

Drainage Maintenance Manual



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

Project	Bonhams Field, Yapton
Project Number	23018

By Martin Kempshall C Eng MICE

Date 22 December 2020

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.



2. 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 and settlement	Annually, or after leaf fall
	Sweeping / brushing / vacuuming of permeable paving	Annually, or after leaf fall
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

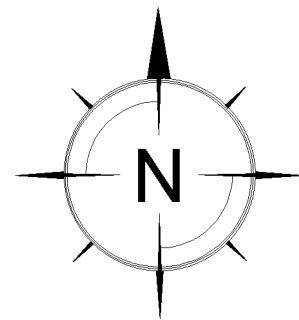
2 Financing

- 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.
- 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		V	V		
3 Months	V		V	V	
1 Year				V	
After leaf fall in Autumn	V		V	V	
2 Years					V
5 Years					
25 Years				V	

Table 2: Drainage System Maintenance Summary



- 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 kitemark certified.
 2. All Adoptable sewers shall be in strict accordance with the 7th edition of Sewers For Adoption. 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 Z bedding.
 3. 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 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 8m 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 38mm for pipes over 450mm nominal diameter.
 7. All sumps 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 7th edition of Sewers For Adoption.

Legend:

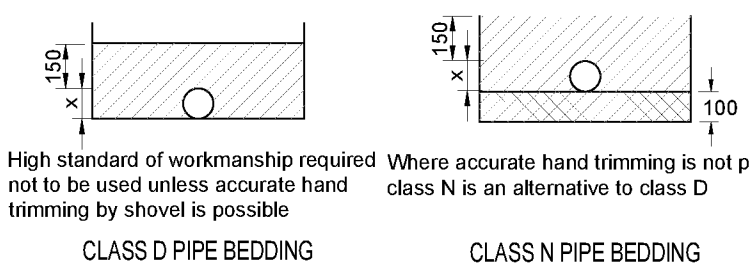
- Site Boundary
- Existing Foul Sewers
- Adoptable Type 2 Foul Water Manhole and lateral connection from proposed site
- Private Type 2 Foul Water Manhole
- Private Type 4 / 3 Foul Water Inspection Chamber
- Private Type 4 or catchpit Storm Water Inspection Chamber
- Private Storm Water Rodding Eye
- Distribution tanks to voided subbase
- Area of voided subbase for storm water storage
- Type 1 Concrete baffles in voided subbase. Baffle separates areas.
- Type 2 Concrete baffles in voided subbase. Baffle provides stepped formation in each area.

G	22.12.2020	MJP	Minor amendments to subbase depths	MK
F	11.09.2020	MJP	Diffusers moved 5m from buildings	MK
E	03.09.2020	MJP	Updated to WSCC comments. Highway drain added.	MK
D	26.08.20	PJR	Voided subbase formation levels added. Cover and invert levels added. Drainage revised.	MK
B	17.06.19	AJD	Site layout updated	SRM
A	06.06.19	MJP	Plots 26 and 27 updated	SRM
REV	DATE	INT	DESCRIPTION	CHK

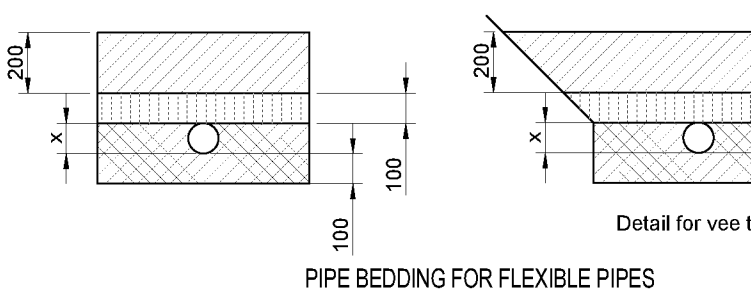
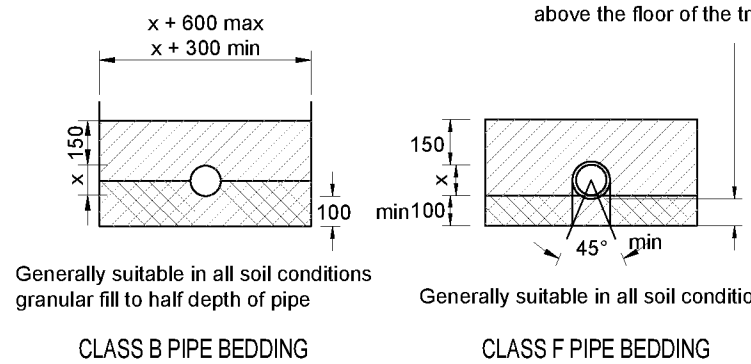
Issue Status **FOR APPROVAL**

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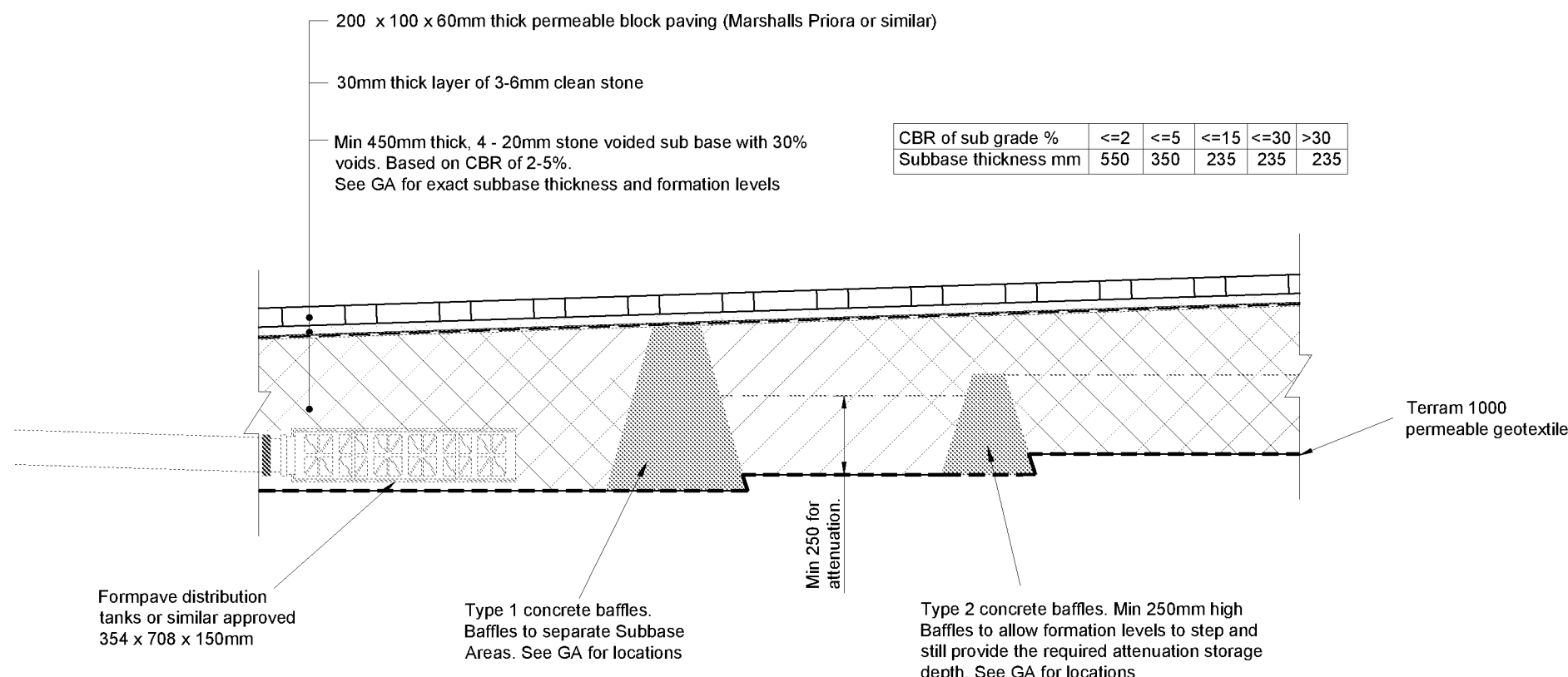
CLIENT		Seaward Properties Limited	
PROJECT		Bonhams Field, Main Road, Yapton	
TITLE		Site Layout Proposed Drainage Plan	
DRAWN	DATE	PROJECT NO.	
M Pacifico	May 2019	23018	
ENGINEER	CHECKED	DRG. No.	REV.
S Magowan	SRM	1210	G
SCALE			
1:500 @ A1 / :1000 @ A3			



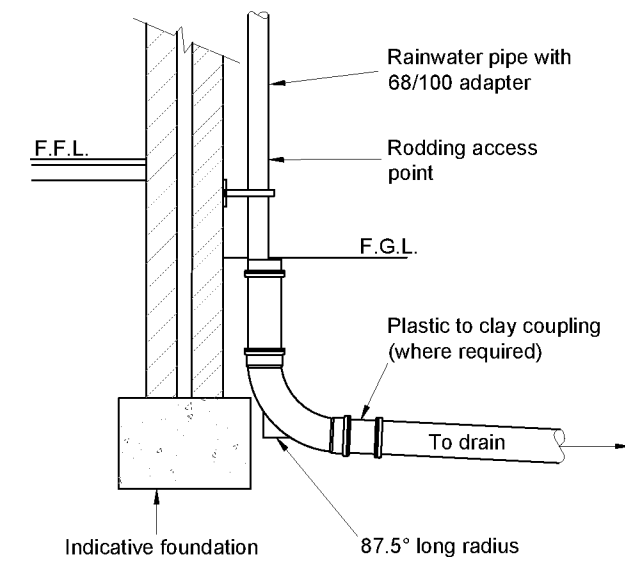
100mm	D or N F B	0.4 0.3 0.3	4.2 5.8 7.4	0.7 0.5 0.4	4.1 5.8 7.4	0.7 0.5 0.4	3.7 5.5 7.2
150mm	D or N F B	0.6 0.6 0.6	2.7 3.9 5.0	1.1 0.7 0.6	2.5 3.8 5.0	-- 0.7 0.6	-- 3.3 4.6
225mm	D or N F B	-- 0.6 0.6	-- 2.5 3.3	-- 1.2 0.8	2.1 3.2	-- 0.9	-- 2.4



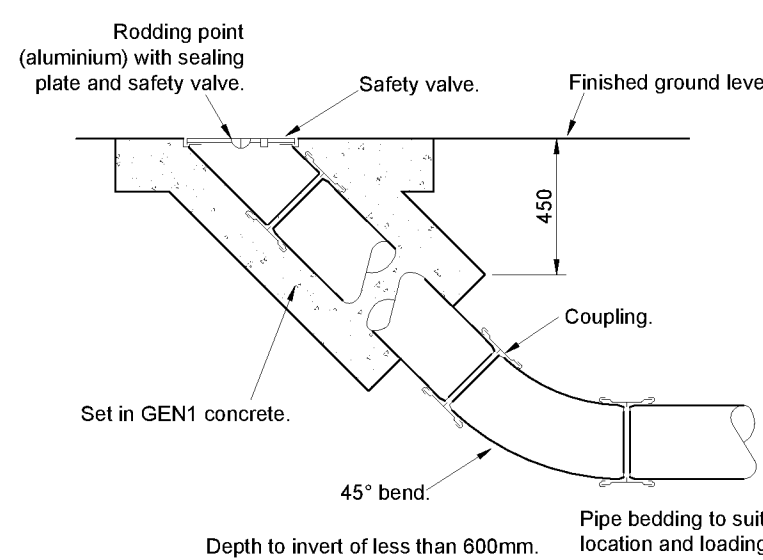
**PIPE BEDDING DETAILS
(NON ADOPTABLE DRAINS)**
(Not To Scale)



**PERMEABLE CONCRETE BLOCK PAVING
DRIVE CONSTRUCTION DETAIL**
Scale 1:20



TYPICAL RAINWATER PIPE DETAIL
(Scale 1:25)



DETAIL OF RODDING EYE
(Scale 1:25)

**FIGURE B.21
TYPICAL INSPECTION CHAMBER DETAIL - TYPE 4 (Flexible material detail)**
Maximum depth from cover level to soffit of pipe 2 m, non-entry

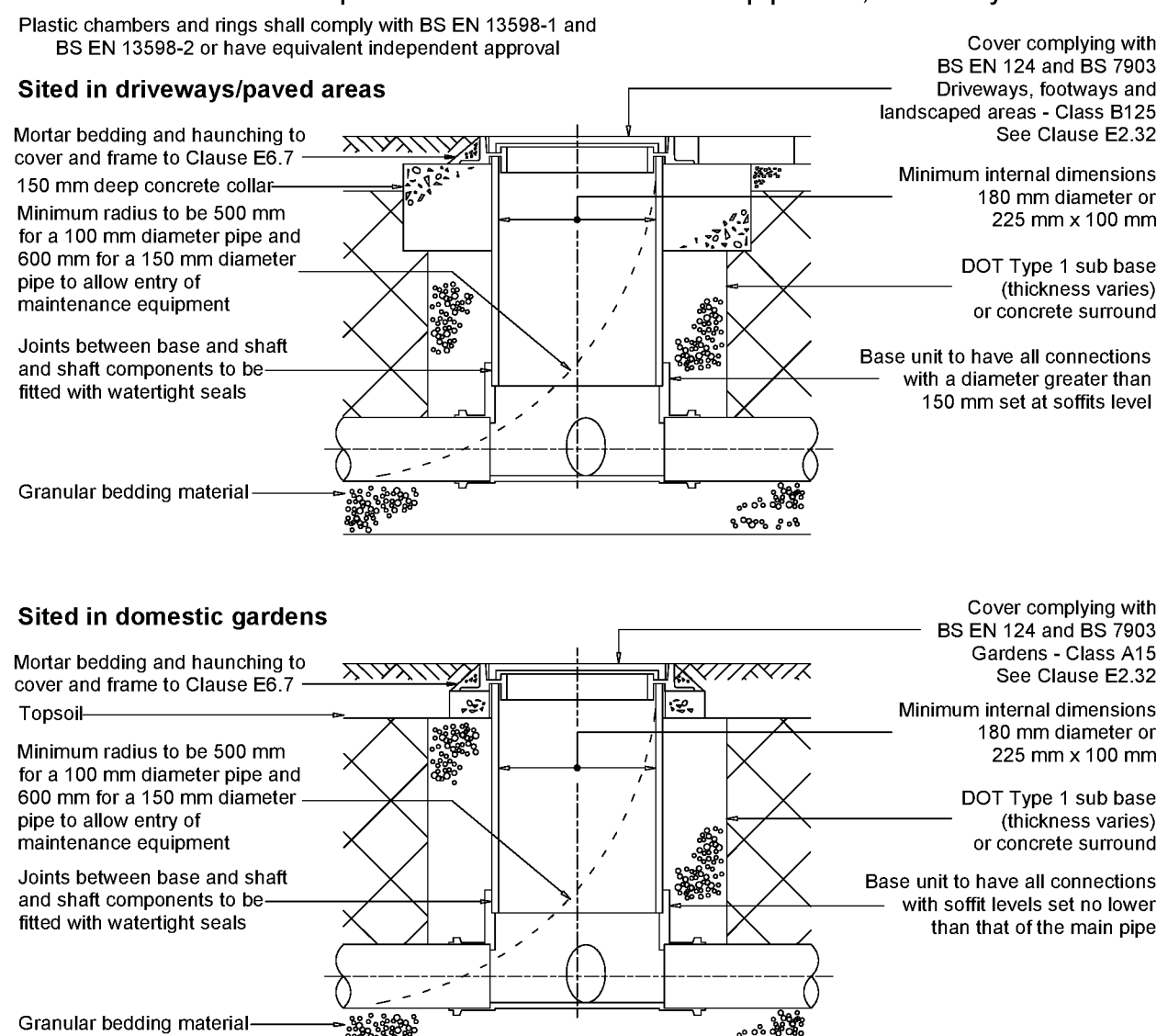
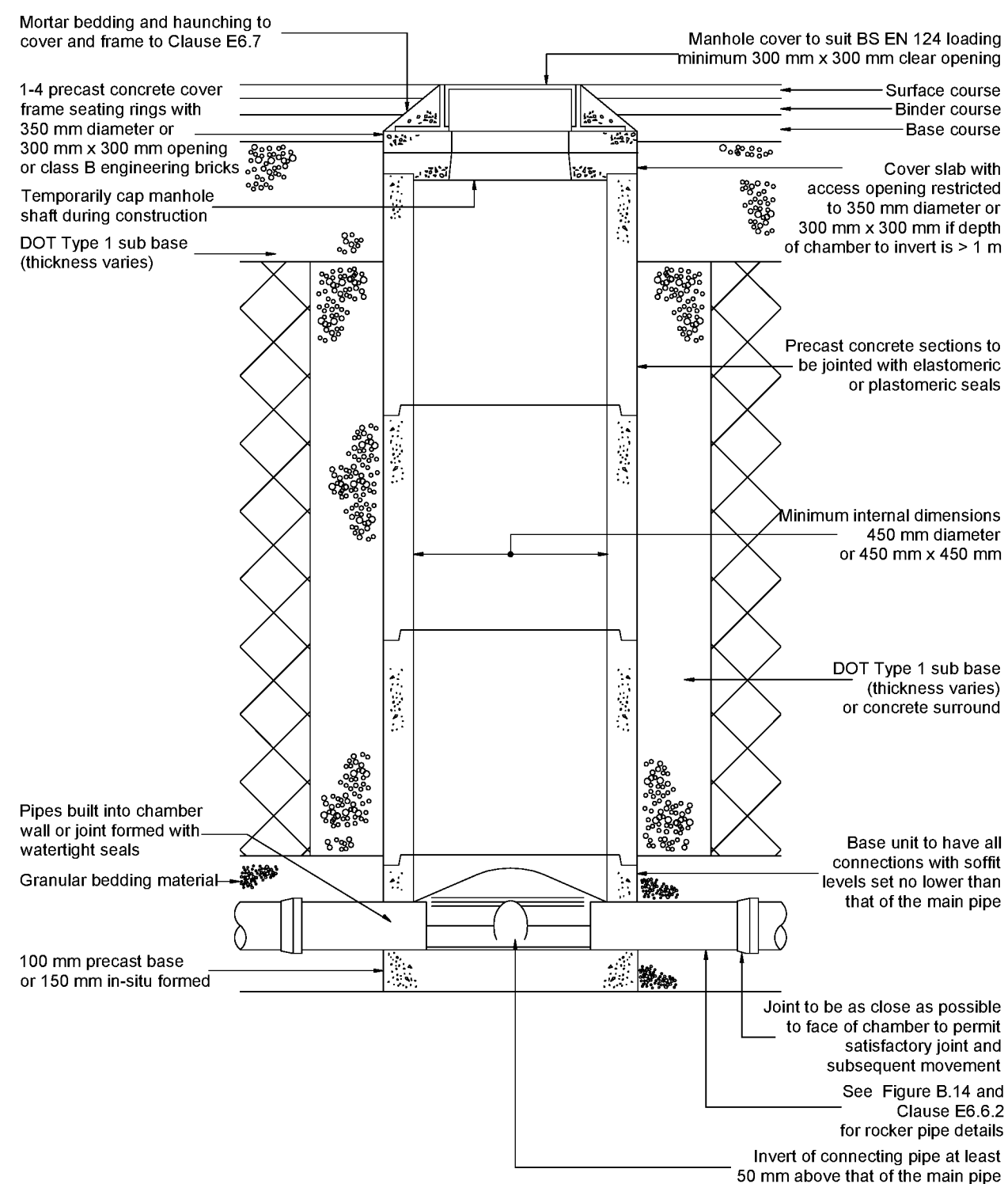


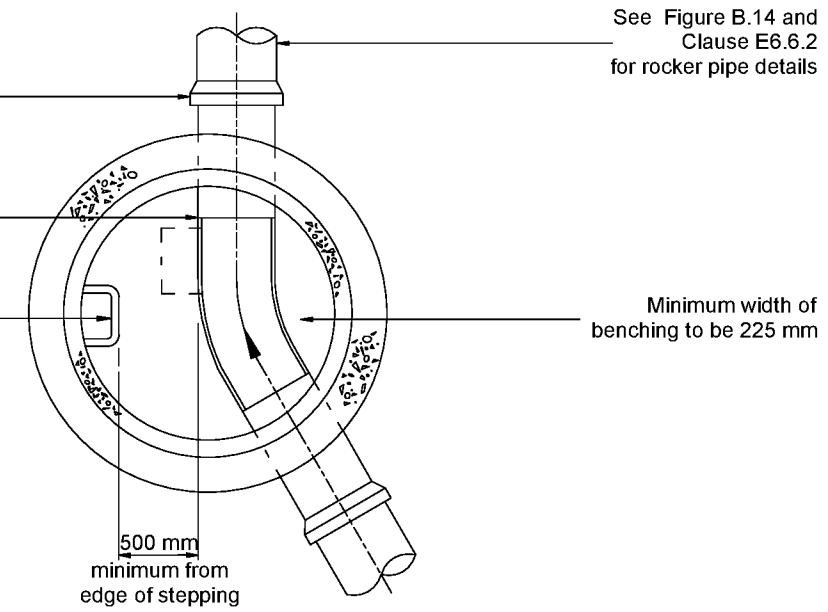
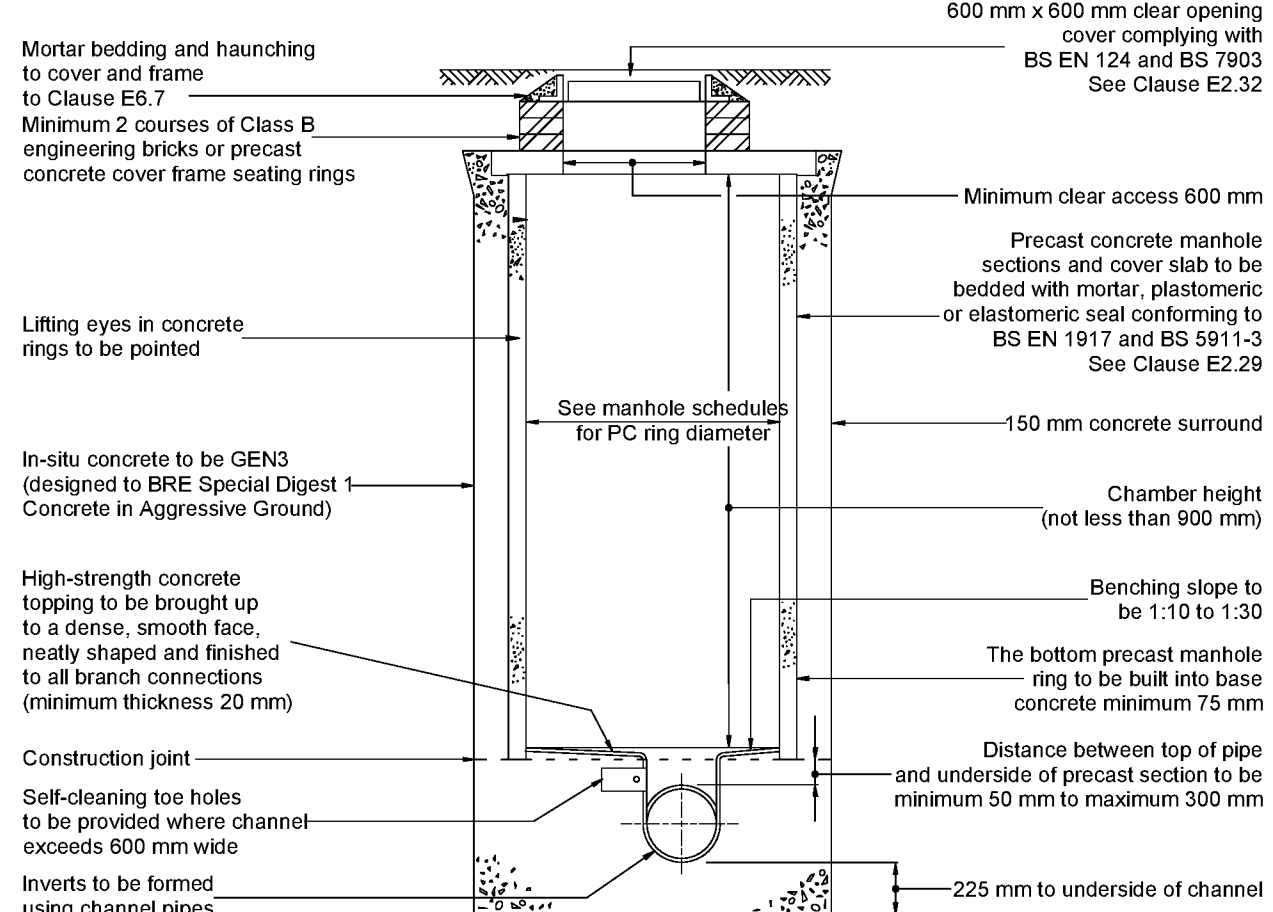
**FIGURE B.18
TYPICAL INSPECTION CHAMBER DETAIL - TYPE 3 (Rigid material detail)**
Maximum depth from cover level to soffit of pipe in areas subject to vehicle loading 3 m, non-entry



Note: Where the access chamber is in the highway the Highway Authority can have specific requirements

Not to scale

**FIGURE B.12
TYPICAL MANHOLE DETAIL - TYPE 2**
Maximum depth from cover level to soffit of pipe 3.0 m



CATCHPIT CHAMBER
(Scale 1:20)

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DRAINAGE NOTES:

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A	26.06.20	PUR	Details updated.	MK
REV	DATE	INT	DESCRIPTION	CHK

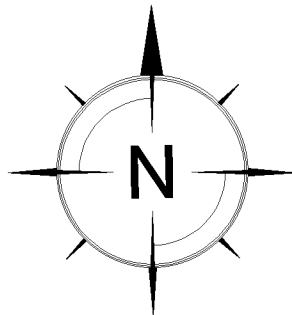
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CLIENT
Seaward Properties Limited
PROJECT
Bonhams Field, Main Road, Yapton

TITLE
Construction Details

DRAWN M Pacifico	DATE May 2019	PROJECT NO. 23018
ENGINEER S Magowan	CHECKED SRM	REV 1501 A
SCALE 1:500 @ A1		



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Storm Drainage Maintenance Legend:

To be maintained by the homeowner

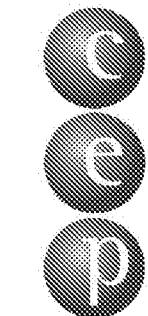
- Private Type 4 Storm Water Inspection Chamber
- Private Storm Water Rodding Eye

To be maintained by estates management Company

- Type 4 Storm Water Inspection Chamber
- Property boundary
- Distribution Tanks to Subbase
- Permeable Drives under private ownership. Subject to legal covenant
- Impermeable Roads and Drives under private ownership

A 22.12.2020 MJP: Minor amendments to subbase depths					MK
REV	DATE	BY	DESCRIPTION	CHK	

Issue Status FOR APPROVAL

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CLIENT Seaward Properties Limited	
PROJECT Bonhams Field, Main Road, Yapton	
TITLE Site Layout Proposed Drainage Ownership Plan	
DRAWN P Reynolds	DATE May 2020
ENGINEER S Magowan	CHECKED SRM
PROJECT NO. 23018	
SCALE 1:500 @ A1 / 1:1000 @ A3	
DRG NO. 2001	
REV. A	