

Drainage Maintenance Manual

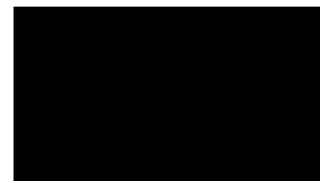


The Civil Engineering Practice
11 Tungsten Building
George Street
Fishersgate
Sussex
BN41 1RA

Project	Bonhams Field, Yapton
Project Number	23018

By Stuart Magowan IEng MICE

Date 23 February 2022



1 Schedule of Maintenance

- 1.1 Upon completion of the development the management of the shared drainage facilities will be passed on to a Management Company who will be appointed by the developer on behalf of the new Residents.
- 1.2 The regular and corrective maintenance of all shared elements of the drainage system beneath the road, including the lined voided subbase will be managed by the Management Company on behalf of the Residents.
- 1.3 Regular maintenance of all private drainage, channels, gutters, rainwater pipes, driveways and connections will be the responsibility of the individual homeowner and should be undertaken every 3 months.
- 1.4 Driveways and connections will be the responsibility of the individual homeowner and should be undertaken on an annual basis. Driveways which form part of the wider infiltration system include a legal covenant to ensure these remain part of the wider drainage system in perpetuity.
- 1.5 With adequate maintenance the working design life of permeable paving system is approximately 25 years. The extent of the permeable paving is shown on Drawing 1210 a copy of which is attached as part of this Drainage Maintenance Manual.
- 1.6 At a minimum interval of 25 years the permeable paving blocks shall be lifted and inspection undertaken as follows:
 - 3-6mm gravel bedding to be removed and the voided subbase stone inspected.
 - The subbase shall be replaced as required where blocked or blinded.
 - The permeable geotextile shall be inspected using a series of hand dug trial holes to assess its general condition, where damaged it should be replaced or repaired.
 - Upon completion of the inspection the voided stone subbase shall be replaced to the original specification and level.
 - The 3-6mm bedding shall be replaced with the permeable blocks reinstated after cleaning or where required replaced with new.



- Following block reinstatement 3-6mm grit shall be swept into the joints between the permeable blocks.

- 1.7 Any parts of the drainage management system that are damaged or worn will be repaired to full working order by the Management Company
- 1.8 Any parts of the drainage management system that has reached the end of their useful, serviceable design life and are no longer fit for repair will be replaced by the Management Company on a like for like basis as far as reasonably practicable.
- 1.9 Drawing 2001 shows the drainage ownership responsibilities.

Maintenance Schedule	Required Action	Frequency
Regular Maintenance	Remove sediment and debris from silt trap chambers, channel drains and inlet chambers	Monthly or as required
	Litter and debris removal – catch pits	Monthly or as required
	Surface and foul water pipework – jetting / rodding	Every 2 years or as required
	Visual inspection of permeable paving for defects, weed growth and settlement	Annually, or after leaf fall.
	Sweeping / brushing / vacuuming of permeable paving, including the removal of weed growth.	Annually, after leaf fall or on a more frequent basis based upon site-specific observations or evidence of clogging.
Corrective Maintenance	Repairs to access chambers / manhole covers	As required
	Replace any broken permeable blocks / surface, remedial works to any depressions or rutting	As required
	Inspect inlet, outlet from downpipe and gullies for blockages, standing water and clear	As required
	Full inspection and service of permeable paving system	Minimum of every 25 years

Table 1: Schedule of Regular and Corrective Maintenance

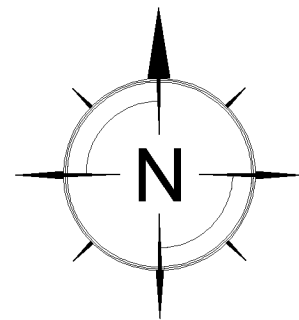
2 Financing

- 2.1 The regular maintenance of all private drainage, channels, gutters, rainwater pipes, driveways and connections will be the responsibility of the individual homeowner.
- 2.2 The regular and corrective maintenance of all shared elements of the drainage system will be managed and funded through the Management Company on behalf of the Residents who will fund the Management Company via a levied service charge.
- 2.3 In the event that the estate's Management Company becomes unable to discharge its duties within 2 years of first appointment the developer will endeavour to appoint an alternative on behalf of the Residents.

3 Maintenance Summary

Inspection / Action Required	Gullies, Channels and Gutters	Silt Traps, Channel Drainage and Inlet Chambers	Catchpit	Permeable Paving / Surfaces	Surface Water Pipework
Monthly		✓	✓		
3 Months	✓		✓	✓	
1 Year				✓	
After leaf fall in Autumn	✓		✓	✓	
2 Years					✓
5 Years					
25 Years				✓	

Table 2: Drainage System Maintenance Summary



Notes:

- 1 Drawing shows FFLs from 23489/1210K
- 2 The Phase 2 and 3 site layout is based on APM drawing: 20082 / P302 B - received 1 July 2021
- 3 The Phase 1 site layout is based on: 20-202 x site 02072021.dwg - received 2 July 2021 with updated foundation level block plans to Plots 20 21 & 22-24
- 4 Plot 1-22 & Plots 1-142 to 1-156 inc have flush threshold to the rear
- 5 Site layout adjusted to accommodate new block plan for plots 1-22 - 1-24

GENERAL NOTES:

1. All dimensions to be checked on site. All details and dimensions relating to sub-Contractors work must be checked and agreed between the sub-Contractor or supplier and the general Contractor.
2. This drawing is to be read in conjunction with all relevant Architect's and Engineer's drawings and specification.
3. The main Contractor is responsible for ensuring the stability of the structure whilst the works are in progress.
4. Any information given regarding existing underground services is given in good faith after consultation with the relevant authority. No liability is accepted by the Consultant and the main Contractor is responsible for obtaining and checking all information and taking due care and attention whilst undertaking the works.

DRAINAGE NOTES:

1. All adoptable pipes, bends and junctions shall be verified clay in accordance with the current version of BS EN 295-1, with flexible joints and kilnmark certified.
2. All Adoptable sewers shall be in strict accordance with the SSG Appendix C - Design and Construction Guidance. Unless otherwise stated adoptable sewers shall be 150mm diameter and shall be laid in a class S bedding. Where the depth to soffit is less than 1.2m under a public highway or 0.9m elsewhere the pipe shall be laid with a class 2 bedding.
3. All private building drainage shall be constructed in strict in accordance with the current version of BS EN 752:2017. Unless otherwise specified building drainage shall be 100mm diameter and shall be laid at a minimum gradient of 1 in 40 for foul drains and 1 in 80 for surface water drains. All building drains shall be laid in class B bedding unless otherwise specified.
4. Where a pipe is within 1m of a foundation the trench shall be filled with class GEN 3 concrete up to the lowest level of the foundation. Where the trench is further than 1m from the foundation, the trench shall be filled with class GEN 3 concrete to a level below the lowest level for the foundation equal to the distance from the foundation less 150mm. In both cases the pipe shall be bedded and surrounded in 150mm thick class GEN 3 concrete.
5. Where pipes, external to the structures, have a depth to soffit from ground level of less than 450mm they shall have a class GEN 3 concrete encasement (150mm thick). In all other cases the pipes shall be bedded and surrounded with 100mm thick granular material.
6. In any circumstances where pipes are bedded and surrounded in concrete flexible joints should be provided. Compressible boards (fibreglass or polystyrene) shall be provided at a maximum of 3m centres (coinciding with pipe joints). The boards shall be pre-cut to pipe diameter and to a height and width equal to the concrete cross section. A board thickness of 18mm for pipes up to 450mm nominal diameter and 36mm for pipes over 450mm nominal diameter.
7. All svps shall have rodding access plates fitted at their bases (ground floor level).
8. Where existing pipes are to be abandoned they shall be dug out together with any abandoned manholes.
9. Any discrepancy between the drawing and site should be reported immediately to the Engineer.
10. All manhole and chamber sizes are given as a minimum to meet the SSG Appendix C-Design and Construction Guidance

Legend:	
	Site Boundary
	Existing Foul Sewers
	Adoptable Type 2 Foul Water Manhole and lateral connection from proposed site
	Private Type 2 Foul Water Manhole
	Private Type 4 / 3 Foul Water Inspection Chamber
	Private Type 4 or catchpit Storm Water Inspection Chamber
	Private Storm Water Rodding Eye
	Single Diffuser Tank up to 200m ² 0.354m x 0.700m x 0.150m
	Double Diffuser Tank up to 350m ² 0.700m x 0.700m x 0.150m
	Aco channel with sump and outfall
	Area of voided subbase for storm water storage
	Type 1 Concrete baffles in voided subbase. Baffle separates areas.

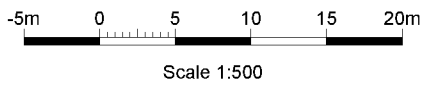
L 23.02.22	MJP	Constructed roads added to phase 1	SRM
Plots 33-35 moved to phase 2			
K 08.02.22	PJR	Plots 33-35 added	SRM
J 04.02.22	MJP	Updated block plans and drainage to suit	SRM
H 04.02.22	MJP	Drainage connections added to plots 22-24	SRM
G 06.01.22	MJP	Purple lines to plot 1 drive removed	SRM
F 01.10.21	MJP	Aco added to plot 1 key, coloured orange	MK
E 30.09.21	MJP	Plot 19 added	MK
D 22.09.21	MJP	Minor amendments	MK
C 09.09.21	PR	Minor amendments	MK
B 07.07.21	MJP	Minor amendments	MK
A 06.07.21	MJP	Surface finishes updated to suit new site layout	MK

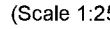
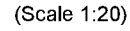
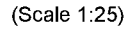
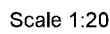
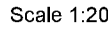
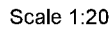
REV	DATE	INT	DESCRIPTION	CHK
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Issue Status AS BUILT

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www.civil.co.uk

CLIENT		Seaward Properties Limited	
PROJECT		Bonhams Field, Yapton 75 Dwellings	
TITLE		Proposed Drainage and Levels Layout Plan Phase 1 - Whole Site	
DRAWN		DATE	PROJECT NO.
M Pacifico		July 2021	23489
ENGINEER		CHECKED	DRG NO.
S Magowan		SRM	1-200 L
SCALE		1:500 @ A1 / 1:1000 @ A3	





LEGEND:

	Selected fill, free from stones larger than 40mm, lumps of clay over 100mm, timber frozen material and vegetable matter
	Granular material should conform to BS 882:1983 table 4 or BS8301:1985 Appendix D, Compaction fraction > 0.3 for class N > 0.2 for class F and B.
	Selected fill or granular fill free from stones larger than 40mm

'X' - Denotes external pipe diameter.



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2. This drawing is to be read in conjunction with all relevant Architect's and Engineer's drawings and specification.
3. The main Contractor is responsible for ensuring the stability of the structure whilst the works are in progress.
4. Any information given regarding existing underground services is given in good faith after consultation with the relevant authority. No liability is accepted by the Consultant and the main Contractor is responsible for obtaining and checking all information and taking due care and attention whilst undertaking the works.

DRAINAGE NOTES

- 2.A1. Adaptable pipes, bends and junctions shall be verified dry fit in accordance with the current version of BS EN 2951 - 1, with flexible joints and Klemmer certified.
- 2.A2. Adaptable sewers shall be in strict accordance with the SSG Appendix C - Design and Construction Guidance. Unless otherwise stated, all adaptable sewers shall be 150mm diameter and shall be laid in a class 3 concrete bed. Where the depth to soffit is less than 1.2m under a public highway or 0.9m otherwise the pipe shall be laid with a class 2 bedding.
- 2.A3. All private building drainage shall be constructed in strict accordance with the current version of BS EN 752 2017. Unless otherwise specified building drainage shall be 100mm diameter and shall be laid at a minimum gradient of 1 in 40 for drains and 1 in 80 for surface water drains. All building drains shall be laid in class 1 bedding unless otherwise specified.
4. Where a pipe is within 1m of a foundation the trench shall be filled with class GEN 3 concrete up to the lowest level of the foundation. Where the trench is more than 1m from the foundation, the trench shall be filled with class GEN 3 concrete to a level below the lowest level for the foundation equal to the distance from the foundation less 150mm. In both cases the pipe shall be bedded and surrounded in 150mm thick class GEN 3 concrete.
5. Where pipes, external to the structures, have a depth to soffit of more than ground level less than 450mm they shall have a class GEN 3 concrete bedding and surround 150mm thick in all cases. Pipes shall be bedded and surrounded with 100mm thick granular material.
6. In any circumstances where pipes are bedded and surrounded in concrete floorboards should be provided. Compressible boards (fibreglass or polystyrene) shall be provided at a maximum of 8mm (coinciding with pipe joints). The boards shall be pre-cut to pipe joints and to a height and width equal to the concrete cross section. A board thickness of 10mm for pipes up to 450mm nominal diameter and 30mm for pipes over 450mm nominal diameter.
7. All syps shall have rodding access plates fitted at their bases (ground level).
8. Where existing pipes are to be abandoned they shall be dug out together with any abandoned manholes.
9. Any discrepancy between the drawing and site should be reported immediately to the Engineer.
10. All manhole and chamber sizes are given as a minimum to meet the SSG Appendix C-Design and Construction Guidance

AS BUILT



CLIENT	Seaward Properties Limited
PROJECT	Bonhams Field, Main Road, Yapton

THE Construction Details

DRAWING		DATE		PROJECT NO.	
M Pacifico		May 2019		23018	
ENGINEER		CHECKED		DWG. No.	
S Magowan		SRM		REV.	
SCALE				1501 E	
As Shown @ A1					

