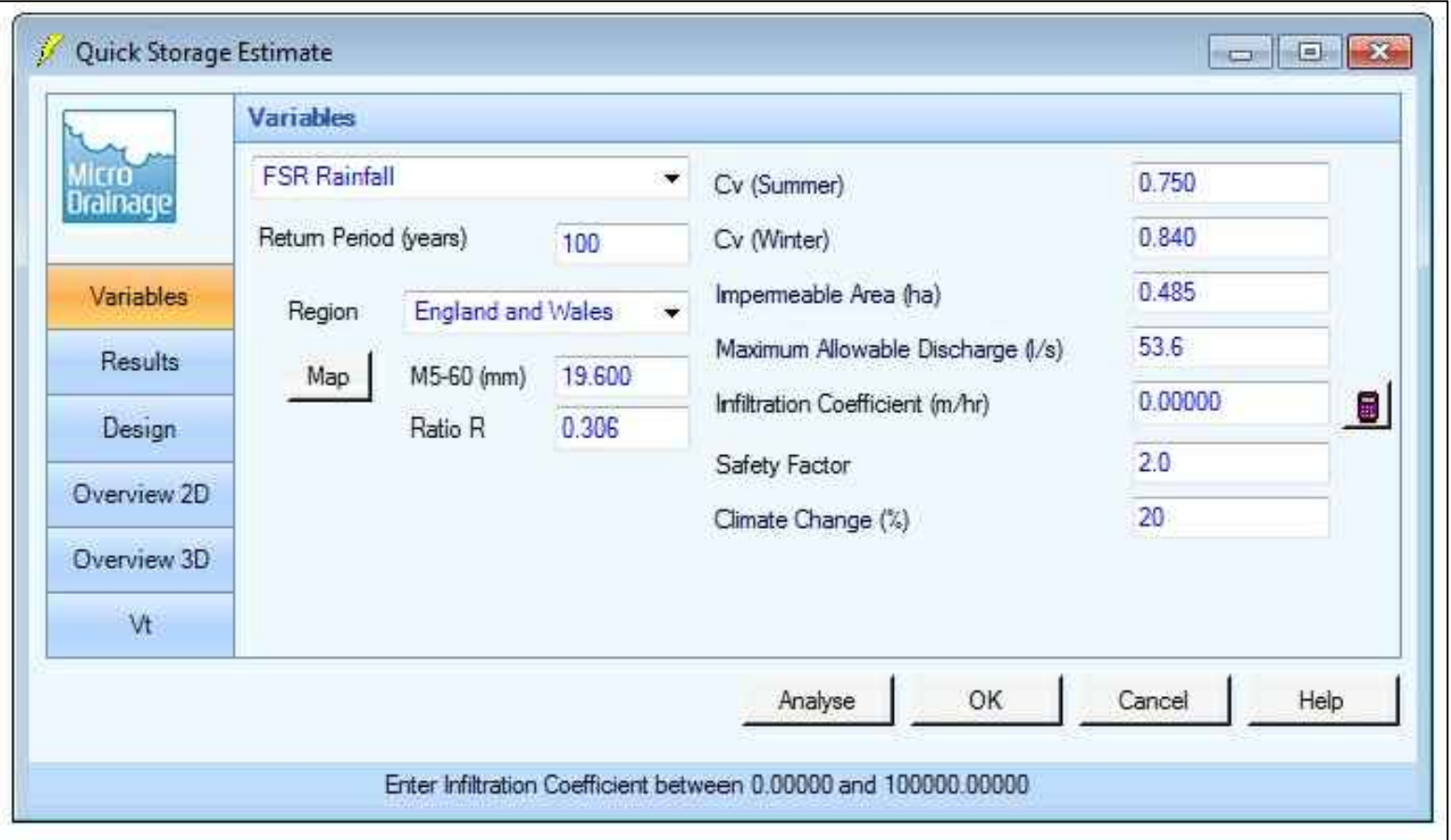


Table 1 - Quick storage parameters (Microdrainage)

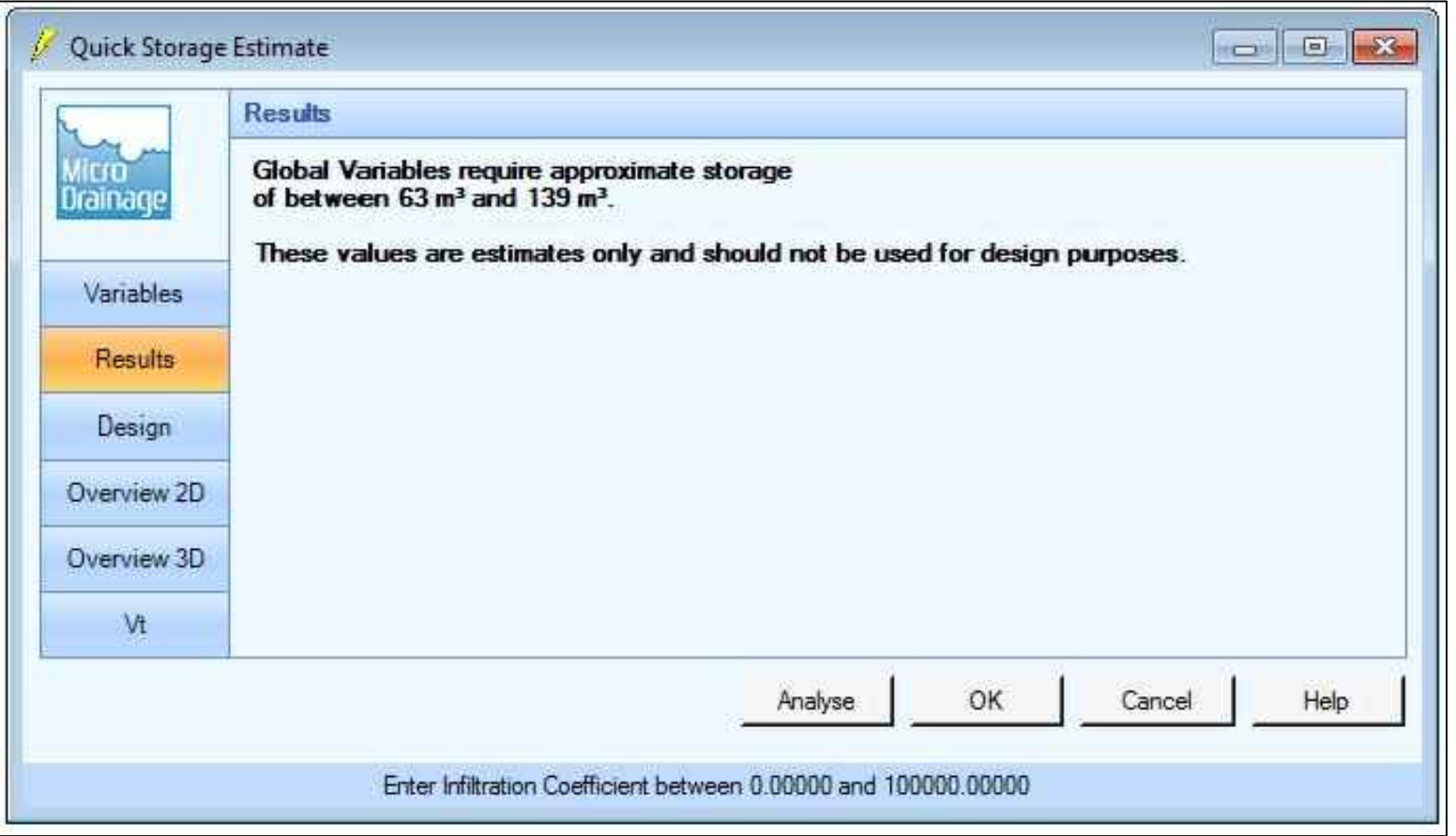


Table 2 - Quick storage results (Microdrainage)

DO NOT SCALE OFF THIS DRAWING

Notes:

1. All dimensions in millimetres unless stated otherwise.
2. This drawing has been prepared for the exclusive use of the commissioning party and unless agreed in writing by Robert West Consulting Limited no other party may use or rely on its contents. No liability is accepted by Robert West Consulting Limited for any use of this drawing other than for the purpose for which it was originally prepared.
3. It should be noted that this drawing may include data provided by third parties. No liability is accepted by Robert West Limited as to the accuracy of this data.

-	-	-	-	-	-
Rev	Date	By	Comment	Chkd	Appr

Status

PRELIMINARY

Client

Peak Power Connections Ltd.

Robert West

County House
St Mary's Street
Worcester
Worcestershire WR1 1HB

t: 01905 28288
f: 020 7939 9909
www.robertwest.co.uk

Project

OAKS LANE
STAIRFOOT

Drawing Title

PROPOSED SW DRAINAGE STRATEGY

© Robert West Consulting. All rights reserved

Drawn	Checked	Approved	Scale
By GD	By JNS	By RB	1:500 @ A1
Date 30/09/16	Date 30/09/16	Date 30/09/16	

Client No.	Project No.	Discipline	Drawing No.	Rev
5621	001	C	200	P1