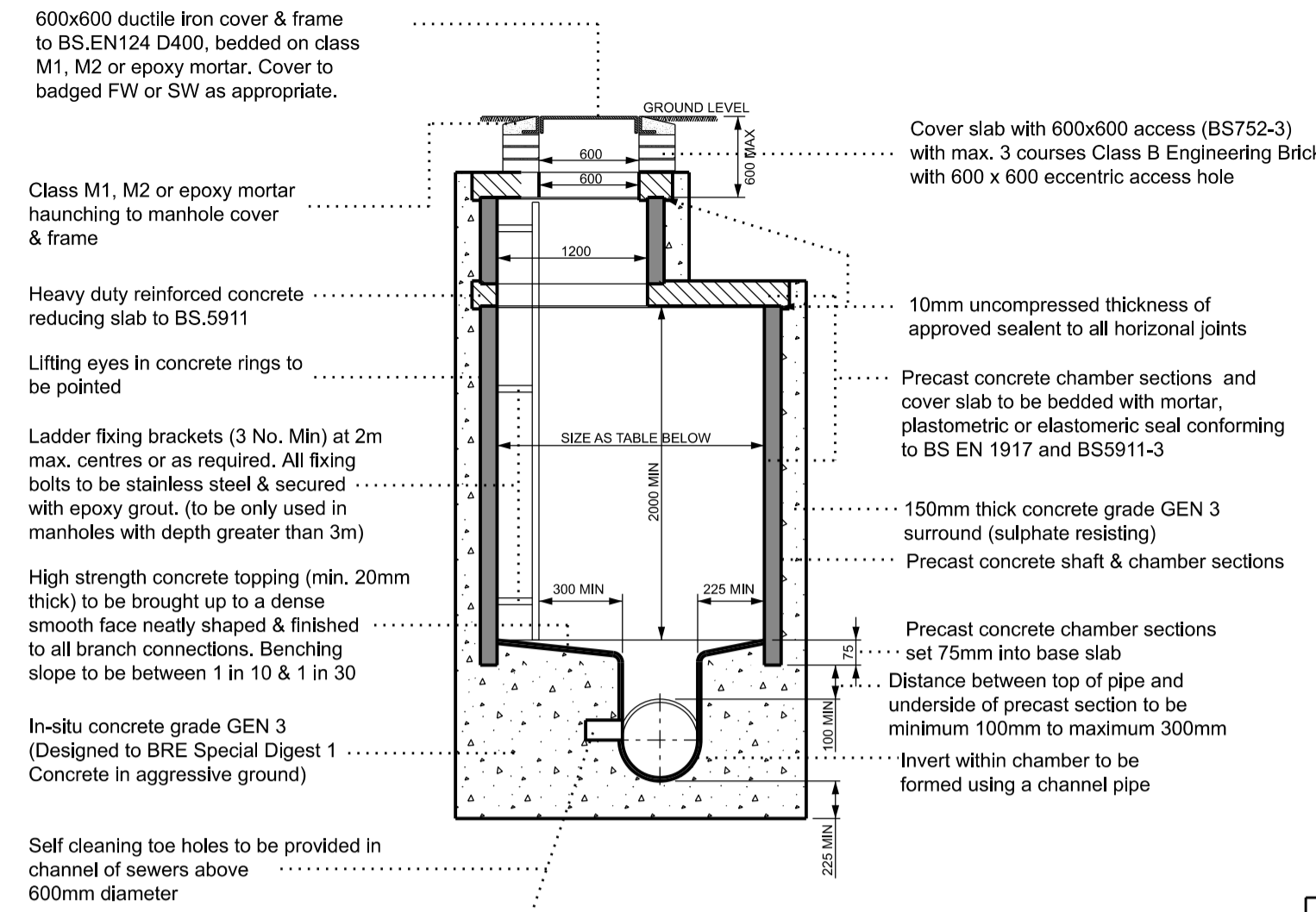
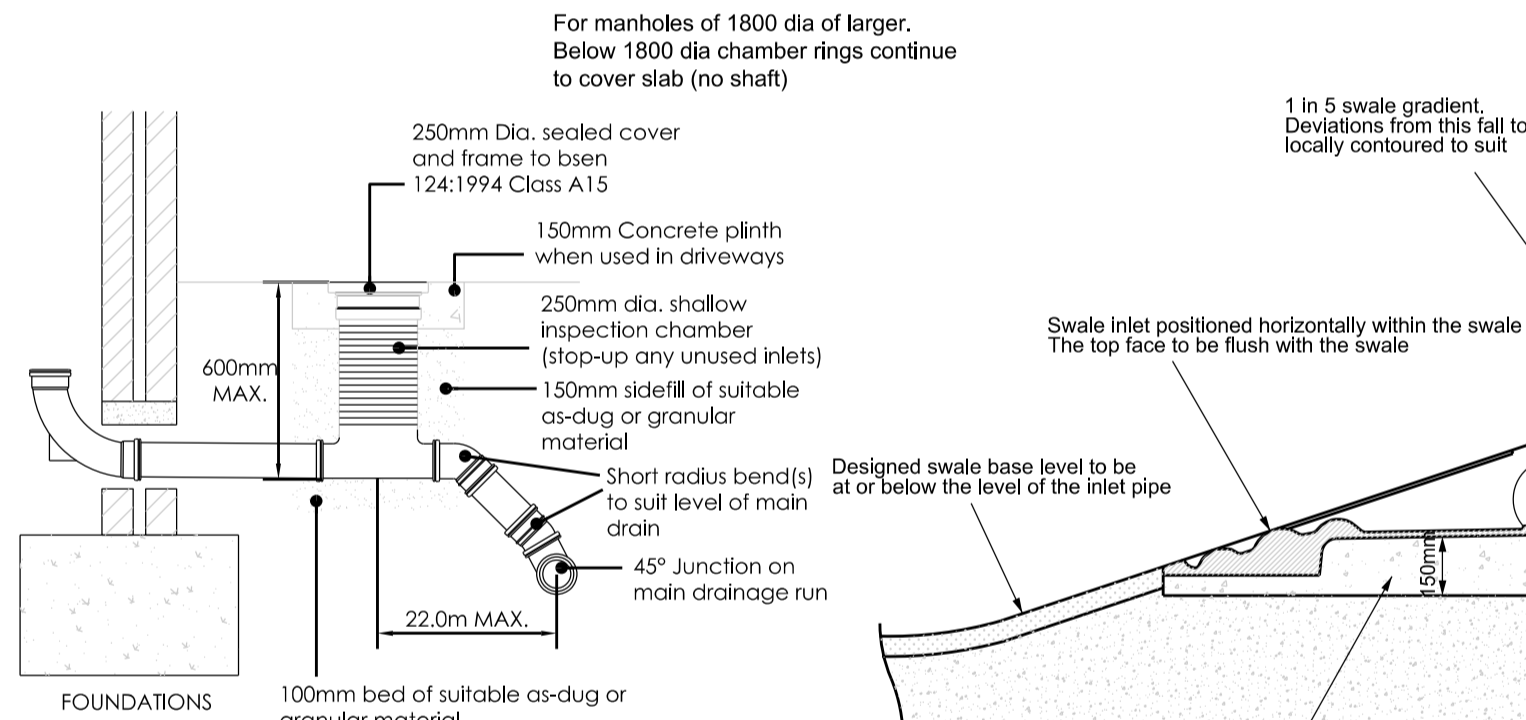
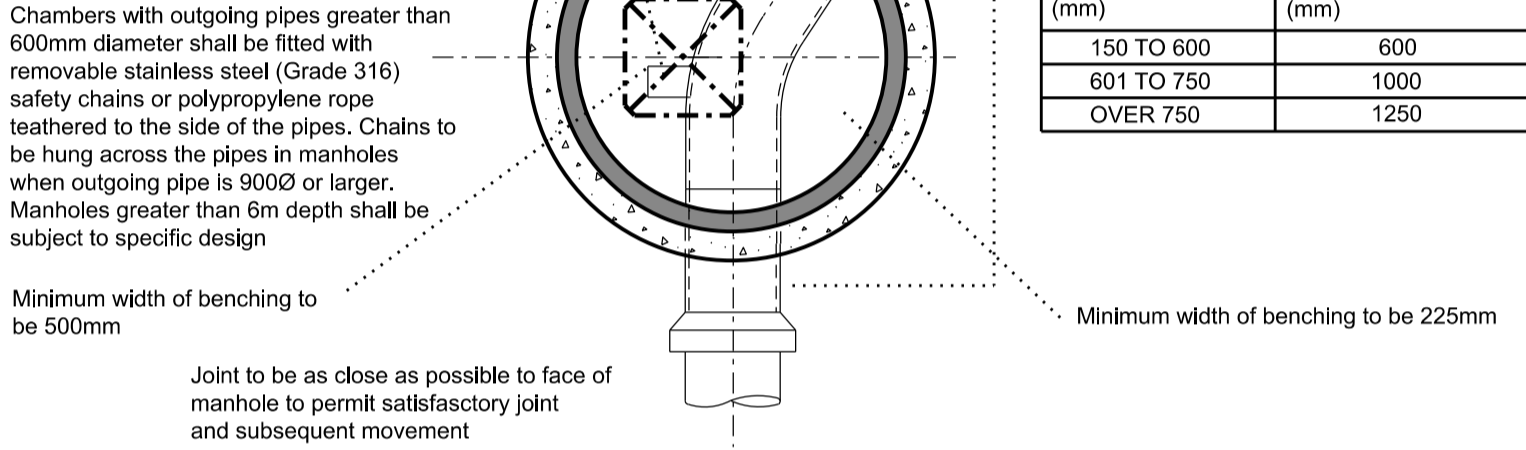


**TYPICAL MANHOLE DETAIL TYPE 1A**  
(DEPTH TO SOFFIT 3m - 6m)



**CHAMBER DIAMETERS**

DIA. OF LARGEST PIPE IN MANHOLE (mm)	INTERNAL DIAMETER OF MANHOLE (mm)
LESS THAN 375	1200
375 TO 700	1500
750 TO 900	1800



**SHALLOW INSPECTION CHAMBER**  
For use in soft areas & driveways only

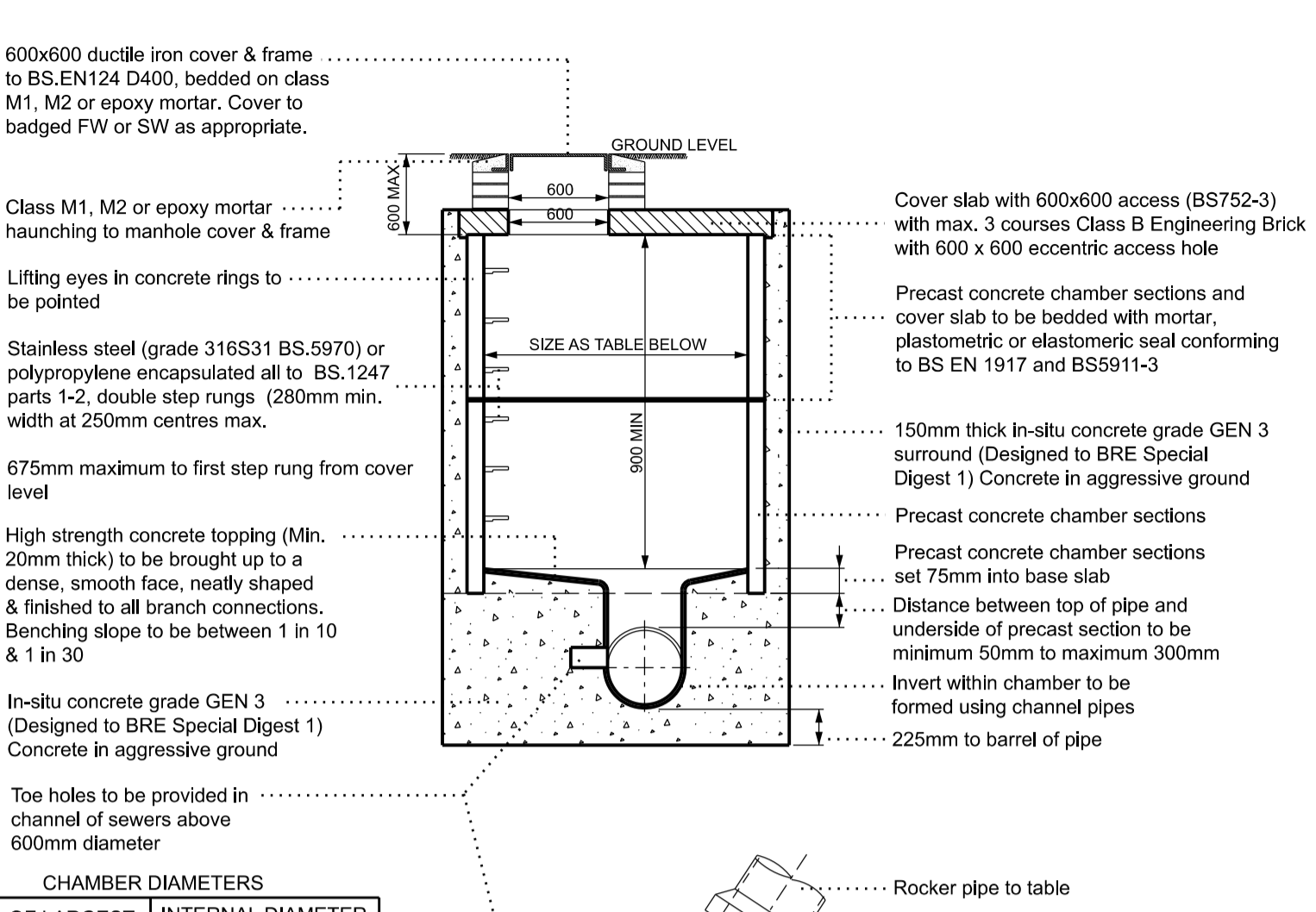
- Notes:
- Backfilling under roads and paving: Backfill from top of granular bedding up to formation level with Granular Subbase Material Type 1 to Highway Agency specification for Highway Works 1998 Clause 803, laid and compacted in 150mm layers.
  - Backfilling under landscaped areas: Backfill from top of granular bedding up to underside of topsoil with selected Class 1B material, Class 1B fill whether selected from locally excavated material or imported, shall consist of uniform readily compactible material, free from vegetable matter, building rubbish and frozen material, or materials susceptible to spontaneous combustion, and excluding clay of liquid limit greater than 50 and/or plastic limit greater than 55 and materials of excessively high moisture content. Clay lumps and stones retained on 75mm and 37.5mm sieves respectively shall be excluded from the fill material. Laid and compacted in layers not exceeding 300mm.
  - Do not use heavy compactors before there is 600mm of material over pipe.

Table - Granular bedding and sidefill materials for rigid pipes

Pipe Nominal Bore (DN)	Maximum Particle Size (mm)	Suitable materials	
		Imported granular materials (Note a)	Maximum CF value for as-dug granular material (Note b)
100	10	S	0.15
		B	0.30 (Note c)
		F	0.15
Over 100 to 150	15	N	0.15
		B	0.30 (Note c)
		F	0.15
Over 150 to 500	20	N	0.15
		B	0.30 (Note c)
		F	0.15
Over 500 (Note d)	40	S	0.15
		B	0.30 (Note c)
		F	0.15

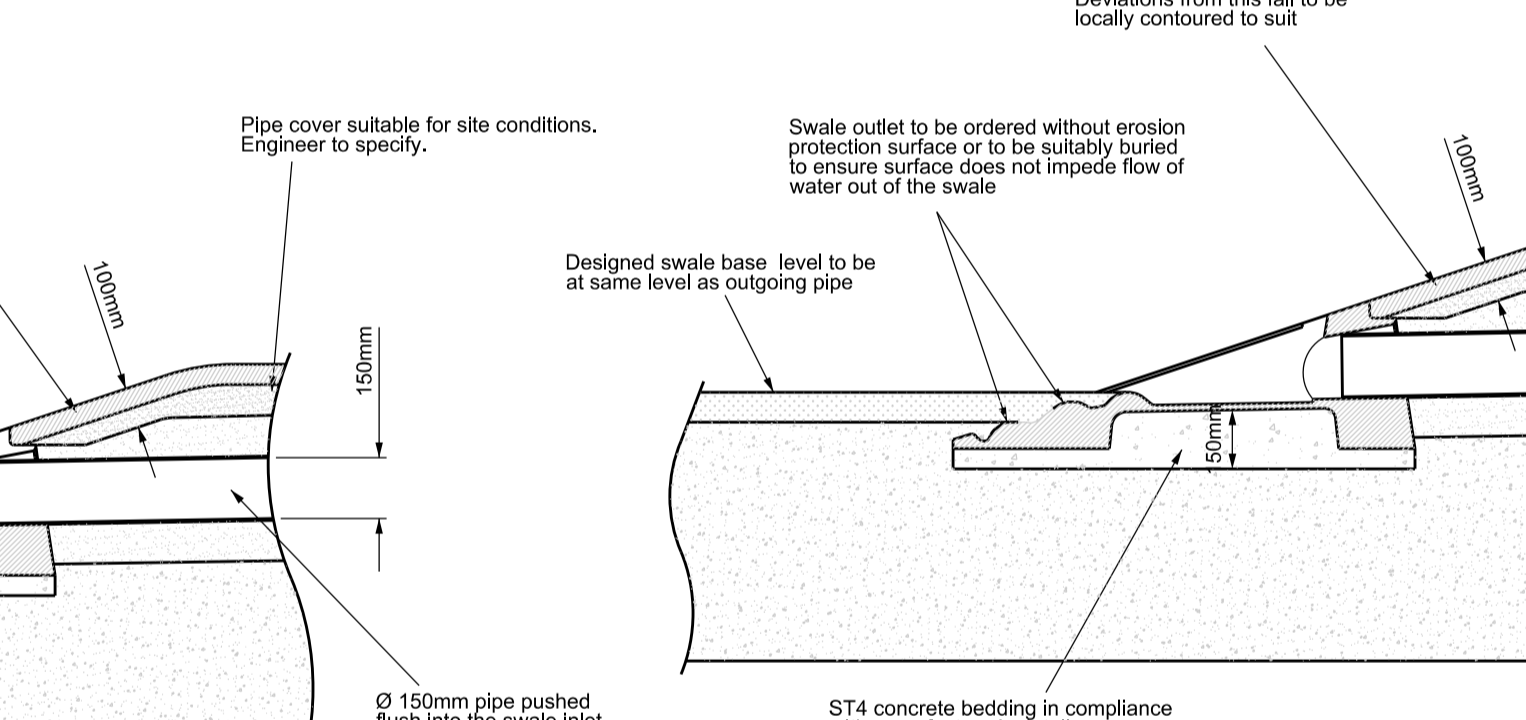
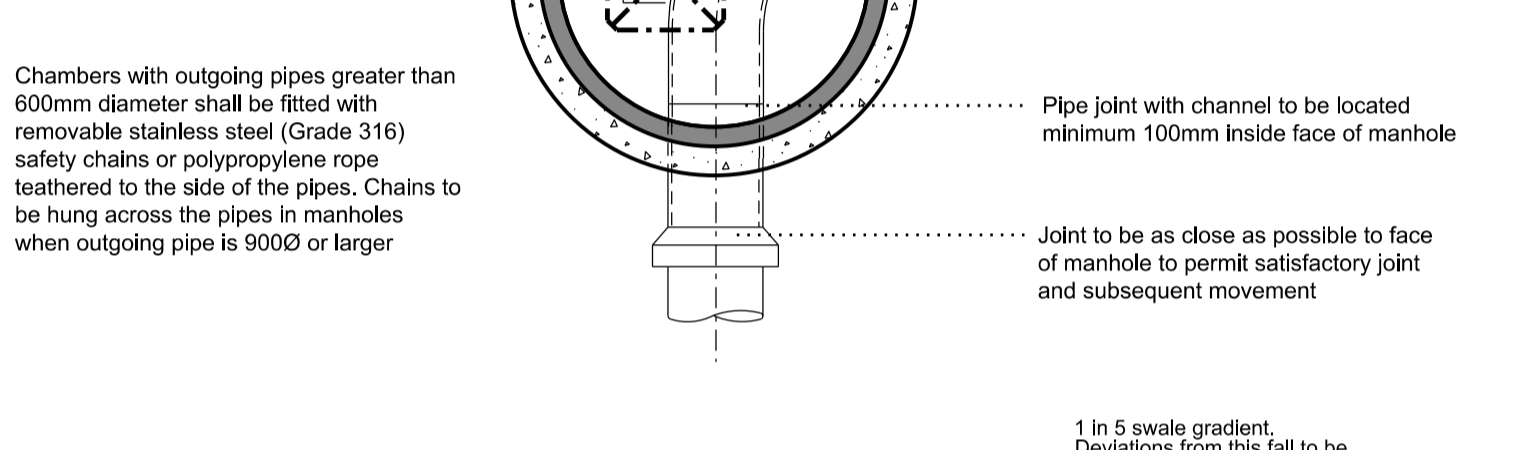
- Notes:
- Imported granular materials to include aggregates to BS 882, air-cooled blast furnace slag to BS 1047 and sintered pulverized-fuel ash to BS 3797 Compaction fraction value, See Appendix A
  - The higher the CF value for as-dug bedding and sidefill materials the greater the required effort for adequate compaction.
  - Angular materials should be chosen to ensure sufficient support is provided to these heavier pipes. Crushed rock aggregates to BS 882 are recommended. Air-cooled blast furnace slag to BS 3797 or other granular materials may be used if they show a similar degree of angularity

**TYPICAL MANHOLE DETAIL TYPE 2**  
(Maximum depth from cover level to soffit of pipe 3m)



**CHAMBER DIAMETERS**

DIA. OF LARGEST PIPE IN MANHOLE (mm)	INTERNAL DIAMETER OF MANHOLE (mm)
LESS THAN 375	1200
375 TO 700	1500
750 TO 900	1800



**RAIN GARDEN - ACO HEADWALL INLET**

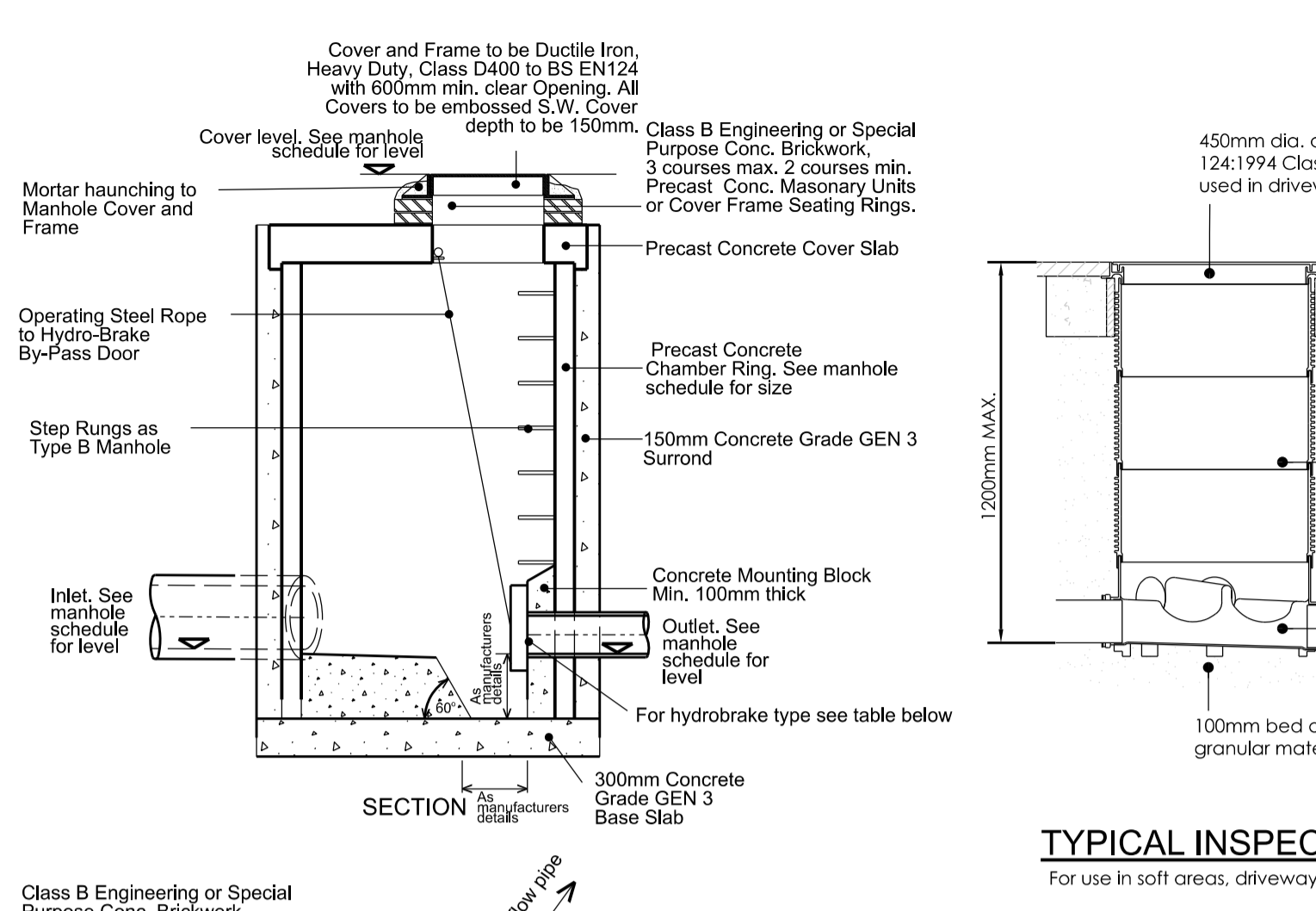
- Notes:
- Backfilling under roads and paving: Backfill from top of granular bedding up to formation level with Granular Subbase Material Type 1 to Highway Agency specification for Highway Works 1998 Clause 803, laid and compacted in 150mm layers.
  - Backfilling under landscaped areas: Backfill from top of granular bedding up to underside of topsoil with selected Class 1B material, Class 1B fill whether selected from locally excavated material or imported, shall consist of uniform readily compactible material, free from vegetable matter, building rubbish and frozen material, or materials susceptible to spontaneous combustion, and excluding clay of liquid limit greater than 50 and/or plastic limit greater than 55 and materials of excessively high moisture content. Clay lumps and stones retained on 75mm and 37.5mm sieves respectively shall be excluded from the fill material. Laid and compacted in layers not exceeding 300mm.
  - Do not use heavy compactors before there is 600mm of material over pipe.

Table - Granular bedding and sidefill materials for rigid pipes

Pipe Nominal Bore (DN)	Maximum Particle Size (mm)	Suitable materials	
		Imported granular materials (Note a)	Maximum CF value for as-dug granular material (Note b)
100	10	S	0.15
		B	0.30 (Note c)
		F	0.15
Over 100 to 150	15	N	0.15
		B	0.30 (Note c)
		F	0.15
Over 150 to 500	20	N	0.15
		B	0.30 (Note c)
		F	0.15
Over 500 (Note d)	40	S	0.15
		B	0.30 (Note c)
		F	0.15

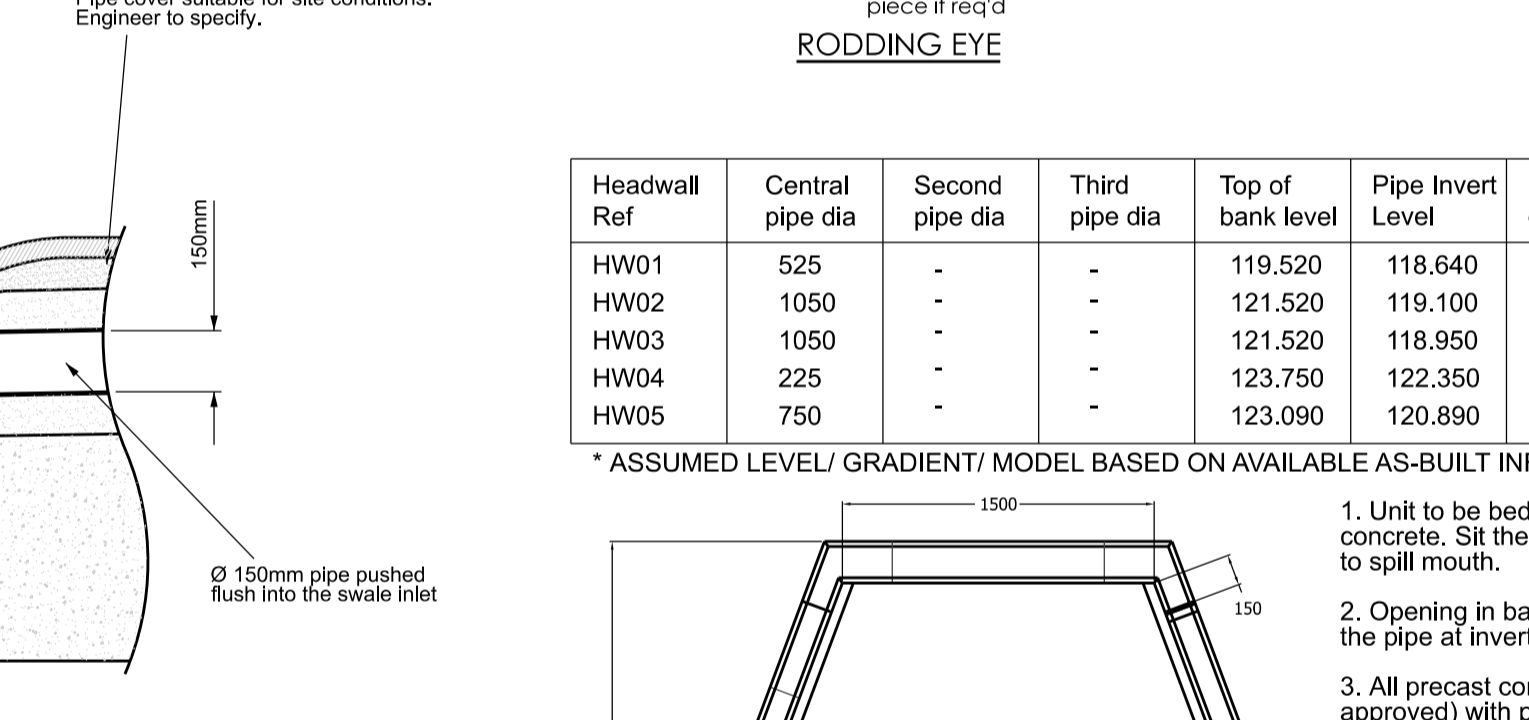
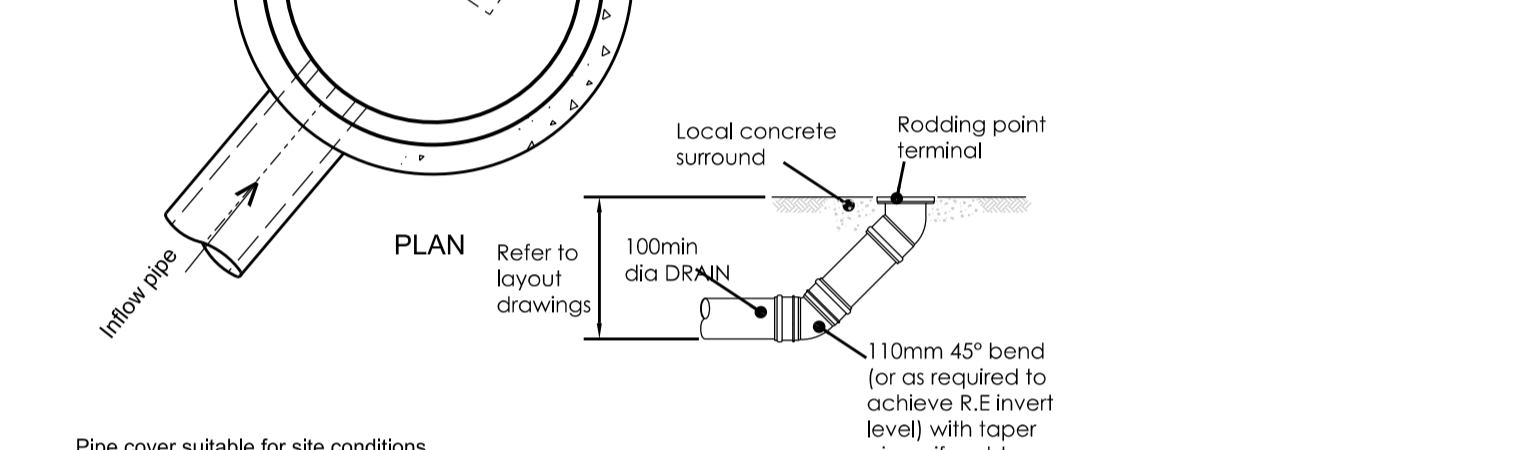
- Notes:
- Imported granular materials to include aggregates to BS 882, air-cooled blast furnace slag to BS 1047 and sintered pulverized-fuel ash to BS 3797 Compaction fraction value, See Appendix A
  - The higher the CF value for as-dug bedding and sidefill materials the greater the required effort for adequate compaction.
  - Angular materials should be chosen to ensure sufficient support is provided to these heavier pipes. Crushed rock aggregates to BS 882 are recommended. Air-cooled blast furnace slag to BS 3797 or other granular materials may be used if they show a similar degree of angularity

**TYPICAL FLOW CONTROL CHAMBER DETAIL**



**ROCKER PIPES**

SEWER DIAMETER (mm)	EFFECTIVE LENGTH (mm)
150 TO 600	600
601 TO 750	1000
OVER 750	1250



**RAIN GARDEN - ACO HEADWALL OUTLET**

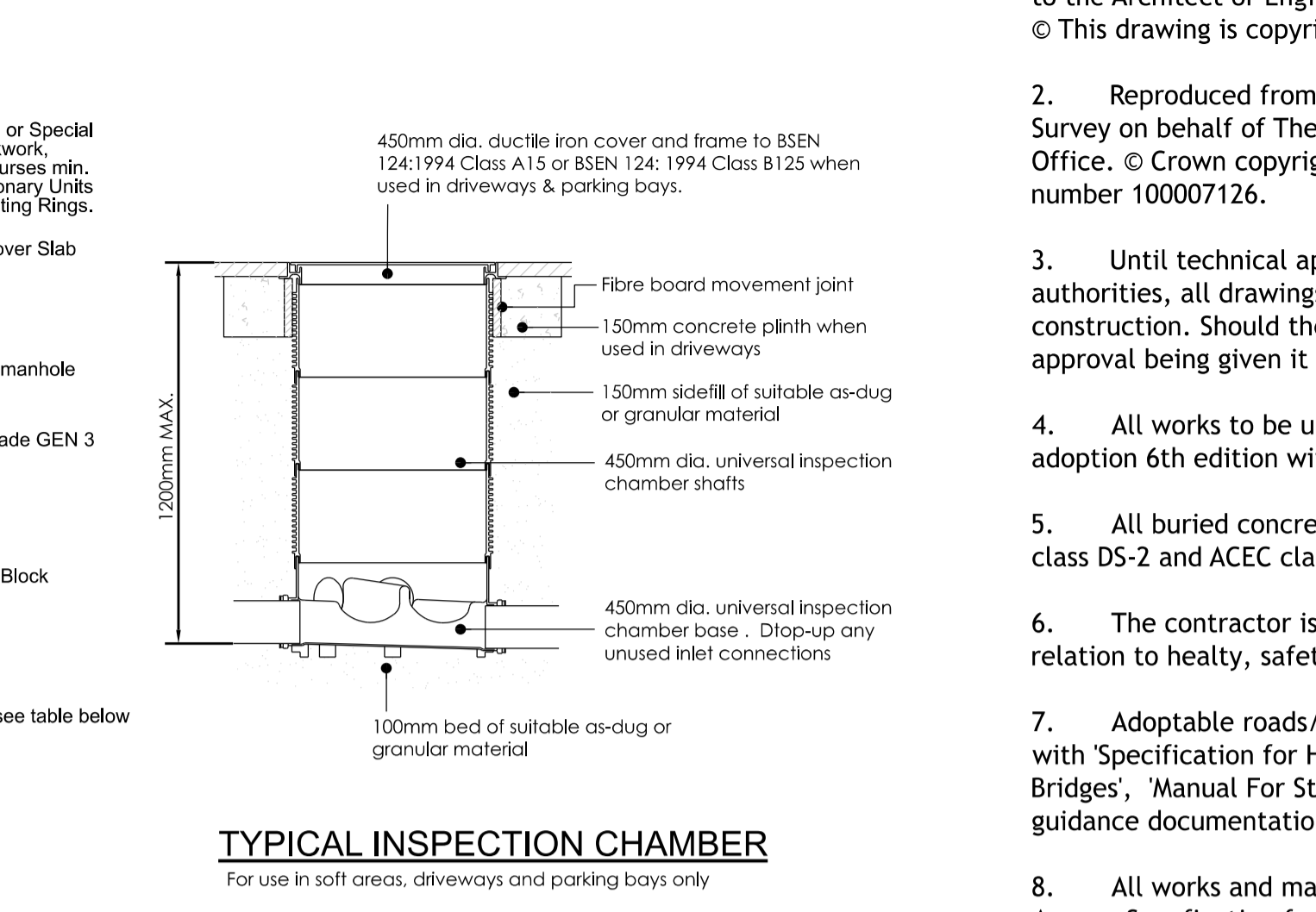
- Notes:
- Backfilling under roads and paving: Backfill from top of granular bedding up to formation level with Granular Subbase Material Type 1 to Highway Agency specification for Highway Works 1998 Clause 803, laid and compacted in 150mm layers.
  - Backfilling under landscaped areas: Backfill from top of granular bedding up to underside of topsoil with selected Class 1B material, Class 1B fill whether selected from locally excavated material or imported, shall consist of uniform readily compactible material, free from vegetable matter, building rubbish and frozen material, or materials susceptible to spontaneous combustion, and excluding clay of liquid limit greater than 50 and/or plastic limit greater than 55 and materials of excessively high moisture content. Clay lumps and stones retained on 75mm and 37.5mm sieves respectively shall be excluded from the fill material. Laid and compacted in layers not exceeding 300mm.
  - Do not use heavy compactors before there is 600mm of material over pipe.

Table - Granular bedding and sidefill materials for rigid pipes

Pipe Nominal Bore (DN)	Maximum Particle Size (mm)	Suitable materials	
		Imported granular materials (Note a)	Maximum CF value for as-dug granular material (Note b)
100	10	S	0.15
		B	0.30 (Note c)
		F	0.15
Over 100 to 150	15	N	0.15
		B	0.30 (Note c)
		F	0.15
Over 150 to 500	20	N	0.15
		B	0.30 (Note c)
		F	0.15
Over 500 (Note d)	40	S	0.15
		B	0.30 (Note c)
		F	0.15

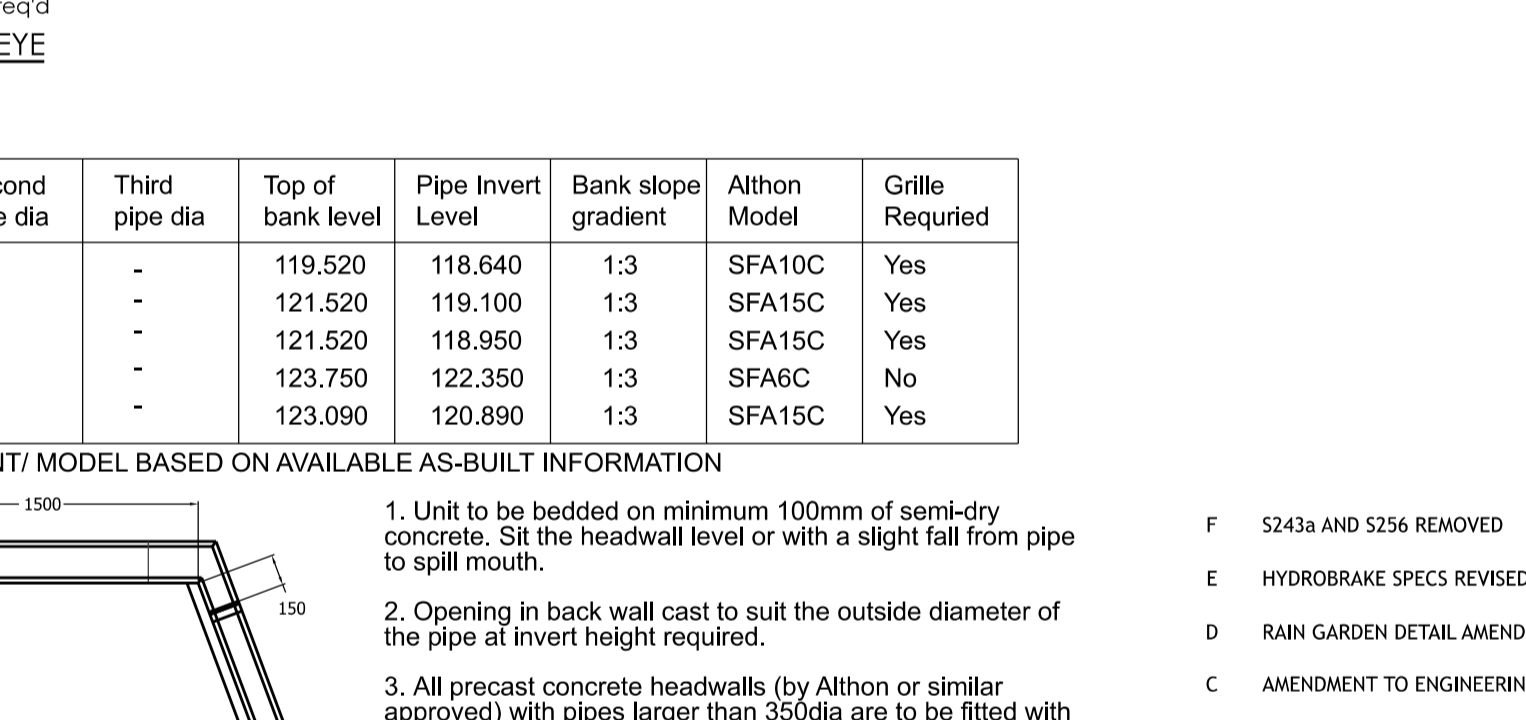
- Notes:
- Imported granular materials to include aggregates to BS 882, air-cooled blast furnace slag to BS 1047 and sintered pulverized-fuel ash to BS 3797 Compaction fraction value, See Appendix A
  - The higher the CF value for as-dug bedding and sidefill materials the greater the required effort for adequate compaction.
  - Angular materials should be chosen to ensure sufficient support is provided to these heavier pipes. Crushed rock aggregates to BS 882 are recommended. Air-cooled blast furnace slag to BS 3797 or other granular materials may be used if they show a similar degree of angularity

**TYPICAL INSPECTION CHAMBER**  
For use in soft areas, driveways and parking bays only



**ROCKER PIPES**

SEWER DIAMETER (mm)	EFFECTIVE LENGTH (mm)
150 TO 600	600
601 TO 750	1000
OVER 750	1250



**RAIN GARDEN - ACO HEADWALL OUTLET**

- Notes:
- Backfilling under roads and paving: Backfill from top of granular bedding up to formation level with Granular Subbase Material Type 1 to Highway Agency specification for Highway Works 1998 Clause 803, laid and compacted in 150mm layers.
  - Backfilling under landscaped areas: Backfill from top of granular bedding up to underside of topsoil with selected Class 1B material, Class 1B fill whether selected from locally excavated material or imported, shall consist of uniform readily compactible material, free from vegetable matter, building rubbish and frozen material, or materials susceptible to spontaneous combustion, and excluding clay of liquid limit greater than 50 and/or plastic limit greater than 55 and materials of excessively high moisture content. Clay lumps and stones retained on 75mm and 37.5mm sieves respectively shall be excluded from the fill material. Laid and compacted in layers not exceeding 300mm.
  - Do not use heavy compactors before there is 600mm of material over pipe.

Table - Granular bedding and sidefill materials for rigid pipes

Pipe Nominal Bore (DN)	Maximum Particle Size (mm)	Suitable materials	
		Imported granular materials (Note a)	Maximum CF value for as-dug granular material (Note b)
100	10	S	0.15
		B	0.30 (Note c)
		F	0.15
Over 100 to 150	15	N	0.15
		B	0.30 (Note c)
		F	0.15
Over 150 to 500	20	N	0.15
		B	0.30 (Note c)
		F	0.15
Over 500 (Note d)	40	S	0.15
		B	0.30 (Note c)
		F	0.15

- Notes:
- Imported granular materials to include aggregates to BS 882, air-cooled blast furnace slag to BS 1047 and sintered pulverized-fuel ash to BS 3797 Compaction fraction value, See Appendix A
  - The higher the CF value for as-dug bedding and sidefill materials the greater the required effort for adequate compaction.
  - Angular materials should be chosen to ensure sufficient support is provided to these heavier pipes. Crushed rock aggregates to BS 882 are recommended. Air-cooled blast furnace slag to BS 3797 or other granular materials may be used if they show a similar degree of angularity

- NOTES
- Contractors must check all dimensions on site. Only figured dimensions are to be worked from. Discrepancies must be reported to the Architect or Engineer before proceeding. © This drawing is copyright.
  - Reproduced from OS Sitemap © by permission of Ordnance Survey on behalf of The Controller of Her Majesty's Stationery Office. © Crown copyright 2008. All rights reserved. Licence number 100007126.
  - Until technical approval has been obtained from the relevant authorities, all drawings are issued as preliminary and not for construction. Should the Contractor commence site work prior to approval being given it is entirely at his own risk.
  - All works to be undertaken in accordance with sewers for adoption 6th edition with any anlgian water additions or deletions
  - All buried concrete shall be designed in accordance with DS class DS-2 and ACEC class AC-2.
  - The contractor is to comply with all current requirements in relation to healty, safety & welfare.
  - Adoptable roads/works have been designed in accordance with 'Specification for Highway Works', 'Design Manual for Roads and Bridges', 'Manual For Streets' and Oxfordshire County Council guidance documentation.
  - All works and material are to comply with the Highway Agency Specification for Highway.

Manhole Ref	Hydrobrake type	Design head	Permitted flow	Hydrobrake Reference
S234	"Optimum"	1.60m	3.0 l/s	MD-SHR-0074-3000-1600-3000



**RODDING EYE**

Headwall Ref	Central pipe dia	Second pipe dia	Third pipe dia	Top of bank level	Pipe Invert Level	Bank slope gradient	Althon Model	Grille Required
HW01	525	-	-	119.520	118.640	1:3	SFA10C	Yes
HW02	1050	-	-	121.520	119.100	1:3	SFA15C	Yes
HW03	1050	-	-	121.520	118.950	1:3	SFA15C	Yes
HW04	225	-	-	123.750	122.350	1:3	SFA6C	No
HW05	750	-	-	123.090	120.890	1:3	SFA15C	Yes

\* ASSUMED LEVEL/ GRADIENT/ MODEL BASED ON AVAILABLE AS-BUILT INFORMATION

REV	DESCRIPTION	DRN	CHD	DATE
A	RAIN GARDEN ACO HEADWALL DETAILS ADDED	CG	AT	27.06.19
REV	DESCRIPTION	DRN	CHD	DATE

- Legend:
- PRELIMINARY
  - CONSTRUCTION
  - INFORMATION
  - AS BUILT
  - TENDER

SCALE: NTS @ A1 DATE: APRIL 2019

DRAWN: CG CHK: AT

DRAWING NO.: HEYF-5-1276 REV: F

TITLE: CAMP ROAD UPPER HEYFORD

DETAILS: PHASE 9 DRAINAGE DETAILS SHEET 2



**BEDFORD : HEAD OFFICE**  
15-17 Goldington Road  
Bedford MK40 3NH  
T: +44 (0) 1234 268862

**BIRMINGHAM**  
Fort Dunlop, Fort Parkway  
Birmingham B24 9FE  
T: +44 (0) 121 6297784

ONLINE: mail@woodshardwick.com | woodshardwick.com