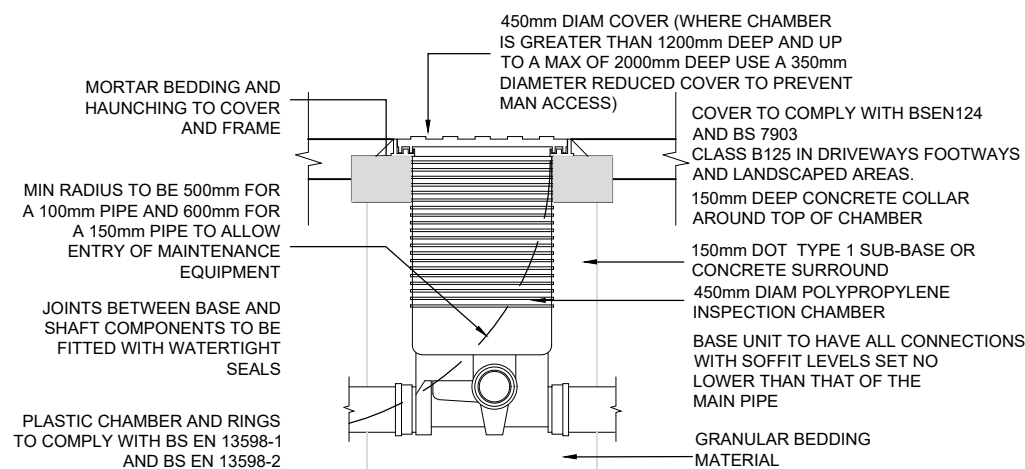




Technical drawing showing a cross-section of a vertical access point for a drainage system. The drawing includes the following components and labels:

- GROUND FLOOR SLAB**: The horizontal structure above the access point.
- F.F.L.**: Finished Floor Level, indicated by a triangle symbol.
- ACCESS POINT**: The vertical pipe with a circular access cover.
- FLEXIBLE JOINT**: The connection between the access point and the rest bend.
- 90° REST BEND**: The vertical pipe section that turns 90 degrees to become horizontal.
- FLEXIBLE JOINTS**: Multiple connections along the horizontal section of the rest bend.
- STAINLESS STEEL CLIP**: A component used to secure the rest bend to the ground floor slab.

FOR RIGID PIPES
eg CLAYWARE, CONCRETE

150

SUITABLE FILL MATERIAL

GRANULAR PIPE BEDDING MATERIAL

FOR FLEXIBLE PIPES
eg THERMOPLASTIC

300

150

SUITABLE FILL MATERIAL

GRANULAR PIPE BEDDING MATERIAL

SUITABLE FILL:- THE SUITABLE FILL SHALL BE SUITABLE FOR THE LOCATION AND SHALL BE CAREFULLY COMPACTED TO PROVIDE STABILITY WITHOUT DAMAGING THE PIPE.
FILL UNDER CAR PARKING AREAS AND PRIVATE ROADS TO BE WELL COMPACTED GRADED MATERIAL. FILL UNDER ADOPTED ROADS TO BE TYPE 1 GRANULAR SUB-BASE.

WHERE THE PIPES ARE TO BE ADOPTED CLASS S BEDDING TO BE USED FOR EITHER RIGID OR FLEXIBLE PIPES

GROUND LEVEL

'A'

WHERE 'A' IS LESS THAN 1m CONCRETE FILL TRENCH TO THIS LEVEL

GROUND LEVEL

'A'

WHERE 'A' IS 1m OR MORE CONCRETE FILL TRENCH TO THIS LEVEL

A min 150mm

PIPE RUNS NEAR BUILDINGS
(SCALE 1:25)

PRECAST CONCRETE LINTELS
 NARY 100mm DEEP TO SUIT
 WALL WIDTH OR SIMILAR APPROVED

SEE ARCHITECTS DRAWINGS FOR
 PERIMETER WALL DETAIL
 PIPE WRAPPED WITH FIBREGLASS OR
 SIMILAR TO PREVENT FLEXIBILITY

INERT BOARD COVERING VOID
 BOTH SIDES OF WALL TO
 PREVENT INGRESS OF SOIL OR
 VERMIN

MIN 100mm CONCRETE
 SURROUND BENEATH BUILDING

REST BEND TO BE BEDDED AND
 SURROUNDED IN CONCRETE

SLOW BEND MIN RADIUS
 200mm AS REQUIRED

MIN 75mm BETWEEN TOP OF FOUNDATION
 AND UNDERSIDE OF PIPE

ALTERNATIVELY LINTEL OVER AND
 BUILD PIPES INTO THE WALL WITH JOINTS AS CLOSE
 AS POSSIBLE TO THE WALL FACES MAX 150mm)
 ROCKER PIPES TO BE USED MAX 60mm LENGTH
 EITHER SIDE WITH FLEXIBLE JOINTS

SEE STRUCTURAL DRAWINGS

150mm CONCRETE SURROUND
 IN FLEXIBLE SURFACED
 TRAFFICKED AREAS WHERE
 COVER TO PIPE IS LESS THAN
 200mm

CAR PARK CONSTRUCTION

100mm

150mm

CONCRETE BED AND HAUNCH ST4 CONCRETE

120 X 90mm
RODDING POINT

CONCRETE BED

SHORT LENGTH OF PIPE CUT TO SUIT

BEND TO SUIT

FW/ COMBINED MANHOLE SCHEDULE						
Manhole Reference	Cover Level	Invert Level	Depth	Type	Chamber Size	Cover Frame
FW1	32.400	31.700	0.700m	PPIC	450mm	450Ø Class A15
FW2	32.400	31.650	0.750m	PPIC	450mm	450Ø Class A15
FW3	32.250	31.465	0.785m	PPIC	450mm	450Ø Class A15
FW3a	32.250	31.365	0.885m	PPIC	450mm	450Ø Class A15
FW4	32.250	31.195	1.055m	PPIC	450mm	450Ø Class A15
FW5	32.250	31.500	0.750m	PPIC	450mm	450Ø Class A15
FW6	32.400	31.650	0.750m	PPIC	450mm	450Ø Class A15
FW7	32.400	31.800	0.600m	PPIC	450mm	450Ø Class A15
FW8	31.650	31.075	0.575m	PPIC	450mm	450Ø Class A15
FW9	31.650	31.035	0.615m	PPIC	450mm	450Ø Class A15
FW10	31.650	30.880	0.770m	PPIC	450mm	450Ø Class A15
FW11	31.650	30.768	0.882m	PPIC	450mm	450Ø Class A15
FW12	31.650	30.520	1.130m	PPIC	450mm	450Ø Class B125
FW13	31.650	30.600	1.050m	PPIC	450mm	450Ø Class A15
FW14	31.650	30.700	0.950m	PPIC	450mm	450Ø Class A15
FW15	31.650	30.750	0.900m	PPIC	450mm	450Ø Class A15
FW16	31.800	31.000	0.800m	PPIC	450mm	450Ø Class A15
FW17	31.800	31.125	0.675m	PPIC	450mm	450Ø Class A15
FW18	31.800	30.470	1.330m	PPIC	450mm	450Ø Class B125

2. It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved method statement.

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6. MAIN DRAIN SEWERS TO BE CONSTRUCTED TO THE WORKS, INTENDED FOR ADOPTION UNDER A SECTION 104 AGREEMENT, OR GULLIES ETC INTENDED FOR ADOPTION AS HIGHWAY DRAINAGE ARE TO BE CONSTRUCTED IN ACCORDANCE WITH THE W.W.A. SPECIFICATION "SEWERS FOR ADOPTION" 7th EDITION.
7. ANY OTHER REGULATION OR STANDARD TO BE USED.
8. UNADOPTED FW AND SW DRAINAGE IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE BUILDING REGULATIONS, BS 8301 & RELEVANT AGREEMENT CERTIFICATES
9. DRAINS ARE TO BE CONSTRUCTED USING A FLEXIBLY JOINTED VITRUL CLAY PIPES WITH 150mm "SUPER STRENGTH" SPECIFICATION (E.G. HEPPWORTH SUPER-SLEEVE OR SIMILAR) OR UPVC BUILDING DRAINAGE SYSTEM PIPEWORK TO BS 4660 AND BS 2494, BEDDED AND BACKFILLED IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS. ALL DRAINS TO BE OPEN TRENCHES ACQUAINTED TO DWELLINGS OR OTHER STRUCTURES TO BE IN ACCORDANCE WITH BS 8301-Fig.9.
10. WHERE CLAY OR CONCRETE RIGID PIPES ARE LAID UNDER DRIVEWAYS THE MIN COVER WITHOUT CONCRETE PROTECTION IS 300mm. WHERE PLASTIC PIPES ARE USED, PIPES (NOMINAL RING STIFFNESS N4) IN CLASS S BEDDING ARE USED THE MIN DEPTH OF COVER BELOW DRIVEWAYS CAN BE REDUCED TO 900mm WITHOUT THE NEED FOR CONCRETE PROTECTION.
11. ALL PIPES TO BE 100mm DIAMETER UNLESS STATED OTHERWISE. ALL CONNECTIONS TO BE MADE USING CHAMBERS LESS THAN 1.0m DEEP ARE TO BE CLAYWARE OR PRE-FORMED POLYPROPYLENE AS APPROPRIATE TO THE NUMBER OF CONNECTIONS. POLYPROPYLENE CHAMBERS CAN BE USED UP TO 3.0m DEEP BUT REQUIRE MAX 350mm DIA REDUCER COVER TO PREVENT MAN ENTRY. WHOLE CHAMBERS ARE TO BE PRECAST CONCRETE CONCRETE CONSTRUCTION WITH 150mm INSITU CONCRETE SURROUND. INSPECTION CHAMBER SIZES ARE TO BE IN ACCORDANCE WITH TABLE 8 OF BS 8301.
12. COVER LIDS INDICATED ON THIS DRAWING ARE NOMINAL AND MAY BE ADJUSTED TO SUIT FINISHED FLOOR LEVELS AS NECESSARY.
13. RAINWATER DOWNPIPES TO BE CONNECTED DIRECT TO DRAIN USING AN APPROPRIATE ADAPTOR AND REMOVABLE SECTION OF PIPE TO PERMIT ACCESS TO THE DRAIN.
14. WHERE DRAINS PASS THROUGH FOUNDATIONS OR OTHER RIGID STRUCTURES, A LINTIL OR SLEEVE IS TO BE USED AND PROVISION FOR FLEXIBILITY IS TO BE MADE WITH "ROCKER PIPES"
15. ANY EXISTING LAND DRAINS SEVERED BY SITE OPERATIONS SHOULD BE DIVERTED AROUND ANY PROPERTIES AND RECONNECTED TO THE EXISTING LAND DRAINAGE SYSTEM VIA A SILT TRAP.
16. CONNECTIONS OF SWP'S, STUB-STACKS, W.C. OUTLETS ETC AND RAINWATER DOWNPIPES ARE TO BE ACCURATELY LOCATED FROM THE ARCHITECT'S WORKING DRAWINGS.
17. GULLIES SITUATED IN AREAS ACCESSIBLE TO WHEELED VEHICLES TO BE OF A SUITABLE CONSTRUCTION (E.G. HIGHWAY CODE D651) WITH A MINIMUM OF 150mm FREE BOARD AND SURROUND, FITTED WITH DRAINAGE CASTINGS CODE TB651 (GRATING AND FRAME), UNLESS INDICATED AS HIGHWAY GULLIES.
18. DRAINS WITHIN AREAS OF "MADE GROUND" TO BE CONSTRUCTED BY FIRST MAKING UP THE AREA TO APPROXIMATE FINISHED LEVEL, THEN EXCAVATING TO THE REQUIRED DEPTH. IN UNDISTURBED GROUND, THE DRAIN TRENCH IS THEN TO BE BACKFILLED TO FORMATION LEVEL USING SUITABLE GRANULAR FILL MATERIAL WELL COMPACTED IN LAYERS NOT EXCEEDING 225mm.
19. EXISTING DRAINAGE CONNECTIONS TO ADAPTABLE SEWERS TO BE VIA 45° JUNCTIONS AND NOT SADDLES.

Status 	Aire House 12 Victoria Avenue Harrogate HG1 1ED t: 01423 522 293 w: www.topping-engineers.com e: info@topping-engineers.com
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Drawing title	Private Drainage Details
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Drawn TM	Chkd	Date Jan 2020	Scale As Shown @ A1
Contract No. 19529		Drg No. DR-C-0101	Revision P2

SIZE OF BEDDING MATERIAL		
ALL GRAMMEL MATERIAL TO BE SIZED OR GRADED IN ACCORDANCE WITH BS 882 BS147 BS237		
PIPE DIAMETER	NOMINAL SINGLE SIZED	GRADED
UP TO 100mm	10mm	
OVER 100mm TO 150mm	10mm or 14mm	5mm to 14mm
OVER 150mm TO 300mm	10mm, 14mm or 20mm	5mm to 14mm or 5mm to 20mm
OVER 300mm TO 550mm	14mm or 20mm	5mm to 14mm or 5mm to 20mm
OVER 550mm	14mm, 20mm or 40mm	5mm to 14mm or 5mm to 20mm or 5mm to 40mm

LIMITS OF COVER IN ANY WIDTH OF TRENCH			
NOMINAL SIZE	LAID IN FIELDS	LAID IN LIGHT ROADS	LAID IN MAIN ROADS
CLASS 120 CLAYWARE PIPES (CLASS B BEDDING)			
100-150mm	0.6m - 0.5m	1.2m - 0.6m	1.2m - 0.6m
225mm	0.6m - 0.5m	1.2m - 0.5m	1.2m - 0.5m
450mm	0.6m - 0.5m	1.2m - 0.5m	1.2m - 0.4m
600mm	0.6m - 0.5m	1.2m - 0.5m	1.2m - 0.4m
CLASS M CONCRETE PIPES (CLASS B BEDDING)			
300mm	0.6m - 0.5m	1.2m - 0.6m	1.2m - 0.5m
450mm	0.6m - 0.5m	1.2m - 0.5m	1.2m - 0.5m
600mm	0.6m - 0.5m	1.2m - 0.5m	1.2m - 0.5m
TEMPORARY PIPES (CLASS B BEDDING)			
100 - 300mm	0.6m - 0.7m	0.9m - 0.7m	0.9m - 0.7m

WHERE COVER IS LESS THAN THE ALLOWABLE DEPTH PIPES TO HAVE A CLASS Z CONCRETE SURROUND OR CONCRETE COVER SLAB PROTECTION