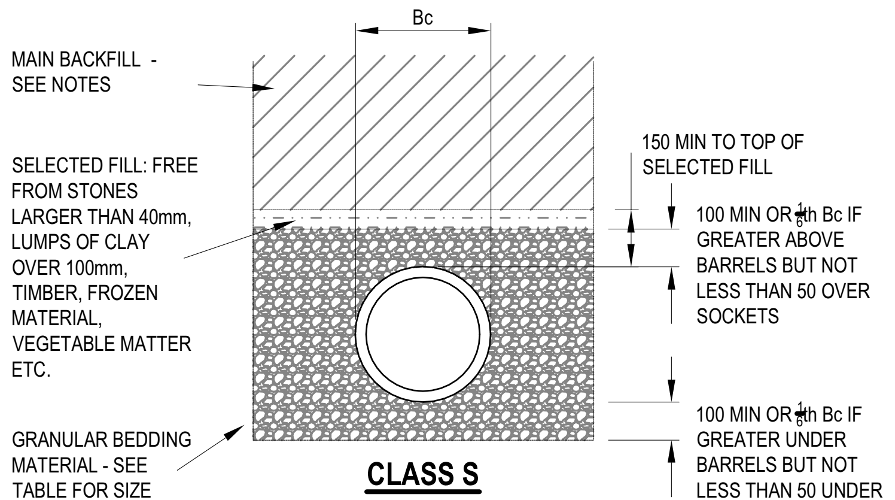
MAIN BACKFILL TO BE...........

HARDSTANDING AREAS: DETR TYPE 1 GRANULAR MATERIAL

SOFT LANDSCAPE AREAS: SELECTED BACKFILL MATERIAL UP TO UNDERSIDE OF TOP-SOIL

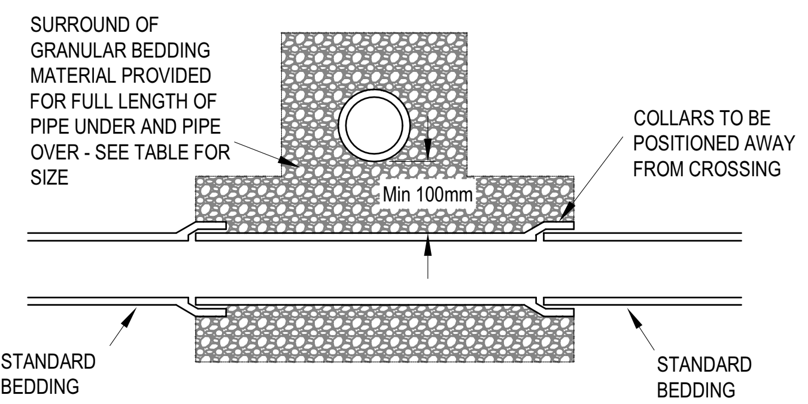
PIPE SIZE (mm)	GRANULAR MATERIAL IN ACCORDANCE WITH BS EN 1610 ANNEX B TABLE B.15 - SINGLE SIZED OR GRADED 5mm UP TO MAXIMUM SIZE OF DIAMETER:
100	10
150	14
>150<600	20
> 600	40

SIZES FOR GRANULAR PIPE BEDDING MATERIAL


Bc
MAIN BACKFILL - SEE NOTES
SELECTED FILL: FREE FROM STONES LARGER THAN 40mm, LUMPS OF CLAY OVER 100mm, TIMBER, FROZEN MATERIAL, VEGETABLE MATTER ETC.
GRANULAR BEDDING MATERIAL - SEE TABLE FOR SIZE
150 MIN TO TOP OF SELECTED FILL
100 MIN OR 1/6th Bc IF GREATER ABOVE BARRELS BUT NOT LESS THAN 50 OVER SOCKETS
100 MIN OR 1/6th Bc IF GREATER UNDER BARRELS BUT NOT LESS THAN 50 UNDER SOCKETS

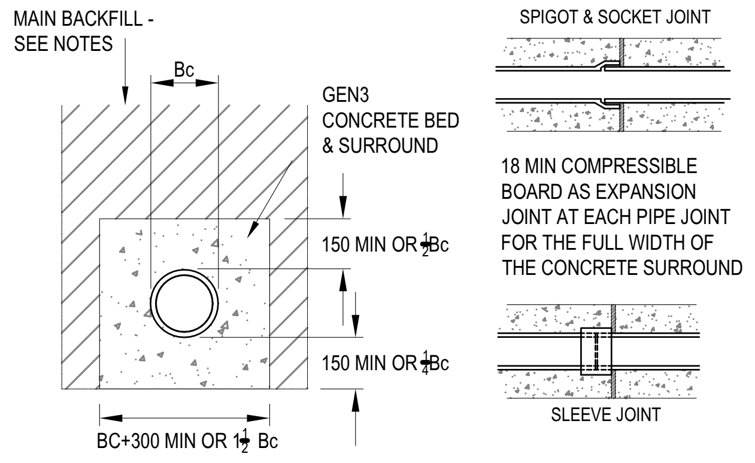
CLASS S

(BEDDING FACTOR 2.2)
GENERALLY SUITABLE FOR ALL SOIL CONDITIONS


SURROUND OF GRANULAR BEDDING MATERIAL PROVIDED FOR FULL LENGTH OF PIPE UNDER AND PIPE OVER - SEE TABLE FOR SIZE
Min 100mm
COLLARS TO BE POSITIONED AWAY FROM CROSSING
STANDARD BEDDING DETAIL
STANDARD BEDDING DETAIL

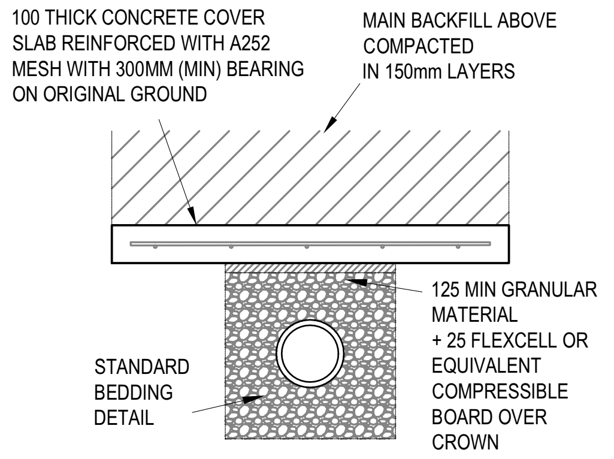
PIPE CROSSINGS

(SCALE 1:20)


MAIN BACKFILL - SEE NOTES
Bc
GEN3 CONCRETE BED & SURROUND
150 MIN OR 1/2Bc
150 MIN OR 1/4Bc
BC+300 MIN OR 1 1/2 Bc
SPIGOT & SOCKET JOINT
18 MIN COMPRESSIBLE BOARD AS EXPANSION JOINT AT EACH PIPE JOINT FOR THE FULL WIDTH OF THE CONCRETE SURROUND
SLEEVE JOINT

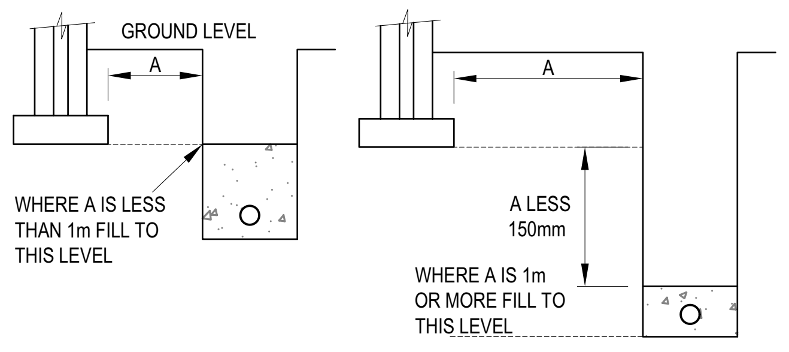
CLASS Z
CONCRETE BEDDING & SURROUND

(BEDDING FACTOR 4.5)
GENERALLY SUITABLE FOR ALL SOIL CONDITIONS


100 THICK CONCRETE COVER SLAB REINFORCED WITH A252 MESH WITH 300MM (MIN) BEARING ON ORIGINAL GROUND
MAIN BACKFILL ABOVE COMPACTED IN 150mm LAYERS
125 MIN GRANULAR MATERIAL + 25 FLEXCELL OR EQUIVALENT COMPRESSIBLE BOARD OVER CROWN
STANDARD BEDDING DETAIL

CONCRETE SLAB PROTECTION

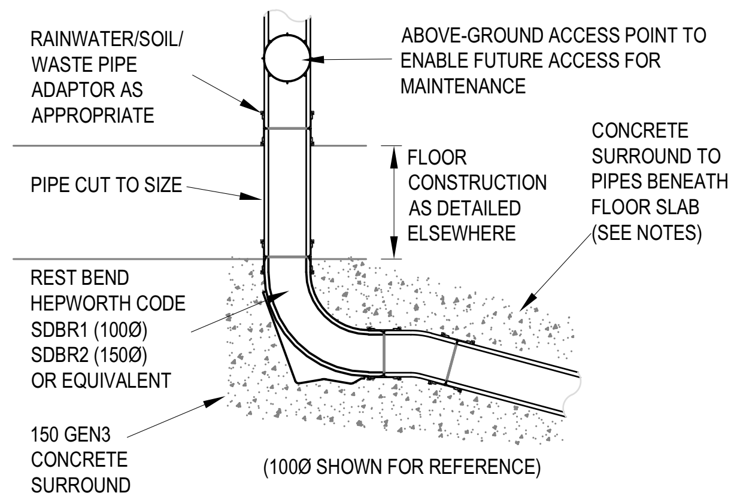
GENERALLY SUITABLE FOR ALL SOIL CONDITIONS


GROUND LEVEL
A
A
WHERE A IS LESS THAN 1m FILL TO THIS LEVEL
A LESS 150mm
WHERE A IS 1m OR MORE FILL TO THIS LEVEL

MINIMUM 150mm GEN3 CONCRETE SURROUND/TRENCH FILL WITH 13 th'k COMPRESSIBLE BOARD MOVEMENT JOINTS PROVIDED AT EACH SOCKET/SLEEVE JOINT FACE OR AT NOT MORE THAN 5m INTERVALS

PIPE RUNS NEAR BUILDINGS

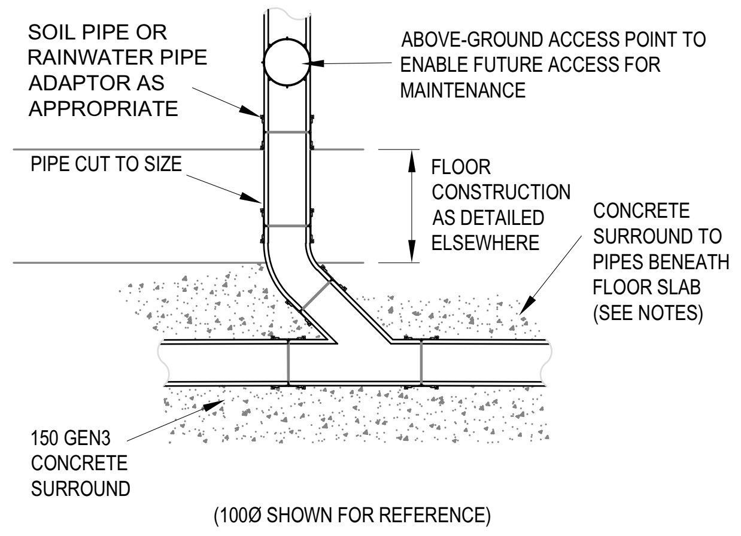
BASED ON BUILDING REGULATIONS H1 DIAGRAMS 8 & 12
(NOT TO SCALE)


RAINWATER/SOIL/ WASTE PIPE ADAPTOR AS APPROPRIATE
ABOVE-GROUND ACCESS POINT TO ENABLE FUTURE ACCESS FOR MAINTENANCE
PIPE CUT TO SIZE
FLOOR CONSTRUCTION AS DETAILED ELSEWHERE
CONCRETE SURROUND TO PIPES BENEATH FLOOR SLAB (SEE NOTES)
REST BEND HEPWORTH CODE SDBR1 (100Ø) SDBR2 (150Ø) OR EQUIVALENT
150 GEN3 CONCRETE SURROUND
(100Ø SHOWN FOR REFERENCE)

INTERNAL SOIL PIPE CONNECTION

(PIPE RUN BENEATH GROUND FLOOR SLAB)
(SCALE 1:20)

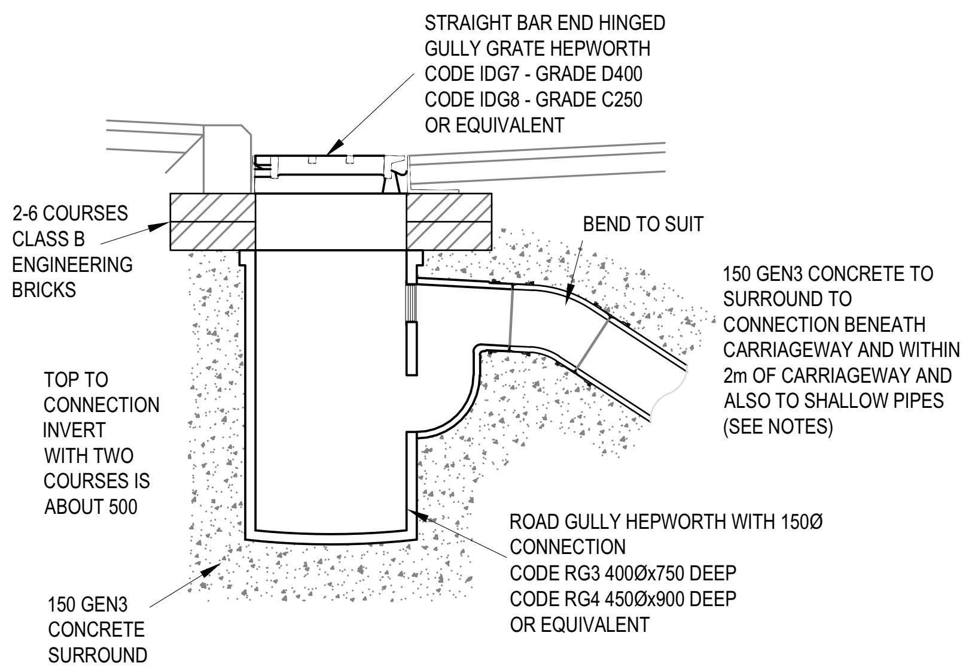
INTERNAL RWP CONNECTION - SIMILAR


SOIL PIPE OR RAINWATER PIPE ADAPTOR AS APPROPRIATE
ABOVE-GROUND ACCESS POINT TO ENABLE FUTURE ACCESS FOR MAINTENANCE
PIPE CUT TO SIZE
FLOOR CONSTRUCTION AS DETAILED ELSEWHERE
CONCRETE SURROUND TO PIPES BENEATH FLOOR SLAB (SEE NOTES)
150 GEN3 CONCRETE SURROUND
(100Ø SHOWN FOR REFERENCE)

INTERNAL IN-LINE SOIL PIPE CONNECTION

(PIPE RUN BENEATH GROUND FLOOR)
(SCALE 1:20)

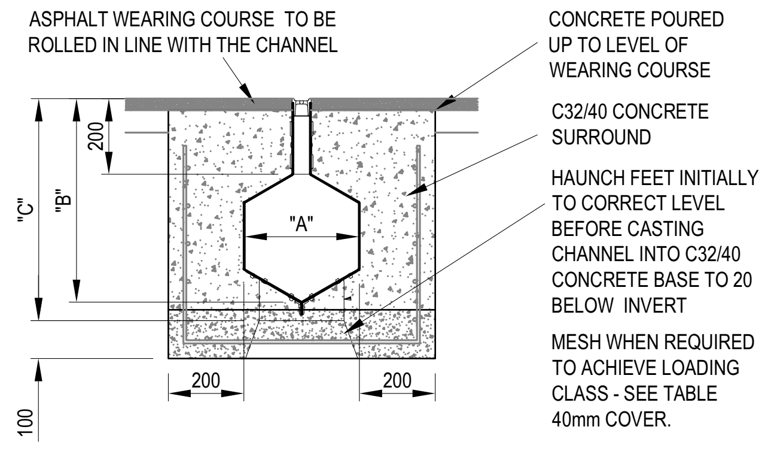
EXTERNAL PIPE CONNECTIONS SIMILAR


STRAIGHT BAR END HINGED GULLY GRATE HEPWORTH CODE IDG7 - GRADE D400 CODE IDG8 - GRADE C250 OR EQUIVALENT
2-6 COURSES CLASS B ENGINEERING BRICKS
BEND TO SUIT
150 GEN3 CONCRETE TO SURROUND TO CONNECTION BENEATH CARRIAGEWAY AND WITHIN 2m OF CARRIAGEWAY AND ALSO TO SHALLOW PIPES (SEE NOTES)
TOP TO CONNECTION INVERT WITH TWO COURSES IS ABOUT 500
ROAD GULLY HEPWORTH WITH 150Ø CONNECTION CODE RG3 400Øx750 DEEP CODE RG4 450Øx900 DEEP OR EQUIVALENT
150 GEN3 CONCRETE SURROUND

ROAD GULLY

ADOPTABLE STANDARD
(SCALE 1:20)

450Ø IS NORMALLY THE MINIMUM BUT 375Ø MAY BE USED WITH LA ENGINEER'S APPROVAL (LCC STANDARDS)


ASPHALT WEARING COURSE TO BE ROLLED IN LINE WITH THE CHANNEL
CONCRETE POURED UP TO LEVEL OF WEARING COURSE
C32/40 CONCRETE SURROUND
HAUNCH FEET INITIALLY TO CORRECT LEVEL BEFORE CASTING CHANNEL INTO C32/40 CONCRETE BASE TO 20 BELOW INVERT
MESH WHEN REQUIRED TO ACHIEVE LOADING CLASS - SEE TABLE 40mm COVER.
"C"
"B"
"A"
200
200
200
100

LINEAR DRAINAGE CHANNEL

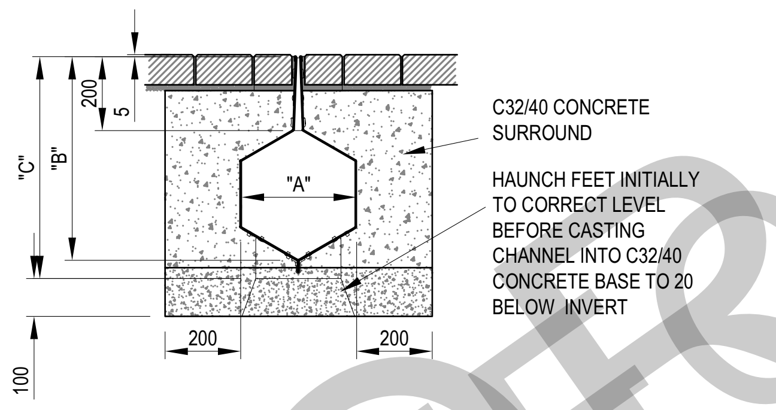
GATIC CASTSLOT TREADSAFE INSTALLED WITH ASPHALT SURROUND
(SCALE 1:20)

REFERENCE	DIMENSION			LOADING CLASS					
	"A"	"B"	"C"	A15	B125	C250	D400	E600	F900
CASTSLOT 100	100	308	357	/	/	/	/	/	B785
CASTSLOT 150	150	366	415	/	/	/	/	/	B785
CASTSLOT 225	225	452	501	/	/	/	/	/	B785
CASTSLOT 300	300	538	587	/	/	/	/	/	B785
CASTSLOT 350	350	596	645	/	/	/	/	/	B785
CASTSLOT 400	400	652	712	/	/	/	/	B785	B1131
CASTSLOT 500	500	768	828	/	/	/	/	B785	B1131
CASTSLOT 600	600	1031	1091	/	/	/	B785	B1131	2xB785

SHADING DENOTES CASTSLOT REFERENCES BEING USED ON THIS PROJECT
DIMENSIONS & MESH REQUIRED TO ACHIEVE LOADING CLASS -
40mm COVER
MINIMUM LAP LENGTH OF 50xBAR DIAMETER
2xB785 TO BE NESTED TOGETHER

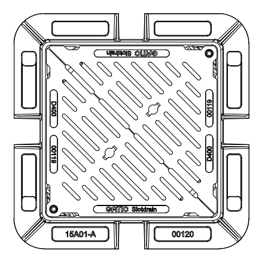
REFERENCE	DIMENSION		
	"A"	"B"	"C"
PAVESLOT 100	100	308	357
PAVESLOT 150	150	366	415
PAVESLOT 225	225	452	501
PAVESLOT 300	300	538	587
PAVESLOT 350	350	596	645
PAVESLOT 400	400	652	712
PAVESLOT 500	500	768	828
PAVESLOT 600	600	1031	1091

SHADING DENOTES CASTSLOT REFERENCES BEING USED ON THIS PROJECT

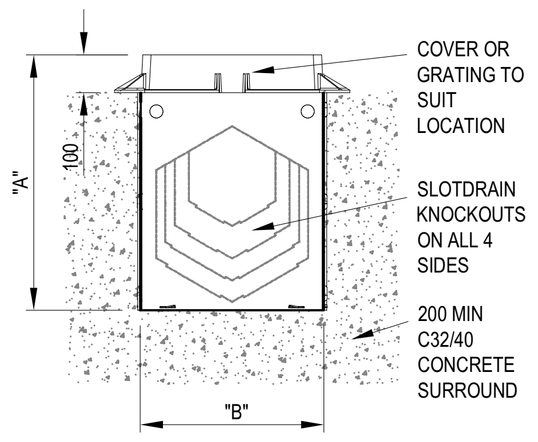

C32/40 CONCRETE SURROUND
HAUNCH FEET INITIALLY TO CORRECT LEVEL BEFORE CASTING CHANNEL INTO C32/40 CONCRETE BASE TO 20 BELOW INVERT
"C"
"B"
"A"
200
5
200
200
100

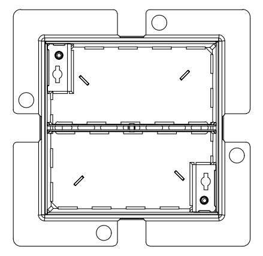
LINEAR DRAINAGE CHANNEL

GATIC PAVESLOT INSTALLED WITH PAVING SURROUND
(SCALE 1:20)



D400 DOUBLE TRIANGULAR GRATING


COVER OR GRATING TO SUIT LOCATION
SLOTDRAIN KNOCKOUTS ON ALL 4 SIDES
200 MIN C32/40 CONCRETE SURROUND
"A"
100
"B"

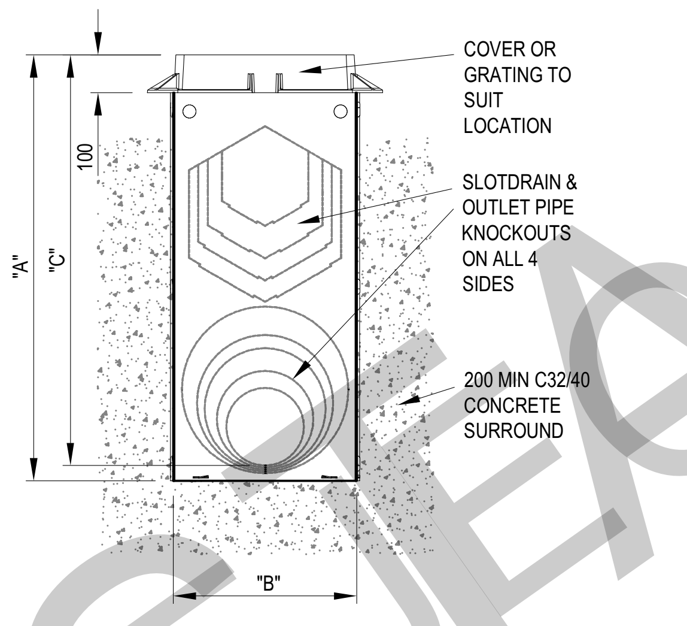


C250 GALVANISED RECESSED COVER

CHANNELS	DIMENSION	
	"A"	"B"
100-225	475	308
225-400	675	485
400-600	1055	686

GATIC ACCESS BOX

DENOTED AB ON PLAN
(SCALE 1:20)

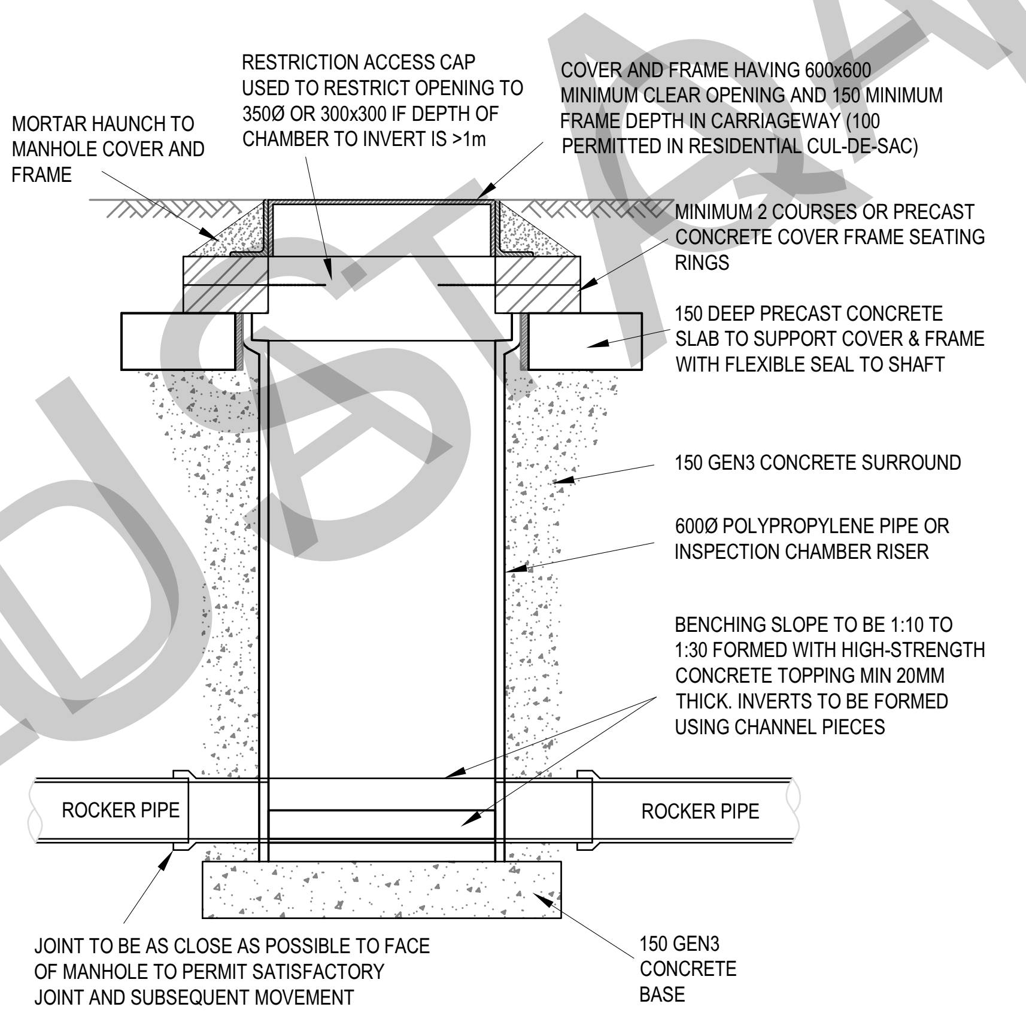

COVER OR GRATING TO SUIT LOCATION
SLOTDRAIN & OUTLET PIPE KNOCKOUTS ON ALL 4 SIDES
200 MIN C32/40 CONCRETE SURROUND
"A"
"C"
100
"B"

CHANNELS	DIMENSION			PIPE OUTLET SIZES
	"A"	"B"	"C"	
100-225	740	308	700*	115/165/205/255
225-400	1125	485	1085*	205/255/320/360/440
400-600	1495	686	1470*	320/360/440

* DEPTH "C" TO SMALLEST KNOCKOUT - INVERTS INCREASE BY 5mm FOR EACH PIPE SIZE

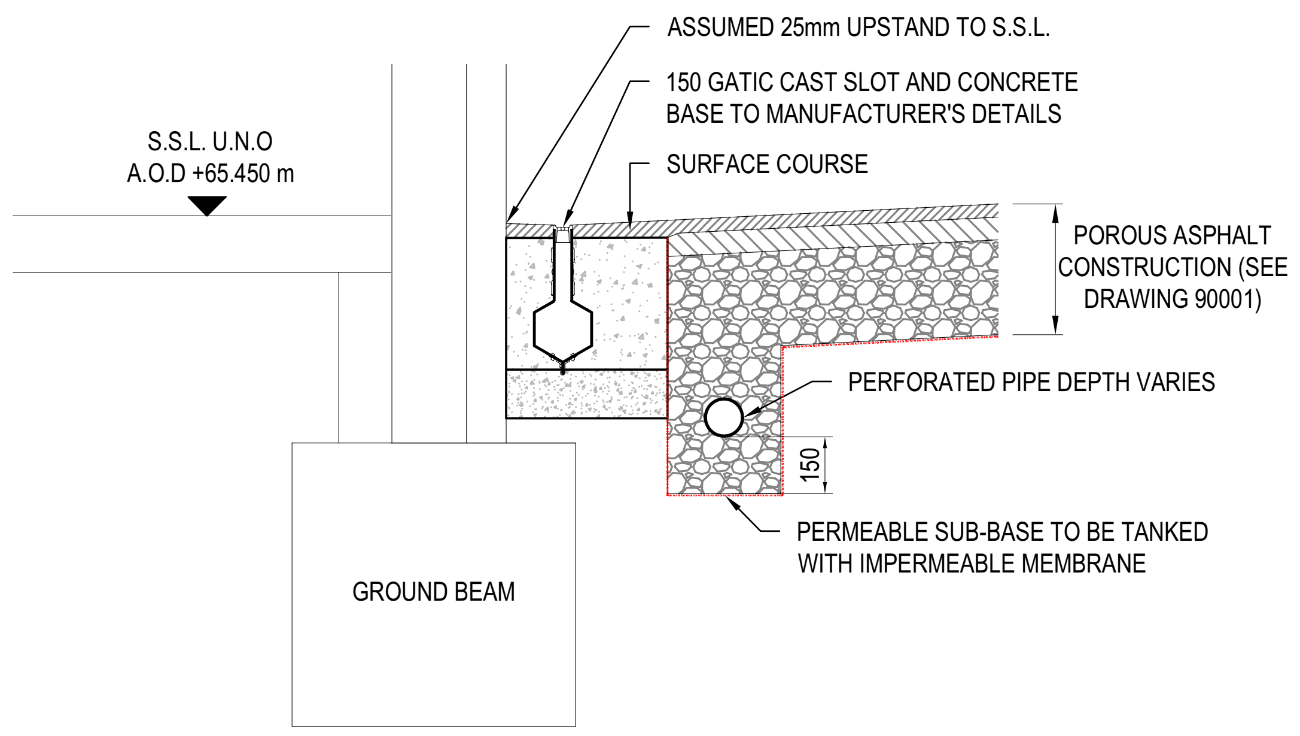
GATIC OUTLET BOX

DENOTED OB ON PLAN
(SCALE 1:20)


RESTRICTION ACCESS CAP USED TO RESTRICT OPENING TO 350Ø OR 300x300 IF DEPTH OF CHAMBER TO INVERT IS >1m
MORTAR HAUNCH TO MANHOLE COVER AND FRAME
COVER AND FRAME HAVING 600x600 MINIMUM CLEAR OPENING AND 150 MINIMUM FRAME DEPTH IN CARRIAGEWAY (100 PERMITTED IN RESIDENTIAL CUL-DE-SAC)
MINIMUM 2 COURSES OR PRECAST CONCRETE COVER FRAME SEATING RINGS
150 DEEP PRECAST CONCRETE SLAB TO SUPPORT COVER & FRAME WITH FLEXIBLE SEAL TO SHAFT
150 GEN3 CONCRETE SURROUND
600Ø POLYPROPYLENE PIPE OR INSPECTION CHAMBER RISER
BENCHING SLOPE TO BE 1:10 TO 1:30 FORMED WITH HIGH-STRENGTH CONCRETE TOPPING MIN 20MM THICK. INVERTS TO BE FORMED USING CHANNEL PIECES
ROCKER PIPE
ROCKER PIPE
JOINT TO BE AS CLOSE AS POSSIBLE TO FACE OF MANHOLE TO PERMIT SATISFACTORY JOINT AND SUBSEQUENT MOVEMENT
150 GEN3 CONCRETE BASE

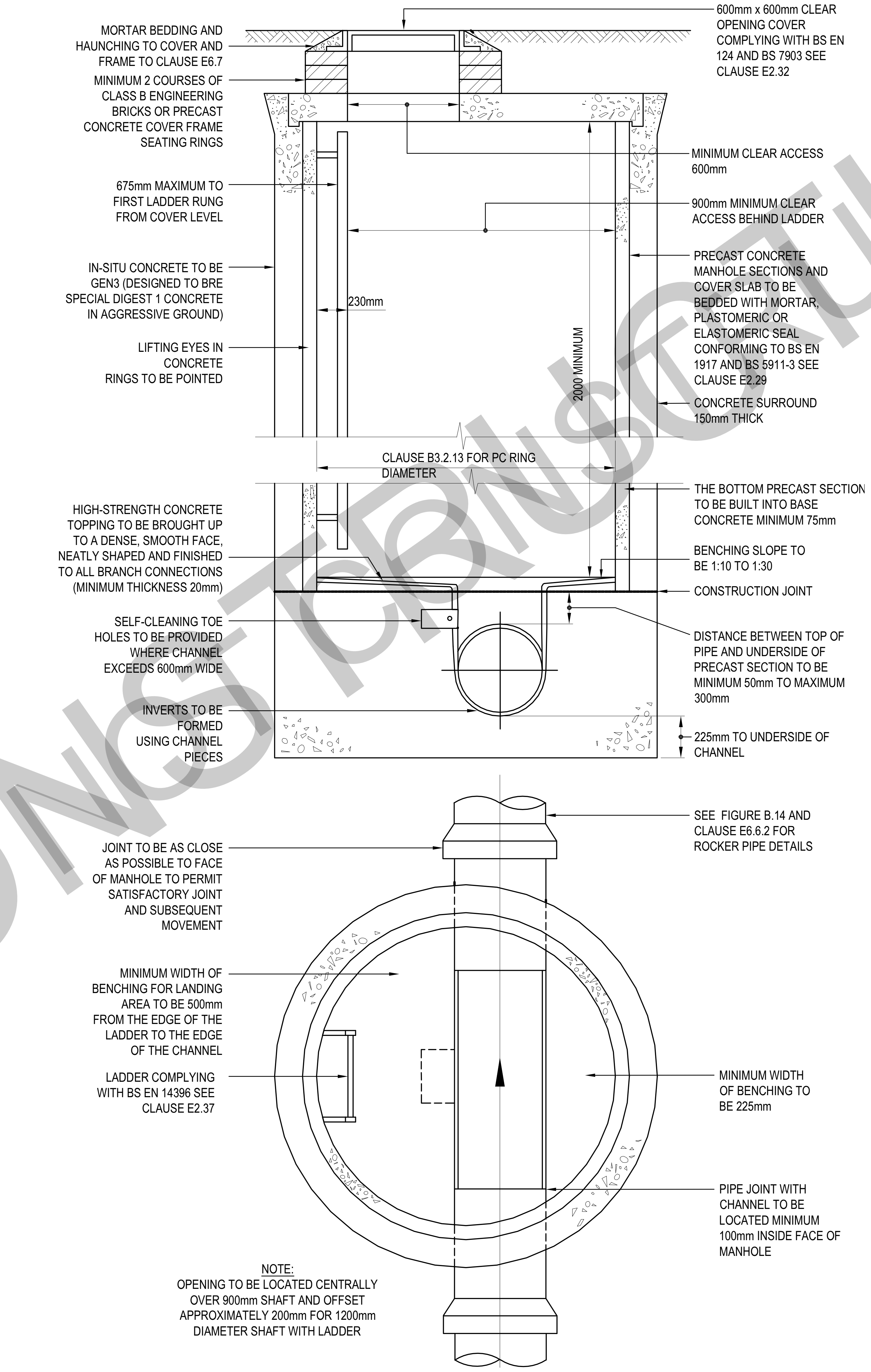
600Ø POLYPROPYLENE INSPECTION CHAMBER

(SCALE 1:20)


S.S.L. U.N.O
A.O.D +65.450 m
ASSUMED 25mm UPSTAND TO S.S.L.
150 GATIC CAST SLOT AND CONCRETE BASE TO MANUFACTURER'S DETAILS
SURFACE COURSE
POROUS ASPHALT CONSTRUCTION (SEE DRAWING 90001)
PERFORATED PIPE DEPTH VARIES
150
PERMEABLE SUB-BASE TO BE TANKED WITH IMPERMEABLE MEMBRANE
GROUND BEAM

SECTION 1-1 THROUGH POROUS PAVING AREA

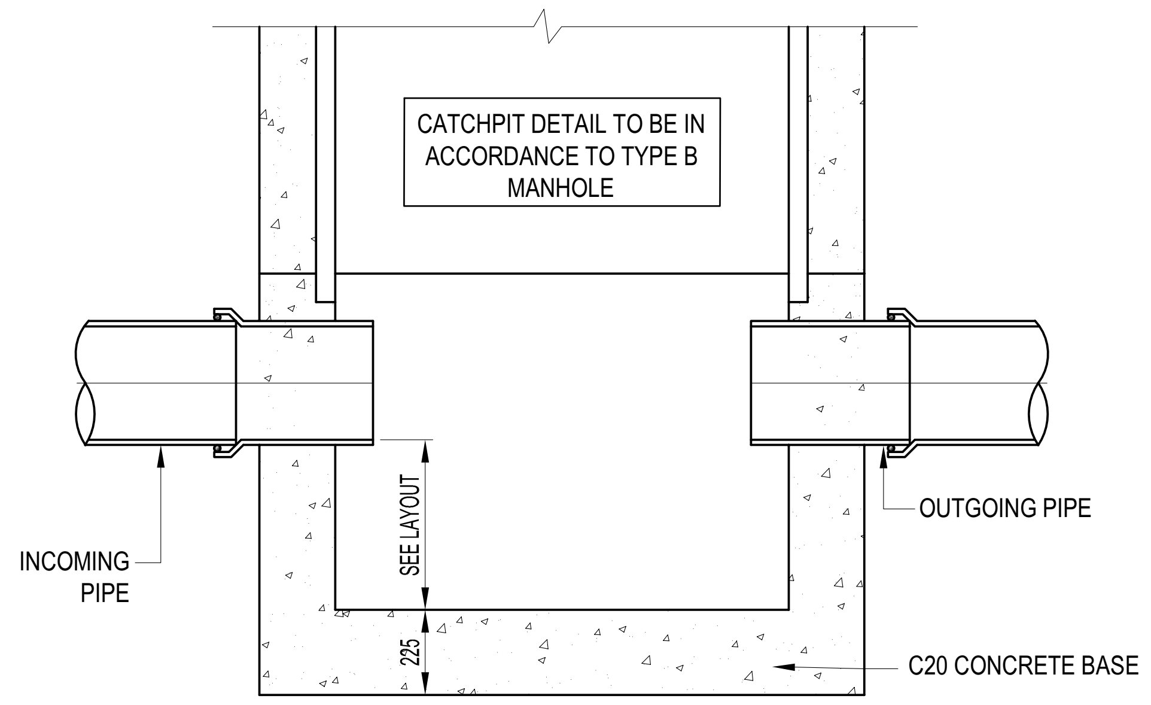
SEE DRAWING 92002 FOR LAYOUT
(SCALE 1:20)


MORTAR BEDDING AND HAUNCHING TO COVER AND FRAME TO CLAUSE E6.7
MINIMUM 2 COURSES OF CLASS B ENGINEERING BRICKS OR PRECAST CONCRETE COVER FRAME SEATING RINGS
675mm MAXIMUM TO FIRST LADDER RUNG FROM COVER LEVEL
IN-SITU CONCRETE TO BE GEN3 (DESIGNED TO BRE SPECIAL DIGEST 1 CONCRETE IN AGGRESSIVE GROUND)
LIFTING EYES IN CONCRETE RINGS TO BE POINTED
230mm
2000 MINIMUM
600mm x 600mm CLEAR OPENING COVER COMPLYING WITH BS EN 124 AND BS 7903 SEE CLAUSE E2.32
MINIMUM CLEAR ACCESS 600mm
900mm MINIMUM CLEAR ACCESS BEHIND LADDER
PRECAST CONCRETE MANHOLE SECTIONS AND COVER SLAB TO BE BEDDED WITH MORTAR, PLASTOMERIC OR ELASTOMERIC SEAL CONFORMING TO BS EN 1917 AND BS 5911-3 SEE CLAUSE E2.29
CONCRETE SURROUND 150mm THICK
CLAUSE B3.2.13 FOR PC RING DIAMETER
HIGH-STRENGTH CONCRETE TOPPING TO BE BROUGHT UP TO A DENSE, SMOOTH FACE, NEATLY SHAPED AND FINISHED TO ALL BRANCH CONNECTIONS (MINIMUM THICKNESS 20mm)
SELF-CLEANING TOE HOLES TO BE PROVIDED WHERE CHANNEL EXCEEDS 600mm WIDE
INVERTS TO BE FORMED USING CHANNEL PIECES
THE BOTTOM PRECAST SECTION TO BE BUILT INTO BASE CONCRETE MINIMUM 75mm
BENCHING SLOPE TO BE 1:10 TO 1:30
CONSTRUCTION JOINT
DISTANCE BETWEEN TOP OF PIPE AND UNDERSIDE OF PRECAST SECTION TO BE MINIMUM 50mm TO MAXIMUM 300mm
225mm TO UNDERSIDE OF CHANNEL
SEE FIGURE B.14 AND CLAUSE E6.6.2 FOR ROCKER PIPE DETAILS
JOINT TO BE AS CLOSE AS POSSIBLE TO FACE OF MANHOLE TO PERMIT SATISFACTORY JOINT AND SUBSEQUENT MOVEMENT
MINIMUM WIDTH OF BENCHING FOR LANDING AREA TO BE 500mm FROM THE EDGE OF THE LADDER TO THE EDGE OF THE CHANNEL
LADDER COMPLYING WITH BS EN 14396 SEE CLAUSE E2.37
MINIMUM WIDTH OF BENCHING TO BE 225mm
PIPE JOINT WITH CHANNEL TO BE LOCATED MINIMUM 100mm INSIDE FACE OF MANHOLE

NOTE:
OPENING TO BE LOCATED CENTRALLY OVER 900mm SHAFT AND OFFSET APPROXIMATELY 200mm FOR 1200mm DIAMETER SHAFT WITH LADDER

FIGURE B.10
TYPICAL MANHOLE DETAIL - TYPE 1B

Depth from cover level to soffit of pipe 3 m to 6 m
(SCALE 1:20)



SILT TRAP MANHOLE DETAIL

(SCALE 1:20)

GENERAL NOTES:

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS AND ENGINEERS DRAWINGS AND SPECIFICATIONS.
2. DO NOT SCALE THIS DRAWING. ANY AMBIGUITIES, OMISSIONS AND ERRORS ON DRAWINGS SHALL BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY. ALL DIMENSIONS MUST BE CHECKED / VERIFIED ON SITE.
3. ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.

REFERENCE DRAWINGS:

DRAINAGE LAYOUT
CURTINS 'PROPOSED DRAINAGE LAYOUT' DRG No. GCH-CUR-XX-XX-DR-C-92002

Rev:	Description:	Date:	By:	Chkd:
C03	ADDED SECTION FOR PERMEABLE PAVING.	16/09/2021	AMB	PT
C02	ADDED SILT TRAP DETAIL.	23/08/2021	AMB	PT
C01	CONSTRUCTION ISSUE.	15/07/2021	AMB	CS

curtins
Units 24 & 25, Riverside Place, K-Village, Lound Road, Kendal, Cumbria, LA9 7FH
01539 724823
kendal@curtins.com
www.curtins.com

Structures • Civils • Environmental • Infrastructure • Transport Planning • Sustainability • Expert Advisory Services
Birmingham • Bristol • Cardiff • Douglas • Dublin • Edinburgh • Glasgow • Kendal • Leeds • Liverpool • London • Manchester • Nottingham

Status: APPROVED AND ACCEPTED - STAGE 5 | A5

Client: MORGAN SINDALL

Project: MCC GORTON COMMUNITY HUB

Drg Title: DRAINAGE DETAILS SHEET 2

Project No:	Size:	Date:	Drawn By:	Designed By:	Checked By:
062407	A1 Scale: 1:200	AUGUST 2019	SBB	SBB	CS

Project Code:	Originator:	Zone:	Level:	Type:	Discipline:	Category / Number:	Rev:
GCH	- CUR	- XX	- XX	- DR	- C	- 92004	-C03

\\kefs02\Projects\B062407 Gorton Community Hub\Q4-Production\4A-Models-Drawings\C\CAD\