

# ADS STRUCTURAL MAINTENANCE AND MANAGEMENT DOCUMENT

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**Project No.:** 5454 SITE 3, CLYWEDOG ROAD NORTH, WREXHAM INDUSTRIAL ESTATE

**Title:** Sustainable Drainage System (SuDS) Management Strategy

**Client:** ECE CIVILS LTD

**Date:** 15<sup>th</sup> Febriary 2021

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**Status:** Approval

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**Date:** 15 February 2021 **Date:** 16<sup>th</sup> February 2021

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Where field investigations have been carried out, these have been restricted to a level of detail required to achieve the stated objectives of the work.

This work has been undertaken in accordance with the quality management system of ADS Structural Ltd.

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# 1

## INTRODUCTION

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This management strategy has been prepared by ADS Structural Ltd on behalf of ECE Civils Ltd, to satisfy planning conditions related to Site 2, Clywedog Road North, Wrexham Industrial Estate (The Development).

The SUDS considered for the purposes of this statement, include drainage features that will be employed to reduce and manage surface water runoff from the development to a design return period of One hundred years plus climate change. This is required so that The Development will not increase the risk of flooding to the site and its environs. All drainage on site is taken to the underlying strata via infiltration features. Such features include the following:

- Permeable paving;
- Storage tanks.

This document outlines the long term maintenance of the proposed surface water system and will make reference to the following documents, some of which provide further detail on the maintenance operations required:

- CIRIA Report C753, '*The SUDS Manual*', 2015
- CIRIA Report C625, '*Model Agreements for Sustainable Water Management Systems*', 2004;
- CIRIA Report C768, '*Guidance on the Construction of SuDS*', 2017; and
- Interpave, '*Permeable pavements: Guide to the Design, Construction and Maintenance of Concrete Block Permeable Pavements*', ed. 4, 2006.

## 2

### MAINTENANCE RESPONSIBILITIES

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Responsibility for drainage within England and Wales rests with various bodies. For The Development, the drainage responsibility will rest with the tenant as follows:

- **Tenant** – The Tennant will be responsible for the maintenance of drainage features, all permeable paving, stormwater attenuation tanks, outfalls and any associated flow controls within the site. However, it should be noted that if, the Flood and Water Management Act 2010 is ever fully implemented this allows a surface water drainage system to be vested to the SUDS approving body (SAB). This would be reviewed at the time of any implementation of the act.

### 3

#### **MAINTENANCE REGIME**

As the maintenance of the communal SUDS features will be carried out via a tenant, a form of agreement should include the required maintenance listed below. Should the maintenance be transferred at a later date to a public body, then the model agreement SUDS MA1 should be used, details of which can be found in the CIRIA guidance C625.

The following section describes the required maintenance for each feature in turn. The SUDS maintenance requirements listed below should be reviewed after the first 5 years, with a view to agreeing a new regime for the ongoing maintenance.

Notwithstanding the routine inspections and maintenance requirements, after severe storm events all features shall be inspected to clear debris and repair damaged structures or features. Records of the maintenance carried out shall be prepared by the Tenant.

#### **3.1 Permeable Paving**

| Maintenance schedule   | Required action                                                                                                                                                                       | Typical frequency                                                                                                                                                                                                                                                                                                            |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Regular maintenance    | Brushing and vacuuming (standard cosmetic sweep over whole surface)                                                                                                                   | 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 surface 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 or management using glyphosate applied directly into the weeds by an applicator rather than spraying                                                                 | 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 50mm of the level of the paving                                               | As required                                                                                                                                                                                                                                                                                                                  |
|                        | Remedial work to any depressions, rutting and cracked or broken blocks considered detrimental to the structural performance or a hazard to users, and replace lost jointing material. | As required                                                                                                                                                                                                                                                                                                                  |
|                        | Rehabilitation of surface and upper substructure by remedial sweeping.                                                                                                                | Every 10 to 15 years or as required (if infiltration performance is reduced due to significant clogging)                                                                                                                                                                                                                     |
| Monitoring             | Initial inspection                                                                                                                                                                    | Monthly for three months after installation                                                                                                                                                                                                                                                                                  |
|                        | Inspect for evidence of poor operation and/or weed growth – if required, take remedial action                                                                                         | Three monthly 48h after large storms in first six months                                                                                                                                                                                                                                                                     |

| Maintenance schedule | Required action                                                                | Typical frequency |
|----------------------|--------------------------------------------------------------------------------|-------------------|
|                      | Inspect silt accumulation rates and establish appropriate brushing frequencies | Annually          |
|                      | Monitor inspection chambers                                                    | Annually          |

### 3.2 Storage Tanks

| Maintenance schedule | Required action                                                                                                                                                                                        | Typical frequency                   |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| Regular maintenance  | 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                             |
|                      | For systems where rainfall infiltrates into the tank from above, check surface of filter for blockage by sediment, algae or other matter; remove and replace surface infiltration medium as necessary. | Annually                            |
|                      | Remove sediment from pre-treatment structures and/or internal forebays                                                                                                                                 | Annually, or as required            |
| Remedial actions     | Repair/rehabilitate inlets, outlet, overflows and vents                                                                                                                                                | As required                         |
| Monitoring           | Inspect/check all inlets, outlets, vents and overflows to ensure that they are in good condition and operating as designed                                                                             | Annually                            |
|                      | Survey inside of tank for sediment build-up and remove if necessary                                                                                                                                    | Every 5 years or as required        |

1 APPENDIX A

# INSPECTION CHECKLIST

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| General information                                 |  |                                                                                            |  |
|-----------------------------------------------------|--|--------------------------------------------------------------------------------------------|--|
| Site ID                                             |  |                                                                                            |  |
| Site location and co-ordinates (GIS if appropriate) |  |                                                                                            |  |
| Elements forming the SuDS scheme                    |  | Approved drawing reference                                                                 |  |
| Inspection frequency                                |  | Approved specification reference                                                           |  |
| Type of development                                 |  | Specific purpose of any parts of the scheme (eg biodiversity, wildlife and visual aspects) |  |

| Inspection Date                                                                                                                                                                                                                                                                                                                                                                                          | Details | Y/<br>N | Action required | Date<br>completed | Details | Y/<br>N | Action required | Date<br>completed |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|---------|-----------------|-------------------|---------|---------|-----------------|-------------------|
| <b>General inspection items</b>                                                                                                                                                                                                                                                                                                                                                                          |         |         |                 |                   |         |         |                 |                   |
| Is there any evidence of erosion, channelling, ponding (where not desirable) or other poor hydraulic performance?                                                                                                                                                                                                                                                                                        |         |         |                 |                   |         |         |                 |                   |
| Is there any evidence of accidental spillages, oils, poor water quality, odours or nuisance insects?                                                                                                                                                                                                                                                                                                     |         |         |                 |                   |         |         |                 |                   |
| Have any health and safety risks been identified to either the public or maintenance operatives?                                                                                                                                                                                                                                                                                                         |         |         |                 |                   |         |         |                 |                   |
| <b>Silt/Sediment accumulation</b>                                                                                                                                                                                                                                                                                                                                                                        |         |         |                 |                   |         |         |                 |                   |
| Is there any sediment accumulation at inlets (or other defined accumulation zones such as the surface of filter drains or infiltration basins and within proprietary devices)?<br>If yes, state depth (mm) and extent.<br>Is removal required?<br>If yes, state waste disposal requirements and confirm that all waste management requirements have been complied with (consult environmental regulator) |         |         |                 |                   |         |         |                 |                   |
| Is surface clogging visible potentially problematic where water has to soak into the underlying construction or ground (eg underdrained swale or infiltration basin)?                                                                                                                                                                                                                                    |         |         |                 |                   |         |         |                 |                   |
| Does permeable or porous surfacing require sweeping to                                                                                                                                                                                                                                                                                                                                                   |         |         |                 |                   |         |         |                 |                   |

| Inspection Date                                                                                                                                                                 | Details | Y/<br>N | Action required | Date<br>completed | Details | Y/<br>N | Action required | Date<br>completed |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|---------|-----------------|-------------------|---------|---------|-----------------|-------------------|
| remove silt?                                                                                                                                                                    |         |         |                 |                   |         |         |                 |                   |
| Is there evidence of litter accumulation in the system? If yes, is this a blockage risk?                                                                                        |         |         |                 |                   |         |         |                 |                   |
| Is there any evidence of any other clogging or blockage of outlets or drainage paths?                                                                                           |         |         |                 |                   |         |         |                 |                   |
| Is the vegetation condition satisfactory (density, weed growth, coverage etc)? (check against approved planting regime)                                                         |         |         |                 |                   |         |         |                 |                   |
| Does any part of the system require weeding, pruning or mowing? (check against maintenance frequency state in approved design).                                                 |         |         |                 |                   |         |         |                 |                   |
| Is there any evidence of invasive species becoming established? If yes, state action required                                                                                   |         |         |                 |                   |         |         |                 |                   |
| Are any check dams or weirs in good condition?                                                                                                                                  |         |         |                 |                   |         |         |                 |                   |
| Is there any evidence of any accidental damage to the system (eg wheel ruts?)                                                                                                   |         |         |                 |                   |         |         |                 |                   |
| Is there any evidence of cross connections or other unauthorised inflows?                                                                                                       |         |         |                 |                   |         |         |                 |                   |
| Is there any evidence of tampering with the flow control?                                                                                                                       |         |         |                 |                   |         |         |                 |                   |
| Are there any other matters that could affect the performance of the system in relation to the design objectives for hydraulic, water quality, biodiversity and visual aspects? |         |         |                 |                   |         |         |                 |                   |

| Inspection Date                                                     | Details | Y/<br>N | Action required | Date<br>completed | Details | Y/<br>N | Action required | Date<br>completed |
|---------------------------------------------------------------------|---------|---------|-----------------|-------------------|---------|---------|-----------------|-------------------|
| Other observations                                                  |         |         |                 |                   |         |         |                 |                   |
| Information appended (eg photos)                                    |         |         |                 |                   |         |         |                 |                   |
| Continue as current<br>Increase maintenance<br>Decrease maintenance |         |         |                 |                   |         |         |                 |                   |
| Proposed date for next inspection                                   |         |         |                 |                   |         |         |                 |                   |