



MAINTENANCE PLAN

**Proposed Residential Development,
Ivy Mills, Main Street, Hensingham, Whitehaven**

Reference: PAS/SuDS/19100

Date: April 2025

Version: 2

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CONFIDENTIALITY STATEMENT

This report is addressed to and may be relied upon by the following:

Gleeson Homes

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DOCUMENT HISTORY

VERSION	PURPOSE/DESCRIPTION	DATE
1	First Issue	11/04/2025
2	Additional Phase Added	07/08/2025

1.0 INTRODUCTION

This document details the inspection and maintenance specification for sustainable drainage systems (SuDS) maintained by a management company on behalf of Gleeson Homes

The document is laid out detailing:

- A description of the SuDS component and its use
- Maintenance requirements and frequencies as set out in **Appendix B**
- Inspection requirements and frequencies as set out in **Appendix B**

The activities listed are specific to the SuDS on the development and represent the minimum maintenance and inspection requirements. This may include:

- Maintenance frequency
- Measurement and recording of sediment levels
- Photographic recording of problem areas
- Increased frequency of litter removal in areas identified as litter hotspots

This specification has been based upon latest technical information for SuDS.

The cost to manage the SuDS will be funded through a financially sustainable income stream secured against all the properties on the development.

The sustainable drainage system for the site is shown in **Appendix A** and comprises of one asset type: offline geo cellular storage for storm events up to and including 100 year plus 40% climate change plus 10% urban creep storm events along with associated adoptable pipes. The management company will maintain the SuDS in line with the maintenance plan

The storage tank receive surface water runoff from the roofs, drives and hardstanding areas of the development, with runoff being conveyed to the adoptable drainage network by a collector system (surface water sewer, gullies and rooftop guttering).

The management company will be responsible for the inspection and maintenance of the geo cellular offline storage and associated private pipework and including removal of material deposited within the system. Any gross contamination of the system will be, were practicable, contained, safely removed, and reported to the appropriate body. In such cases the management company will liaise with the Environment Agency and Darlington Borough Council to assist in identifying the polluter to enable the appropriate action to be taken by those organisations.

The developer and management company will be responsible for carrying out a yearly review of the SuDS to establish if the current management regime is meeting the management objectives. If any significant changes are required to the approved Management Plan, then the developer is to liaise with the Lead Local Flood Authority/Planners at Copeland Borough Council and the Developer Services team at United Utilities.

2.0 PRIVATE.SHARED DRIVES PAVING

The private drives drainage will be maintained by the homeowners and the shared drives by management company/deeded homeowners and will require regular inspection and drainage cleaning to ensure they perform adequately.

For operation and maintenance requirements refer to the maintenance log in **Appendix B**.

3.0 CELLULAR STORAGE

The cellular storage structures act as offline storage for the 1 in 100 year and 1 in 100 year + 40% climate change +10% urban creep storm return periods and are located adjacent the attenuation pipes located off MHS7 and MHS16. These will be operated by using a high-level inlet from the attenuation pipes and a low-level outlet controlled by a non-return valve prior to re entering the attenuation pipes

The cellular storage structures, associate pipework and inlet and outlet chamber is to remain in private ownership and is to be maintained by the management company who be responsible for maintenance.

The useful life and effective operation of a cellular attenuation component is related to the frequency of maintenance and risk of sediment being introduced into the system. An easement of 2m from any building is to be considered to ensure long term access for maintenance purposes.

The offline storage tank is to have a service life of more than 50 years. If the storage is in poor condition and requires replacement then this work will be the responsibility of the asset owner i.e. the management company.

For operation and maintenance requirements refer to the maintenance log in **Appendix B**.

4.0 INSPECTION AND REPORTING

The details of the site-specific SuDS features, maintenance requirements and frequencies can be found within the Maintenance Log in **Appendix B**.

The Maintenance Log shall be maintained and updated after every maintenance activity by the management company.

This Maintenance Log will be held by the management company and submitted to the LLFA at Copeland Borough Council on a five yearly basis or if any significant changes to the SuDS maintenance is required.

A copy of the Maintenance Log can be found in **Appendix B**.

Appendix A SuDS Identification Plan

Appendix B Maintenance Log

Appendix B - Maintenance visit log sheet

Operation and maintenance requirements for geocellular storage

Maintenance Schedule	Required Action	Typical Frequency	Date of visit / inspection / work									
			1	2	3	4	5	6	7	8	9	10
Regular maintenance	Inspect for sediment and debris in pre treatment components and floor of inspection tube.	Annually										
	Cleaning of gutters and any filters on downpipes	Annually (or as required based on inspections)										
	Inspect structures for evidence of poor operation. Assessment of structure condition and operation to identify necessary remedial works.	Quarterly/after significant rainfall event.										
	Trimming any roots that may be causing blockages	Annually (or as required based on inspections)										
Occasional Maintenance	Remove sediment and debris from pre-treatment components and floor of inspection tube.	As required *										
Regular maintenance	Inspect silt traps and note rate of sediment accumulation	Monthly in the first year and then annually										
	Manage other vegetation and remove nuisance plant. Weeding should be conducted by hand or use non-toxic and biodegradable weed killer. Invasive species should be removed in accordance with best practice.	Monthly (at implementation) then as required										
	Remove sediment, litter and debris build-up from around inlets	Quarterly to bi-annually										
Occasional maintenance	Re-seed areas of poor vegetation growth.	As required *										
	Remove sediment from inlets and outlet areas.	As required *										
	Prune & trim trees/ shrubs and remove cuttings. Where vegetation is planted as a barrier management of upward growth to encourage outward growth is necessary (after shrub seedlings are established).	As required *										
Remedial Actions	Remove sediment from structure when attenuation volume is reduced by 10%. Sediment level will be dependent upon presence & type of upstream SUDS, size and land use of catchment as well as local soil conditions.	As required										
	Replace failed attenuation, jointing, membrane or sub-structure. Replacing, relaying of drive/landscaped areas.	As required										
	Repair / rehabilitation of inlets, outlets and overflows.	As required										

Operation and maintenance requirements for pipes a (Applicable prior to adoption by UU)

Maintenance Schedule	Required Action	Typical Frequency	Date of visit / inspection / work									
			1	2	3	4	5	6	7	8	9	10
Regular inspections	Inspect channel within all manholes for blockages and visual damage within manhole	Monthly										
	Operate hydro brake flow control release cable to ensure satisfactory movement, reset once complete. Check visible fixing bolts.	Quarterly										
	Operate penstock within the flow control manhole to ensure satisfactory movement, reset once complete. Check visible fixing bolts on penstock.	Quarterly										
Occasional maintenance	Clean out silt and debris from sump in the flow control manhole	As required (likely quarterly)										

Operation and maintenance requirements for dwelling garden areas

Maintenance Schedule	Required Action	Typical Frequency	Date of visit / inspection / work									
			1	2	3	4	5	6	7	8	9	10
Regular inspections	Inspect grassed areas for over compaction or waterlogging	Monthly										
	Inspect grass to ensure it is in healthy condition, free from disease, fungal growth and discoloration. Feed, weedkill and re-seed as necessary.	Quarterly										
	Assess plants for disease, infection, poor growth, invasive species etc and replace as necessary	Quarterly										
	Inspect acoustic fencing and repair any damage or gaps	Monthly										
Regular maintenance	Remove litter & surface debris	Fortnightly										
	Grass shall be mown to maintain a height between a maximum of 50mm and a minimum of 25mm. During the winter grass shall be maintained at a height of 60mm. Grass not to be cut until a minimum of two weeks has elapsed during the establishment period.	At least once every three weeks from first week of March to last week of October										
	Check tree stakes and ties and adjust/replace as necessary	At each grass cutting visit										
	Watering to take place for at least the first two growing seasons ensuing sufficient water is applied to maintain healthy growth.Water quantity for trees & shrubs: Wet soil to full rooting depth.	As required depending upon weather conditions										
	Clear planting areas of weed growth by a combination of hand-weeding/hoeing and careful use of household weed killer.	Monthly										
	Replace any plants to maintain planting density. Cut back shrubs to maintain a maximum height of 600mm.	As required										
Occasional maintenance	Aerate planted areas and check for excessive compaction, remediate as necessary	Quarterly										
	Pruning to be carried out in accordance with good practice. Trim individual plant/tree appropriate to species, location and season to leave a well-balanced natural shape.	As required										
	Cut back any damaged bark to trees and treat wound with fungicidal sealant	As required										
	Repair damage to any fencing	As required										

Operation and maintenance requirements for POS landscaping

Maintenance Schedule	Required Action	Typical Frequency	Date of visit / inspection / work									
			1	2	3	4	5	6	7	8	9	10
Regular inspections	Inspect grassed areas for over compaction or waterlogging	Monthly										
	Inspect grass to ensure it is in healthy condition, free from disease, fungal growth and discoloration. Feed, weedkill and re-seed as necessary.	Quarterly										
	Assess plants for disease, infection, poor growth, invasive species etc and replace as necessary	Quarterly										
Regular maintenance	Remove litter & surface debris	Fortnightly										
	Grass shall be mown to maintain a height between a maximum of 50mm and a minimum of 25mm. During the winter grass shall be maintained at a height of 60mm. Grass not to be cut until a minimum of two weeks has elapsed during the establishment period.	At least once every three weeks from first week of March to last week of October										
	Check tree stakes and ties and adjust/replace as necessary	At each grass cutting visit										
	Watering to take place for at least the first two growing seasons ensuing sufficient water is applied to maintain healthy growth.Water quantity for trees & shrubs: Wet soil to full rooting depth.	As required depending upon weather conditions										
	Clear planting areas of weed growth by a combination of hand-weeding/hoeing and careful use of household weed killer.	Monthly										
	Replace any plants to maintain planting density. Cut back shrubs to maintain a maximum height of 600mm.	As required										
Occasional maintenance	Aerate planted areas and check for excessive compaction, remediate as necessary	Quarterly										
	Pruning to be carried out in accordance with good practice. Trim individual plant/tree appropriate to species, location and season to leave a well-balanced natural shape.	As required										
	Cut back any damaged bark to trees and treat wound with fungicidal sealant	As required										
	Repair damage to any fencing	As required										

* Inspection, Recording and Reporting to be carried out at least annually

Appendix C Flow Control Information

Technical Specification

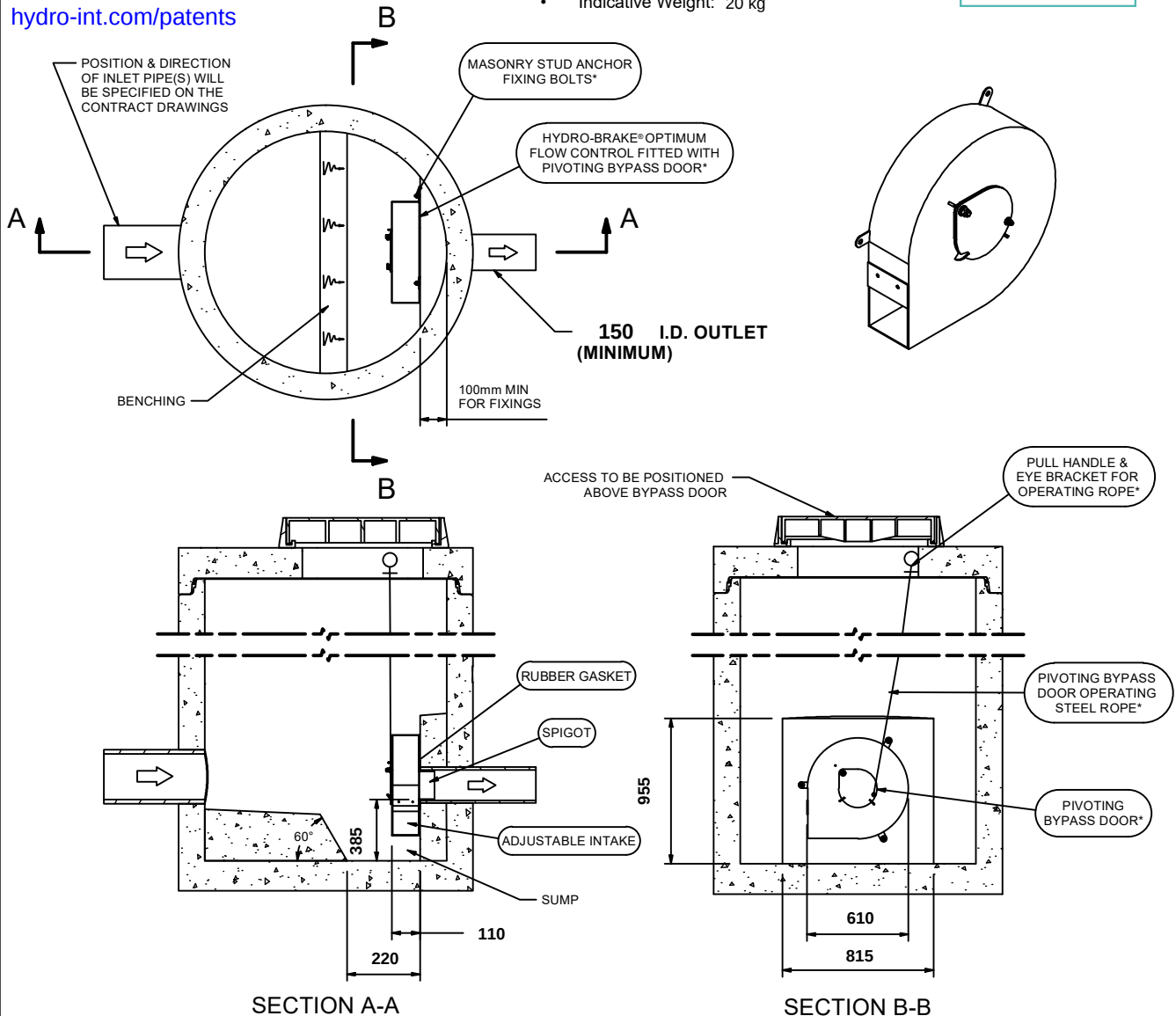
Control Point	Head (m)	Flow (l/s)
Primary Design	2.577	6.700
Flush-Flo™	0.436	5.135
Kick-Flo®	0.893	4.087
Mean Flow		5.136

Hydro-Brake® Optimum Flow Control including:

- 3 mm grade 304L stainless steel
- Integral stainless steel pivoting by-pass door allowing clear line of sight through to outlet, c/w stainless steel operating rope
- Beed blasted finish to maximise corrosion resistance
- Stainless steel fixings
- Rubber gasket to seal outlet
- Variable flow rate post installation via adjustable inlet
- Indicative Weight: 20 kg



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IMPORTANT: ○ LIMIT OF HYDRO INTERNATIONAL SUPPLY
 THE DEVICE WILL BE HANDED TO SUIT SITE CONDITIONS
 FOR SITE SPECIFIC DETAILS AND MINIMUM CHAMBER SIZE REFER TO HYDRO INTERNATIONAL
 ALL CIVIL AND INSTALLATION WORK BY OTHERS
 * WHERE SUPPLIED
 HYDRO-BRAKE® FLOW CONTROL & HYDRO-BRAKE® OPTIMUM FLOW CONTROL ARE REGISTERED TRADEMARKS FOR FLOW
 CONTROLS DESIGNED AND MANUFACTURED EXCLUSIVELY BY HYDRO INTERNATIONAL

THIS DESIGN LAYOUT IS FOR ILLUSTRATIVE PURPOSES ONLY. NOT TO SCALE.

DESIGN ADVICE



The head/flow characteristics of this SHE-0100-6700-2577-6700 Hydro-Brake® Optimum Flow Control are unique. Dynamic hydraulic modelling evaluates the full head/flow characteristic curve.
The use of any other flow control will invalidate any design based on this data and could constitute a flood risk.

**Hydro
International**
 A CRH COMPANY

DATE	17/02/2025 13:26
SITE	Ivy Mills
DESIGNER	Paul Smith
REF	1910

SHE-0100-6700-2577-6700
 Hydro-Brake® Optimum

Technical Specification

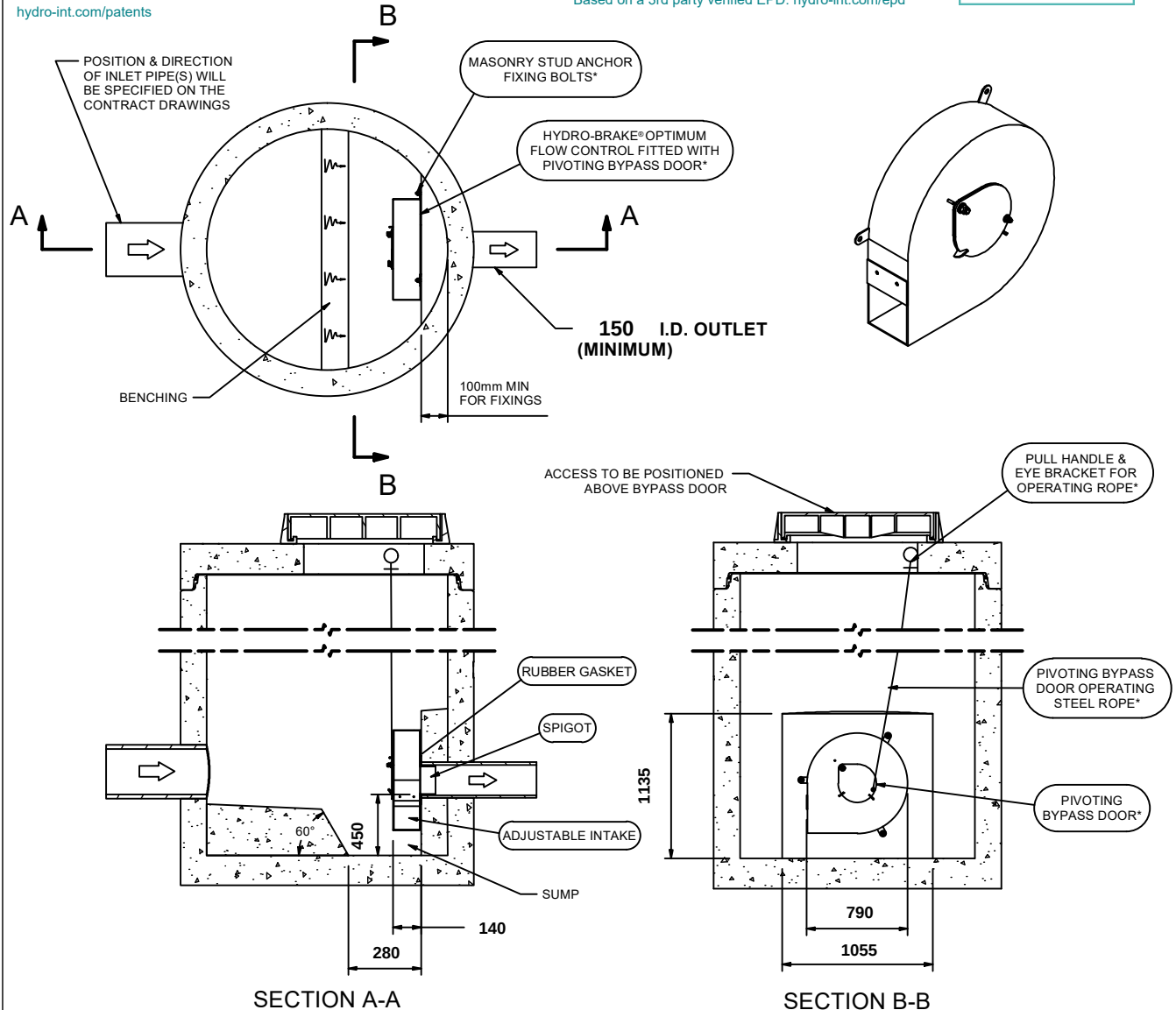
Control Point	Head (m)	Flow (l/s)
Primary Design	1.898	10.000
Flush-Flo™	0.560	9.995
Kick-Flo®	1.152	7.900
Mean Flow		8.761

hydro-int.com/patents

This Hydro-Brake® Optimum includes:

- All in 5 mm Grade 304L stainless steel
- Integral pivoting by-pass door allowing clear line of sight through to outlet, c/w operating rope
- Media blasted for corrosion resistance
- Variable flow rate post installation via adjustable inlet (if necessary)
- Indicative Weight: 55 kg
- Product Carbon Footprint: 240.77 kgCO2e

Based on a 3rd party verified EPD: hydro-int.com/epd



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DESIGN ADVICE



The head/flow characteristics of this SHE-0132-1000-1898-1000 Hydro-Brake® Optimum Flow Control are unique. Dynamic hydraulic modelling evaluates the full head/flow characteristic curve.
The use of any other flow control will invalidate any design based on this data and could constitute a flood risk.

Hydro International
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DATE	07/08/2025 09:26	SHE-0132-1000-1898-1000 Hydro-Brake® Optimum
SITE		
DESIGNER	Paul Smith	
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