



# SuDs Management Plan

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21T2034 – Cleator Moor Innovation Quarter - BOC  
Yard

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## SuDs Management Plan

Project: Cleator Moor Innovation Quarter - BOC Yard

Client: Copeland Borough Council

LLFA: Cumbria County Council

BGP Job No: 21T2034

### Document Checking:

Prepared By: J Herbert – Design Engineer

Checked By: J. Conway – Director

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001	11/01/2022	First Draft	JC
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This document has been prepared solely as a SuDs Management Plan for Copeland Borough Council regarding the proposed scheme at land off Leconfield Street, Cleator Moor. Billinghurst George & Partners accepts no responsibility or liability for any use that is made of this document other than by the Client for which it was originally commissioned and prepared.



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## 1. Introduction

- 1.1 Billinghurst George and Partners has been commissioned by Copeland Borough Council to prepare a SuDS Management Plan regarding the proposed concrete yard for storage and distribution purposes with associated access road on the brownfield site that was previously used as a concrete yard at Leconfield Industrial Estate, Cleator Moor.
- 1.2 This SuDS Management Plan has been produced to demonstrate how the proposed use of Pipes and an Attenuation Tank will be managed and maintained to satisfy the requirements set out in CIRIA 753 and in accordance with the Cumbria Development Design Guide which is Cumbria County Council (CCC) criteria for Sustainable Drainage Systems (SuDS).
- 1.3 This report is provided to assist the adopting body/maintaining body in developing an appropriate Maintenance Plan.
- 1.4 The format of the manual will be agreed in advance with the principal designer and end user, and the manual will include relevant information from all designers, suppliers and subcontractors for every element of the project.
- 1.5 This manual will be reviewed by the principal designer, and handed over to the client on practical completion. Demonstration and Training will also be arranged for the building users and maintenance staff where required.
- 1.6 The operation and maintenance manuals will include the SUDS management plans, as well as any other information required for the operation and maintenance of the site drainage system.

## 2. Site Description

- 2.1 At approximately 0.670 Ha in size the Brownfield site is located approximately 5.15km southeast of Whitehaven and approximately 18km southwest of Cockermouth. The site is currently part historic service yard and part soft landscaping. The site is bound by woodland and grass to the northern boundary, existing industrial buildings to the east and south and a demolished building footprint to the west.
- 2.2 The site is relatively flat at an approximate level of between 80.6m and 81.0m AOD, falls existing within the existing adjacent service yard to provide drainage falls to gullies. The site falls from southeast to northwest at an approximate gradient of 1 in 280 from 81.0m to 80.8m AOD. The lowest point of the site is the location in which gullies are sited within the existing service yard at 80.60m AOD.
- 2.3 The nearest named watercourse is Nor Beck, which where open is located 275m northeast of the site. Through CCTV investigation it is evident that it is culverted from the northeast point mentioned and runs southeast into Leconfield Industrial Estate and through the development site. Nor Beck culvert continues southeast through Norbeck Park and adjacent fields ultimately converging with the River Keekle.
- 2.4 There are no other named or unnamed watercourses within close proximity to site.

### 3. Existing Drainage Regime

- 3.1 The equivalent brownfield run off rates from the existing site have been calculated in accordance with Cumbria County Council (CCC) standards, which ensures designers set about achieving a 50% reduced discharge rate on existing. This is as follows;
- 3.2 ***Brownfield Discharge Rate = (140l/s x Ha.) x 50%***
- 3.3 The proposed external yard forms part of a wider plan to re-develop the Leconfield Industrial Estate. A Brownfield discharge rate has been calculated for the re-developed area the new external yard is within and is determined as 55.0 l/s. The Brownfield run off rate allocated for the proposed external yard is **15.0 l/s**, this leaves 40.0 l/s for the other area.
- 3.4 Several United Utilities combined drains and manholes are located toward to primary access of Leconfield Industrial Estate. The 300mm diameter combined sewer drains from southeast to northwest along Leconfield Street in keeping with the topography of the highway.
- 3.5 A United Utilities 675mm diameter combined sewer is located just beyond the north western boundary, which drains southwest. An existing connection from site to this sewer is evident through the return of CCTV survey information.
- 3.6 The site is currently served by wastewater systems through an existing network of private sewers. It is assumed that the private sewers ultimately discharge to the United Utilities sewers located adjacent the development site.

## 4. Proposed Surface Water Drainage Solution

- 4.1 The proposed external yard forms part of a wider plan to re-develop the Leconfield Industrial Estate. A Brownfield discharge rate has been calculated for the re-developed area the new external yard is within and is determined as 55.0 l/s. The Brownfield run off rate allocated for the proposed external yard is **15.0 l/s**, this leaves 40.0 l/s for the other areas of development.
- 4.2 The new yard proposes to discharge surface water flows to the Nor Beck culverted watercourse which passes through site via an existing connection. Surface water flows are to be restricted to a brownfield run off rate of 15.0 l/s, this rate is to be agreed with the Lead Local Flood Authority and Environment Agency.
- 4.3 The final surface water connection for the site will be via gravity.
- 4.4 Due to the minimal amount of green open available space onsite it is deemed a suitable solution to provide the attenuation volume to retain the 1 in 100 year + 40% climate change flood event below ground within an attenuation tank.
- 4.5 The attenuation is to provide storage for approximately 180m<sup>3</sup>, this volume is based on the total impermeable surface area and restricted discharge rate of 15.0 l/s. It is proposed that volumes will be stored within a 2.0m deep attenuation tank.
- 4.6 The tank is to be maintained by private management companies, maintenance requirements for the tank are detailed in chapter 7 of this report. Tank is to be installed as per the manufacturer's drawings following detailed development of the design. The tank management is to be read in conjunction with the Landscapes maintenance documents.
- 4.7 The Flow Control chamber is to be designed/installed to manufacturer's guidance and specification in accordance with relevant guidance and procedures. Flow Control chambers are to be managed and maintained by a private management company.
- 4.8 Any manufacturer's maintenance recommendations over and above what is stated on the maintenance tables will also be included in the maintenance plan.

## 5. SuDs Management and Maintenance

5.1 The proposed storm water system consists of the following SuDS components:

- Pipes
- Attenuation Tank

5.2 There are three categories of maintenance activities referred to in this report:

### **Regular Maintenance (including inspections and monitoring)**

Consists of basic tasks done on a frequent and predictable schedule, including vegetation management, litter and debris removal, and inspections.

### **Occasional Maintenance**

Comprises tasks that are likely to be required periodically, but on a much less frequent and predictable basis than the routine tasks (sediment removal is an example).

### **Remedial Maintenance**

Comprises intermittent tasks that may be required to rectify faults associated with the system, although the likelihood of faults can be minimised by good design. Where remedial work is found to be necessary, it is likely to be due to site-specific characteristics or unforeseen events, and as such timings are difficult to predict.

Note: The operations contained within this section specific to the maintenance of landscaping, shall be read in conjunction with any development landscape maintenance plan(s).



## 6. Pipes

- 6.1 Sewer Pipes form the basis of the drainage strategy, also for attenuation purposes, they will hold additional flows in the pipework and manhole chambers when flood exceedance occurs.
- 6.2 Table 1 regarding Pipes provides guidance on the type of operational and maintenance requirements that may be appropriate. The list of actions is not exhaustive and some actions may not always be required.

Table 1 - Operation and Maintenance requirements for Pipes

Maintenance Schedule	Required Action	Typical Frequency
<b>Regular Maintenance</b>	Inspect and identify any areas that are not operating correctly. If required take remedial action.	Monthly for 3 months, then annually
	Remove debris from the catchment surface (where it may cause risks to performance)	Monthly
	Maintain vegetation to designed limits, within the vicinity of below ground drainage pipes and tanks to avoid damage to system	Annually or as required
	Remove sediment from pre-treatment structures and/or internal fore bays	Annually or as required
<b>Remedial Actions</b>	Repair physical damage if necessary	As Required
<b>Monitoring</b>	Inspect check/ all inlets, outlets, vents and overflows to ensure that they are in good condition and operating as designed	Annually
	Survey inside of the pipe runs for sediment build up and remove if necessary	Every 5 years or as required

- 6.3 The pipes are installed at gradients which provide self-cleansing, therefore no significant maintenance is required.
- 6.4 Blockages should be removed if they occur.
- 6.5 Manholes/inspection chambers with silt traps should be inspected 6 monthly and emptied of any silt as required.
- 6.6 Back inlet gullies and rainwater pipes should be inspected 6 monthly and any blockages or silting up removed.

## 7. Attenuation Tank

- 7.1 The Attenuation Tank is to be located beneath the yard. The tank is to be managed and maintained by a private management company appointed by the client.
- 7.2 The primary function of the Attenuation is to provide storage through the site during times of severe flood events up to and including 100 year + 40% climate change event. Table 2 provides guidance on the type of operational and maintenance requirements that may be appropriate.

Table 2 - Operation and Maintenance requirements for Crates/Tanks

Maintenance Schedule	Required Action	Typical Frequency
<b>Regular Maintenance</b>	Inspect and identify any areas that are not operating correctly. If required, take remedial action	Monthly for 3 months, then annually
	Remove debris from the catchment surface (where it may cause risks to performance)	Monthly
	Catch pits either side of tanks to be regularly inspected and cleared of any silt build up.	Annually
	Remove sediment from pre-treatment structures and/or internal fore bays via jetting or similar approved method.	Annually or as required
<b>Remedial Actions</b>	Repair/rehabilitate inlets, outlets, catch pit chambers and vents.	As Required
<b>Monitoring</b>	Inspect check/ all inlets, outlets, vents and catchpit to ensure that they are in good condition and operating as designed	Annually
	Survey inside of the tank from catchpit chamber for sediment build up and remove via jetting if necessary	Every 5 years or as required

- 7.3 Regular inspection and maintenance is required to ensure the effective long term operation of below ground storage systems. Maintenance responsibility for the system should be placed with a responsible organisation. Crates/Tanks above provides guidance on the type of operational and maintenance requirements that may be appropriate. The list of actions is not exhaustive and some actions are not always required.
- 7.4 Maintenance plans and schedules should be developed during the design phase, and will be specific to the type of tank that is adopted. Specific maintenance needs of the system should be monitored, and maintenance schedules adjusted to suit requirements. CDM 2015 requires designers to ensure that all maintenance risks have been identified, eliminated or reduced and/or controlled where appropriate. This information will be required as part of the health and safety file.