

Land at High Street, Dilton Marsh, Westbury

Operations and Maintenance (O&M) Manual

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1. Scope of the O&M Manual

Background

- 1.1 Morgan Civil and Structural Ltd were instructed by Redcliffe Homes Ltd to provide an Operations and Maintenance (O&M) Manual for a development on Land at High Street, Dilton Marsh, Westbury site drainage in support of planning.
- 1.2 This O&M Manual will confirm ownership and maintenance requirements for the drainage system for the future property owners and can be utilised as part of the conveyancing information during sales.

Scope

- 1.3 This manual is intended to give an overview of the operation and maintenance for the range of SuDs features included with the drainage strategy and in relation to typical details only.
- 1.4 Ownership and responsibilities of the drainage strategy features will be confirmed within this manual.
- 1.5 Where proprietary products are specified the manufacturer's instructions and recommendations should be followed in priority to this document unless specifically noted otherwise due to project constraints.
- 1.6 The recommended operations and frequencies are typical only and should be more frequent initially to ensure that there are no unforeseen issues with the operation and, then adjusted to suit the site requirements.

2 Proposed Drainage and Ownership

- 2.1 The proposed site layout has been included in **Appendix 1**. This layout shows the proposed development at High Street, Dilton Marsh, Westbury which will provide 54 dwellings.
- 2.2 As part of Reserved Matter planning application, Morgan Civil and Structural produced a drainage design for the site with supporting technical note, ref 148009-MCS-XX-RP-TN-01. The latest issue of the Drainage Layout is included in **Appendix 2**.

Proposed Asset Ownership

- 2.3 As stated, this document will outline asset ownership and future maintenance responsibilities.
- 2.4 The following table specifies the ownership of proposed drainage assets included on the Drainage Layout drawing 148009-MCS-XX-DR-C-5100 within **Appendix 2**.

Asset(s)	Plot/Person(s) Responsible
- Chambers: S1 – S20 - Pipes: 1.000-1.008, 2.000-2.003, 3.000-3.008	Wessex Water or NAV
- Chambers: F1 – F14 - Pipes: 1.000-1.012, 2.000, 3.000-3.006	Wessex Water or NAV
Hydro-brake flow control (S20)	Wessex Water or NAV
5 x headwalls. 4 located in basin, 1 x outfall headwall	Wessex Water or NAV
- Multiple Attenuation Basins - Swale - Rain gardens	Resident's management company

Table 2.1 Asset Ownership and Person(s) Responsible

3 Pipework and Inspection Chambers/Manholes

- 3.1 Pipes are the main conveyance across the site with the network as can be seen on the proposed drainage strategy in **Appendix 2**.
- 3.2 Inspection Chambers and Manholes are the main means of access to the underground drainage network. They are located at any change in direction of underground pipework, or where determined necessary due to pipe length by the Building Regulations Part H or Sewers for Adoption Appendix C.
- 3.3 Pipes, Inspection Chambers and Manholes are proprietary products, and the materials can vary across the site and as such, where used, the manufacturer's recommendations should be followed. Regardless of the product used the pipes and chambers will be fully compliant with the drainage specification.

Operation

- 3.4 Pipes are intended to be the main conveyance across the development and where oversized they form the attenuation volume required by the limitation of the discharge rate. They are intended to be dry except during rainfall events. These have been designed to be self-cleansing where possible for smaller diameter pipes, and for larger diameters the risk is reduced due to the overall pipe size.
- 3.5 Access for maintenance is provided through access chambers, manholes, rodding plates, and rodding eyes.

Inspection and Maintenance Regime

- 3.6 Regular inspection and maintenance is important to identify areas which may have been obstructed/clogged and may not be draining correctly thus exposing the development to a greater level of flood risk. Maintenance responsibility for the pipes should be placed with the Plots/Persons as per **Table 2.1**.

Maintenance Schedule	Required Action	Typical Frequency
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	Rod through poorly performing runs as initial remediation.	As required
	If continued poor performance jet and CCTV survey poorly performing runs.	As required
	Seek advice as to remediation techniques suitable for the type of performance issue and location.	As required if above does not improve performance
Monitoring	Initial inspection should be provided as post construction CCTV survey.	Monthly for three months after installation
	Inspect for evidence of poor operation via water level in chambers and if required, take remedial action	Three monthly, 48 hours after large storms in first six months
	Inspect silt accumulation rates and establish appropriate brushing frequencies	Annually
	Monitor inspection chambers	Annually

Table 3.1 Maintenance Schedule for Pipes and Inspection Chambers/Manholes

4 Attenuation Basin

- 4.1 The attenuation basin is intended to be a surface water storage feature to attenuate the discharge from the site up to and including the 1 in 100 year plus 45% climate change event and 10% urban creep. As standing water can be present, care should be taken when undertaking maintenance operations.
- 4.2 Access for maintenance can be attained from the entire perimeter of the basin. No planting should be present within 3.0m of the basin at any time in the future.

Inspection and Maintenance Regime

- 4.3 Regular inspection and maintenance is important for the effective operation of the attenuation basin as designed. Maintenance responsibility for the basin and its surrounding area should be placed with the authority/management company adopting the feature.
- 4.4 Regular mowing in and around basins is required only along maintenance access routes, amenity areas (e.g. footpaths), and across some embankments. The remaining areas can be managed as "meadow," unless additional management is required or desired for landscaping purposes.
- 4.5 Plant management, to achieve the required habitat/appearance, should be specified clearly in a maintenance schedule by the landscape architect planned to coincide with other site wide maintenance operations.
- 4.6 Sediment/material removal should be undertaken in consultation with the environmental regulator to confirm appropriate protocols, especially where run-off is taken from potentially contaminated areas such as car parks/service yards.
- 4.7 The following table outlines general maintenance requirements for the attenuation basin:

Maintenance Schedule	Required Action	Typical Frequency
Regular Maintenance	Remove litter, debris, and trash	Monthly
	Cut grass - for landscaped areas and access routes	Monthly (during growing season) or as required
	Cut grass - meadow grass in and around basin	Half yearly; spring (before nesting season) and autumn
	Manage other vegetation and remove nuisance plants	Monthly at start, then as required
Occasional Maintenance	Reseed areas of poor vegetation growth	Annually, or as required
	Prune and trim trees and remove cuttings	As required
	Remove sediment from pre-treatment system when 50% full	As required
Remedial Actions	Repair erosion or other damage by reseeding or re-turfing	As required
	Realign the riprap	As required
	Repair or rehabilitate inlets, outlets, and overflows	As required
	Rehabilitate infiltration surface using scarifying and spiking techniques if performance deteriorates	As required
	Relevel uneven surfaces and reinstate design levels	As required
Monitoring	Inspect inlets, outlets, and overflows for blockages, and clear if required	Monthly
	Inspect banksides, structures, pipework etc for evidence of physical damage	Monthly
	Inspect inlets and pre-treatment systems for silt accumulation- establish appropriate silt removal frequencies	Annually
	Inspect infiltration surfaces for compaction and ponding	Annually

Table 4.1 Maintenance Schedule for an Attenuation Basin.

5 Flow Control Chamber (Hydro-brake)

- 5.1 The flow control chamber is located downstream of the proposed attenuation basin, as can be seen on the Drainage Layout in **Appendix 2**.
- 5.2 Flow control chambers are proprietary products and as such, where used, the manufacturer's recommendations should be followed. Regardless of the flow control used it will be fully compliant with the drainage specification.

Operation

- 5.3 Flow control chambers are intended to restrict the surface water runoff discharge rate from the site to a designed rate utilising techniques such as an orifice plate, vortex separator, or mechanical float control.
- 5.4 For this strategy, a Hydro-brake flow control device has been specified in chamber S19.

Inspection and Maintenance Regime

- 5.5 Regular inspection and maintenance is important for the effective operation of the tanks.
- 5.6 The following table outlines general maintenance requirements for flow control chambers:

Maintenance Schedule	Required Action	Typical Frequency
Regular Maintenance	Remove sediment and debris from flow control chambers and upstream manholes	Monthly (for the first 12 months, then 6 monthly).
Remedial Actions	Replace or clean Hydro-brake if performance deteriorates or failure occurs.	As necessary.
Monitoring	Check flow control to ensure emptying is occurring.	Quarterly and post high intensity storm event.
	Inspect silt accumulation rates and establish appropriate brushing frequencies	Annually

Table 5.1 Maintenance Schedule for Flow Control Chambers

6 Swale

- 6.1 Swales have been used as a method of conveyance within the site and can be seen serving the central highway of the development along with numerous plots in the proposed drainage strategy at **Appendix 2**.

Operation

- 6.2 The swale is intended for interception, slowing of flows at source and water quality treatment to site runoff. It is meant to be a dry planted feature except during rainfall events. This has been designed to be a surface feature without perforated underdrains.
- 6.3 Access for maintenance is provided through upstream and downstream chambers, and via surface level.

Inspection and Maintenance Regime

- 6.4 Regular inspection and maintenance are important to identify areas which may have been obstructed/clogged and may not be draining correctly thus exposing the development to a greater level of flood risk. Maintenance responsibility for the pipes should be placed with the Plots/Persons as per **Table 2.1**.
- 6.5 The following table outlines general maintenance requirements for swales:

Maintenance Schedule	Required Action	Typical Frequency
Regular Maintenance	Remove litter and debris	Monthly, or as required
	Cut grass – to retain grass height within specified design range	Monthly (during growing season) or as required
	Manage other vegetation and remove nuisance plants	Monthly at start, then as required
	Inspect inlets, outlets, and overflows for blockages, and clear if required	Monthly
	Inspect infiltration surfaces for ponding, compaction, silt accumulation, record areas where water is ponding for > 48 hours	Monthly, or when required
	Inspect vegetation coverage	Monthly for 6 months, quarterly for 2 years, then half yearly
	Inspect inlets and facility surface for silt accumulation, establish appropriate silt removal frequencies	Half yearly
Occasional Maintenance	Reseed areas of poor vegetation growth, alter plant types to better suit conditions, if required	As required or if bare soil is exposed over 10% or more of the swale treatment area
Monitoring	Repair erosion or other damage by re-turfing or reseed	As required
	Relevel uneven surfaces and reinstate design levels	As required
	Scarify and spike topsoil layer to improve infiltration performance, break up silt deposits and prevent compaction of the soil surface	As required
	Remove build-up of sediment on upstream gravel trench, flow spreader or at top of filter strip	As required
	Remove and dispose of oils or petrol residues using safe standard practices	As required

Table 6.1 Maintenance Schedule for Swales.

7 Rain gardens

- 7.1 Rain gardens have been specified for use adjacent to carriageways and/or footways. They are intended to intercept, slow flows, and provide water quality treatment at source.
- 7.2 Rain gardens may contain proprietary products and as such, where used, the manufacture's recommendations should be followed.

Operation

- 7.3 Rain gardens is intended for interception and the slow of flow at source. It is meant to be a dry planted feature except during rainfall events. These have been designed to be surface features with perforated underdrains enabling conveyance of flows in rainfall events.
- 7.4 Access for maintenance is provided through downstream access chambers, and via surface level.

Inspection and Maintenance Regime

- 7.5 Regular inspection and maintenance is important for the effective operation of rain gardens. It is important to identify areas which may have been obstructed/clogged and may not be draining correctly thus exposing the development to a greater level of flood risk.
- 7.6 The following table outlines general maintenance requirements for a rain garden:

Maintenance Schedule	Required Action	Typical Frequency
Regular Inspections	Inspect infiltration surfaces for silting and ponding, record de-watering time of the facility and assess standing water levels in underdrain (if appropriate) to determine if maintenance is necessary	Quarterly
	Check operation of underdrains by inspection of flows after rain	Annually
	Assess plants for disease infection, poor growth, invasive species etc and replace as necessary	Quarterly
	Inspect inlets and outlets for blockage	Quarterly
Regular Maintenance	Remove litter and surface debris and weeds	Quarterly (or more frequently for tidiness or aesthetic reasons)
	Replace any plants, to maintain planting density	As required
	Remove sediment, litter and debris build-up from around inlets or from forebays	Quarterly to biannually
Occasional Maintenance	Infill any holes or scour in the filter medium, improve erosion protection if required	As required
	Repair minor accumulations of silt by raking away surface mulch, scarifying surface of medium and replacing mulch	As required
Remedial Actions	Remove and replace filter medium and vegetation above	As required but likely to be > 20 years

Table 7.1 Maintenance Schedule for Rain Garden

APPENDIX 1

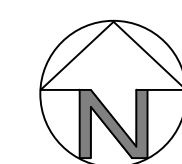
Proposed Development Layout

Client	REDCLIFFE HOMES			
Job no.	REDCC250804		Date	09.01.26
Dwg no.	SL01		Rev.	A
Author	RJW	Checked	Scale	1:500 at A1
Status	PLANNING			Office Romsey



APPENDIX 2

Proposed Drainage Strategy



DO NOT SCALE this drawing. Use figured dimensions only. The Contractor must check & verify all dimensions on site. Any discrepancies must be reported immediately to the Engineer for clarification before proceeding. This drawing is copyright and owned by Morgan Civil + Structural.

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION
Refer to the relevant Construction (Design and Management) documentation where applicable.
It is assumed that all works on this drawing will be carried out by a competent contractor, working where appropriate to an approved method statement.

- Notes**
- The drawing is to be read in conjunction with all other relevant drawings/specifications.
 - Do not scale from this drawing, use figured dimensions only. All dimensions are in meters.
 - All adoptable highway works shall be carried out in accordance with the specific requirements of Wiltshire County Council's specification and the general requirements of the Highway Act 1980 (HSR), Volume 1 of the Highway Agency's Manual of Contract Documents for highway works and any amendments thereto current at the time of tender issue.
 - All the above requirements shall apply unless otherwise stated in the general arrangement drawings/specification. In the event of a contradiction the contract specific documents shall be deemed to prevail.
 - The contractor is to check and verify all site dimensions and levels, including existing sewer levels and offsets, prior to start on site.
 - Positions of existing semi-circular underground apparatus adjacent to or crossing proposed excavations are to be confirmed prior to start on site.
 - This drawing is to be read in conjunction with and checked against all engineering details, specifications, geotechnical and other relevant documentation provided.
 - Where items adjacent to highways or drainage are proposed, not barriers (type to be approved) are required to prevent structural damage.
 - Any anomaly or contradictions between any of the above is to be reported immediately.
 - The contractor is to comply in all aspects with the current British standards, building regulations and building legislation etc.

Drawing Sheet Key Plan



Key:

- Site Boundary
- Major Contour (0.25m)
- Minor Contour (0.05m)
- Plot Finished Floor Level
- Garage Finished Floor Level
- Centreline
- Foul Water Manhole (S104 Adoptable)
- Surface Water Sewer (S104 Adoptable)
- Surface Water Manhole (S104 Adoptable)
- Hydrobrake Flow Control (S104 Adoptable)
- Headwall
- Permeable Paving or other Suitable Porous Surfacing Medium
- Rain gardens

PO: 148009 Updated to include Redcliffe Homes layout. AM

Rev	Change	Date	Description	By
1	Issue			

Client: Redcliffe Homes Ltd

Project: Dilton Marsh

Title: Drainage Layout

Drawing Status: PLANNING

Drawn	Checked	Approved	Date	Scale @ A0
AM	OT	NT	FEB 2026	1:250

Project No.	Drawing No.	Revision
148009	148009-MCS-XX-DR-C-5100	P02

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SCALE 1 : 250

File Name: M:\005\Year 1414\Box Volume Housing\148009 - Dilton Marsh - REDCLIFFEDrawing\148009-MCS-XX-DR-C-5100-Drainage Layout.dwg