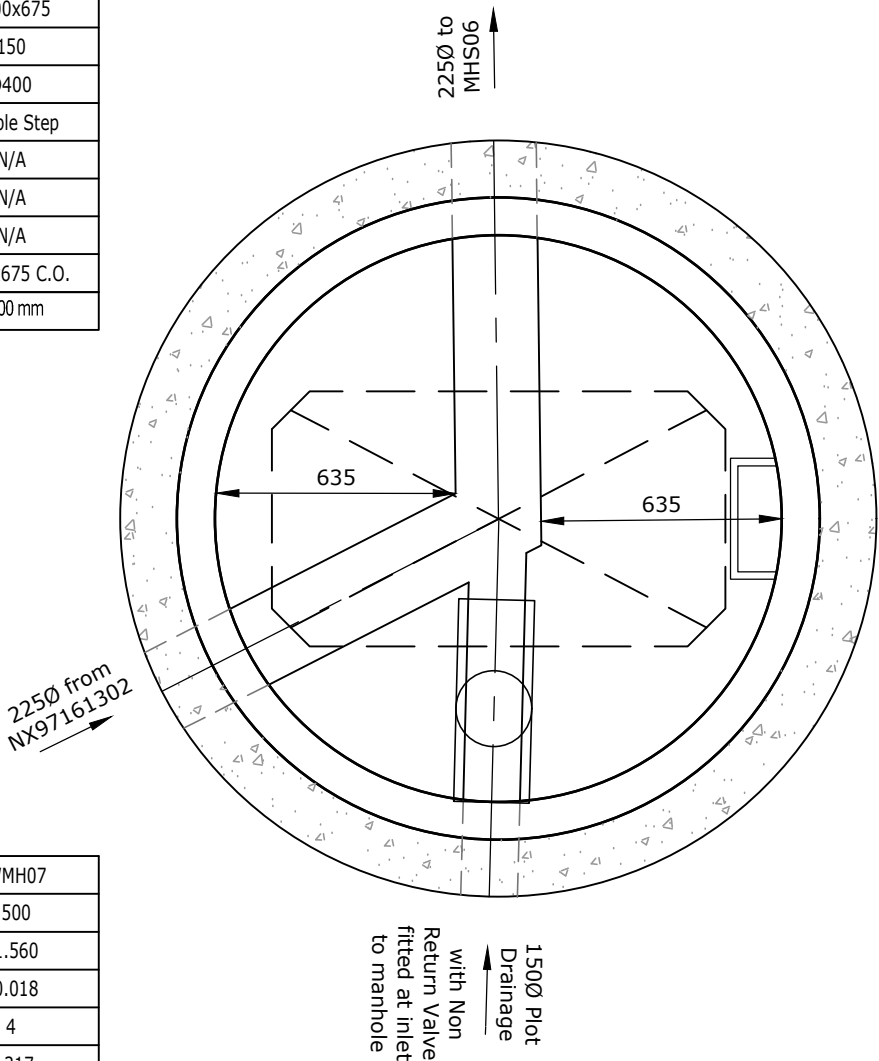
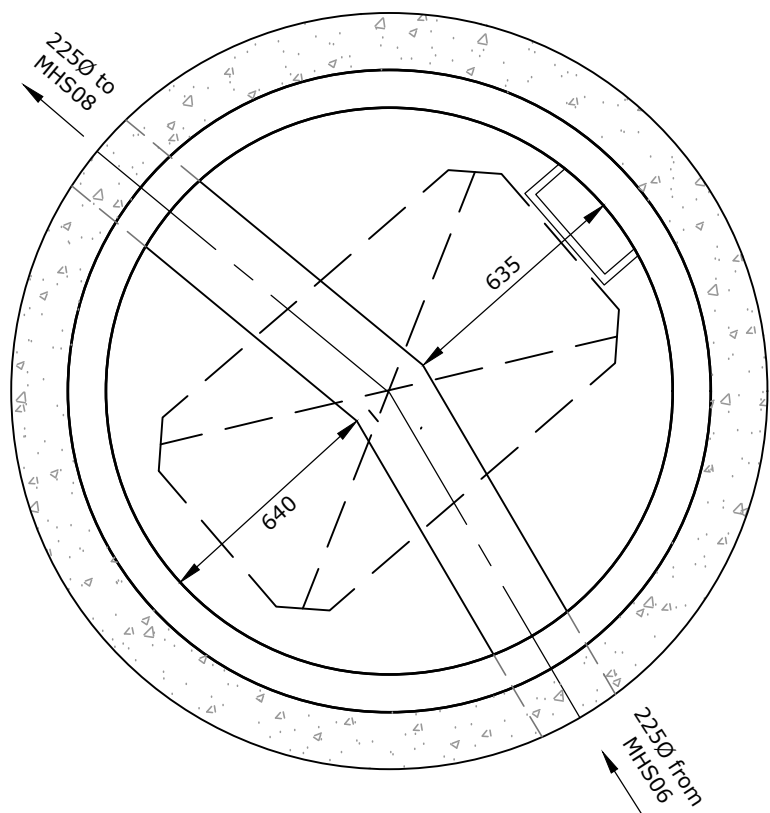


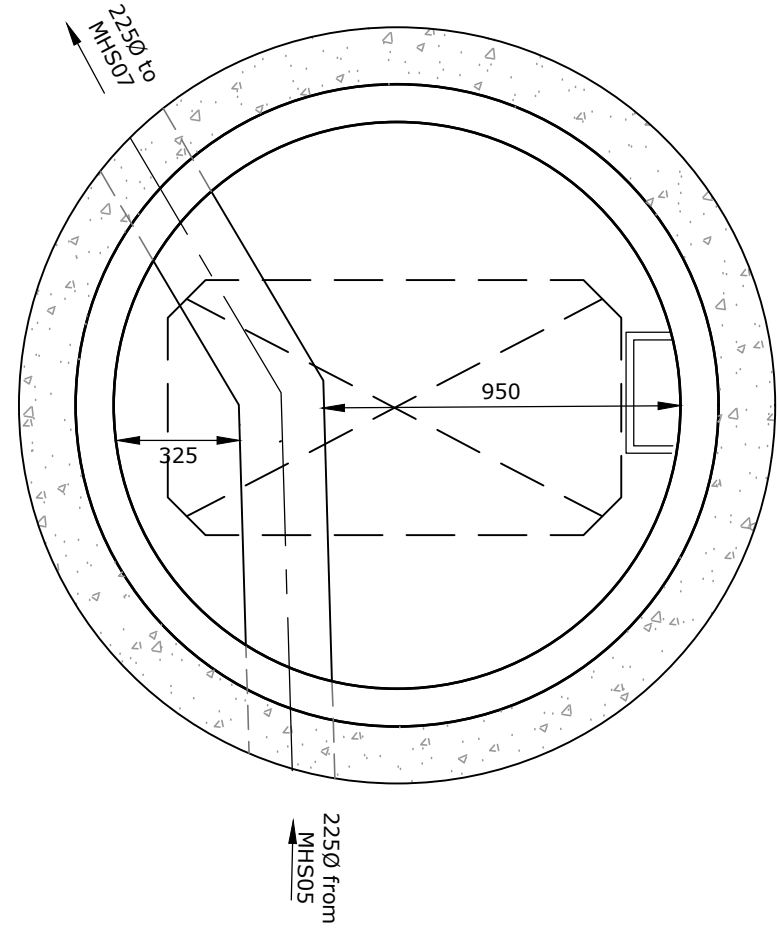
MANHOLE NO.	SWMH05
DIAMETER	1500
COVER LEVEL	91.900
INVERT LEVEL	90.423
MH TYPE	4
DEPTH TO SOFFIT	1.252
COVER SIZE	1200x675
COVER DEPTH	150
COVER SPEC	D400
LADDER OR DOUBLE STEPS?	Double Step
SAFETY CHAIN	N/A
SAFETY RAILS	N/A
INVERT ACCESS STEPS	N/A
HOLE SIZE IN COVER SLAB	1200x675 C.O.
ROCKER PIPES	600 mm



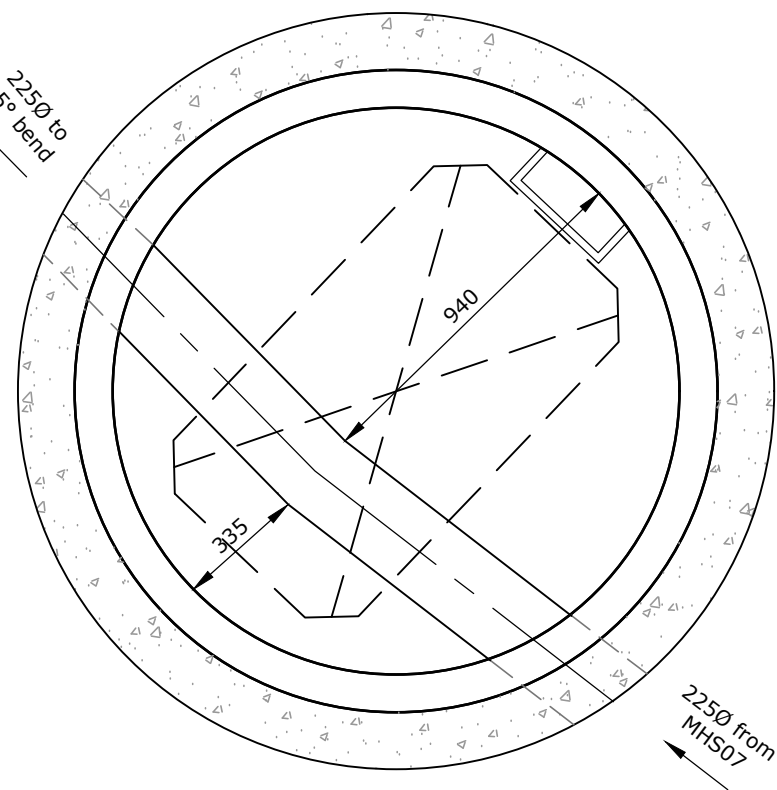
MANHOLE NO.	SWMH07
DIAMETER	1500
COVER LEVEL	91.560
INVERT LEVEL	90.018
MH TYPE	4
DEPTH TO SOFFIT	1.317
COVER SIZE	1200x675
COVER DEPTH	150
COVER SPEC	D400
LADDER OR DOUBLE STEPS?	Double Step
SAFETY CHAIN	N/A
SAFETY RAILS	N/A
INVERT ACCESS STEPS	N/A
HOLE SIZE IN COVER SLAB	1200x675 C.O.
ROCKER PIPES	600 mm



MANHOLE NO.	SWMH06
DIAMETER	1500
COVER LEVEL	91.900
INVERT LEVEL	90.394
MH TYPE	4
DEPTH TO SOFFIT	1.281
COVER SIZE	1200x675
COVER DEPTH	150
COVER SPEC	D400
LADDER OR DOUBLE STEPS?	Double Step
SAFETY CHAIN	N/A
SAFETY RAILS	N/A
INVERT ACCESS STEPS	N/A
HOLE SIZE IN COVER SLAB	1200x675 C.O.
ROCKER PIPES	600 mm



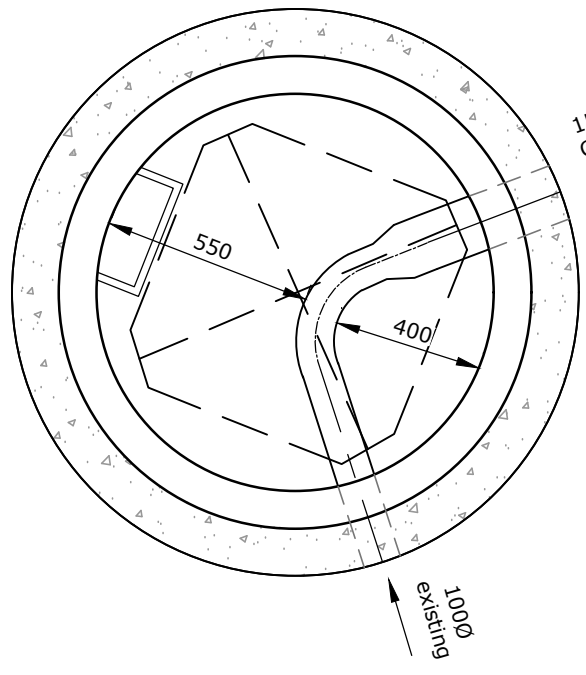
MANHOLE NO.	SWMH08
DIAMETER	1500
COVER LEVEL	91.500
INVERT LEVEL	89.897
MH TYPE	4
DEPTH TO SOFFIT	1.378
COVER SIZE	1200x675
COVER DEPTH	150
COVER SPEC	D400
LADDER OR DOUBLE STEPS?	Double Step
SAFETY CHAIN	N/A
SAFETY RAILS	N/A
INVERT ACCESS STEPS	N/A
HOLE SIZE IN COVER SLAB	1200x675 C.O.
ROCKER PIPES	600 mm



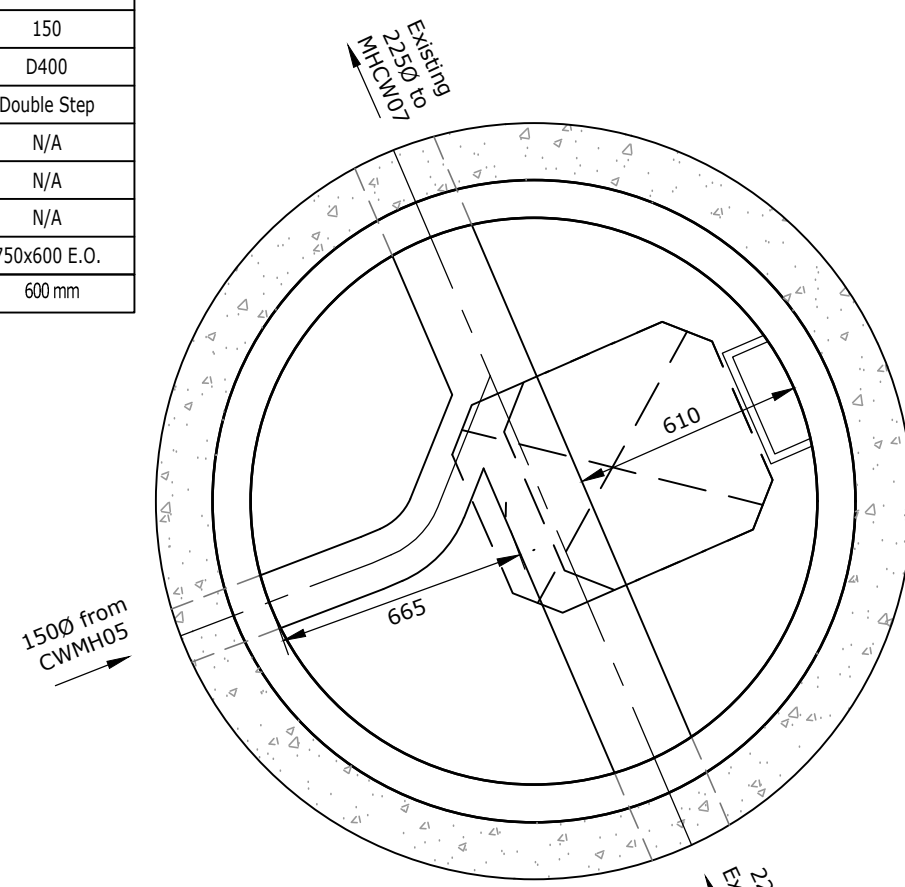
ADOPTED SW MANHOLE CONSTRUCTION DETAILS

SCALE 1:20

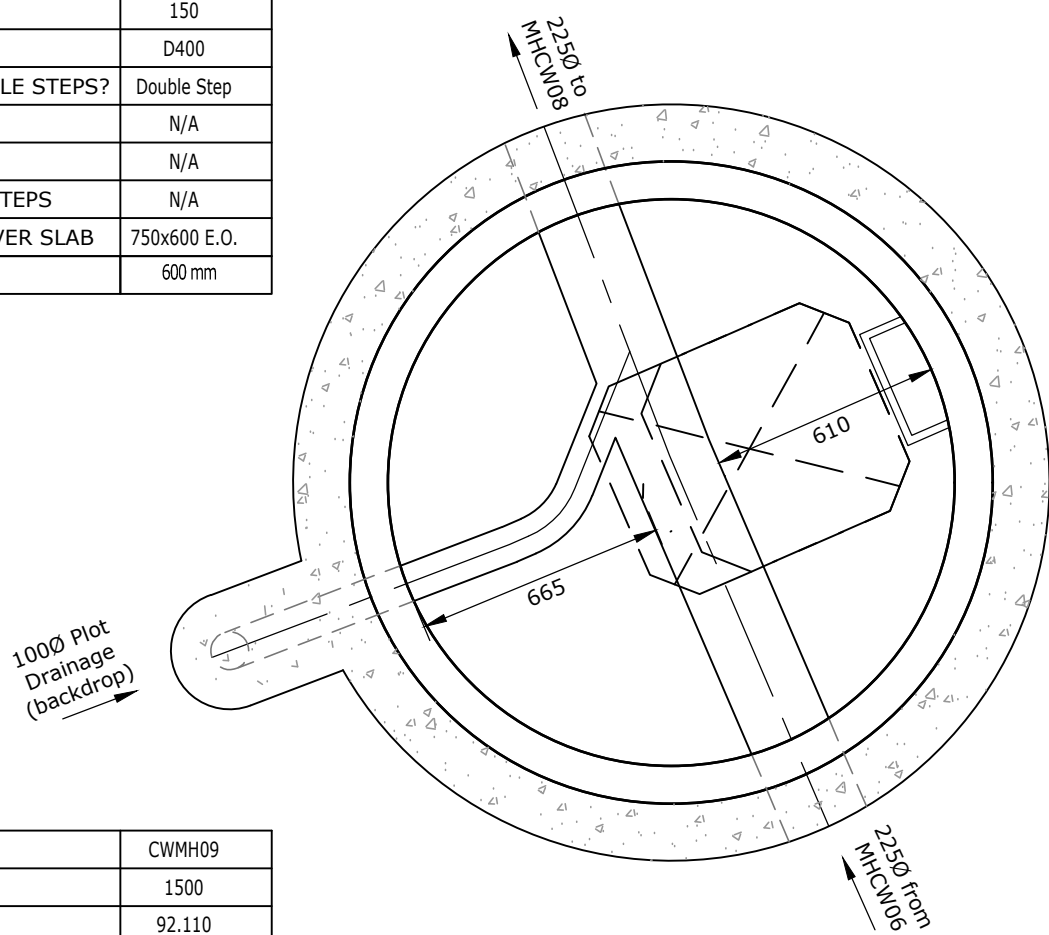
MANHOLE NO.	CWMH05
DIAMETER	1050
COVER LEVEL	93.949
INVERT LEVEL	92.899
MH TYPE	4
DEPTH TO SOFFIT	0.900
COVER SIZE	750x750
COVER DEPTH	150
COVER SPEC	D400
LADDER OR DOUBLE STEPS?	Double Step
SAFETY CHAIN	N/A
SAFETY RAILS	N/A
INVERT ACCESS STEPS	N/A
HOLE SIZE IN COVER SLAB	750x750 C.O.
ROCKER PIPES	600 mm



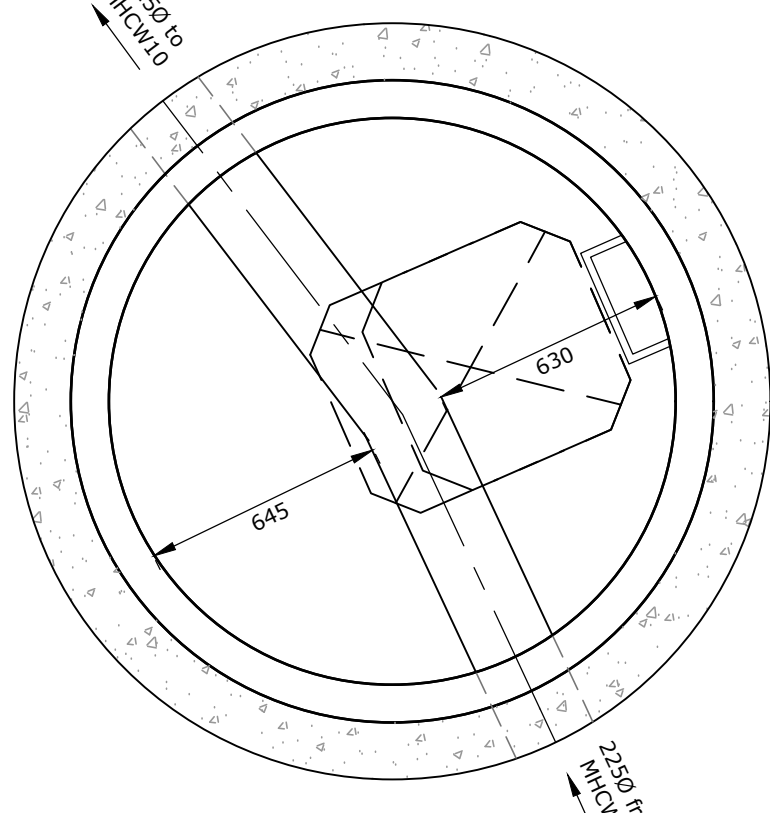
MANHOLE NO.	CWMH06
DIAMETER	1500
COVER LEVEL	93.800
INVERT LEVEL	91.860
MH TYPE	1
DEPTH TO SOFFIT	1.715
COVER SIZE	600x600
COVER DEPTH	150
COVER SPEC	D400
LADDER OR DOUBLE STEPS?	Double Step
SAFETY CHAIN	N/A
SAFETY RAILS	N/A
INVERT ACCESS STEPS	N/A
HOLE SIZE IN COVER SLAB	750x600 E.O.
ROCKER PIPES	600 mm



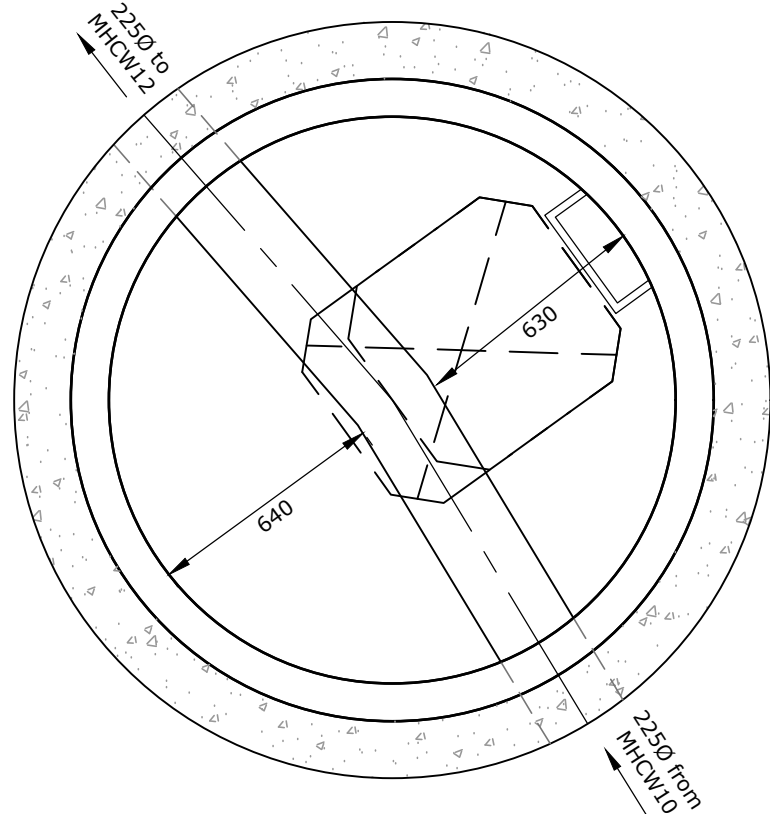
MANHOLE NO.	CWMH07
DIAMETER	1500
COVER LEVEL	94.855
INVERT LEVEL	91.730
MH TYPE	1
DEPTH TO SOFFIT	2.900
COVER SIZE	600x600
COVER DEPTH	150
COVER SPEC	D400
LADDER OR DOUBLE STEPS?	Double Step
SAFETY CHAIN	N/A
SAFETY RAILS	N/A
INVERT ACCESS STEPS	N/A
HOLE SIZE IN COVER SLAB	750x600 E.O.
ROCKER PIPES	600 mm



MANHOLE NO.	CWMH09
DIAMETER	1500
COVER LEVEL	92.110
INVERT LEVEL	90.200
MH TYPE	1
DEPTH TO SOFFIT	1.685
COVER SIZE	600x600
COVER DEPTH	150
COVER SPEC	D400
LADDER OR DOUBLE STEPS?	Double Step
SAFETY CHAIN	N/A
SAFETY RAILS	N/A
INVERT ACCESS STEPS	N/A
HOLE SIZE IN COVER SLAB	750x600 E.O.
ROCKER PIPES	600 mm



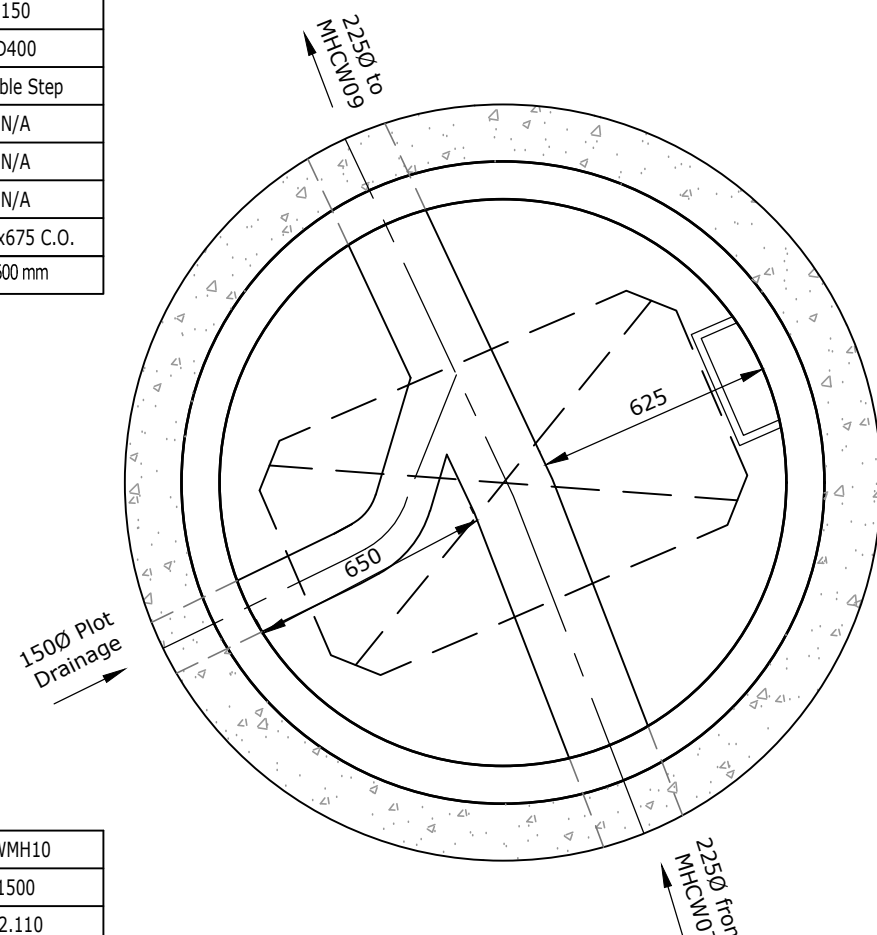
MANHOLE NO.	CWMH11
DIAMETER	1500
COVER LEVEL	92.000
INVERT LEVEL	89.840
MH TYPE	1
DEPTH TO SOFFIT	1.935
COVER SIZE	600x600
COVER DEPTH	150
COVER SPEC	D400
LADDER OR DOUBLE STEPS?	Double Step
SAFETY CHAIN	N/A
SAFETY RAILS	N/A
INVERT ACCESS STEPS	N/A
HOLE SIZE IN COVER SLAB	750x600 E.O.
ROCKER PIPES	600 mm



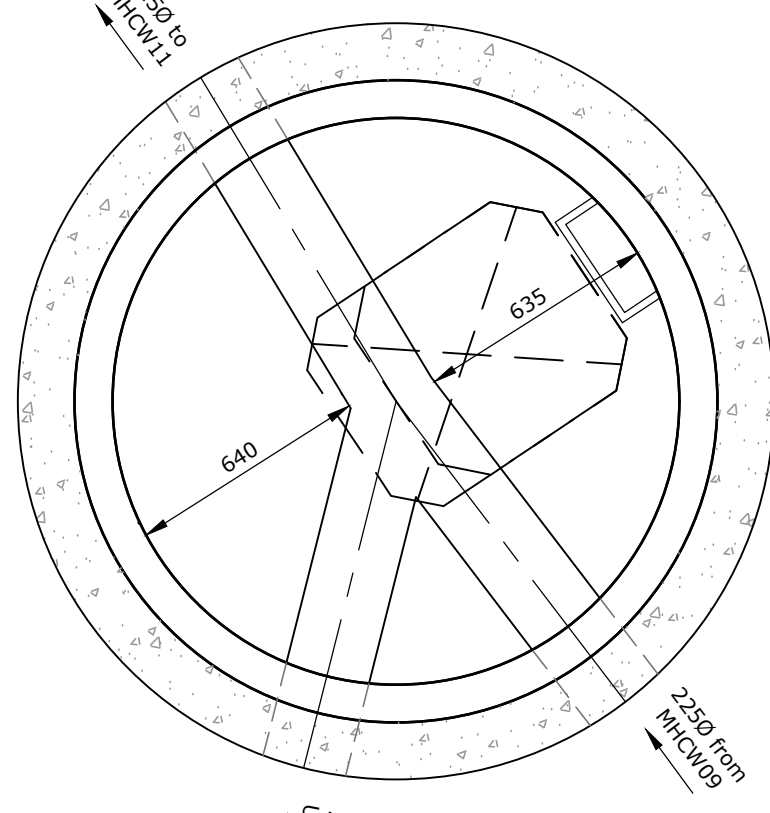
ADOPTED CW MANHOLE CONSTRUCTION DETAILS

SCALE 1:20

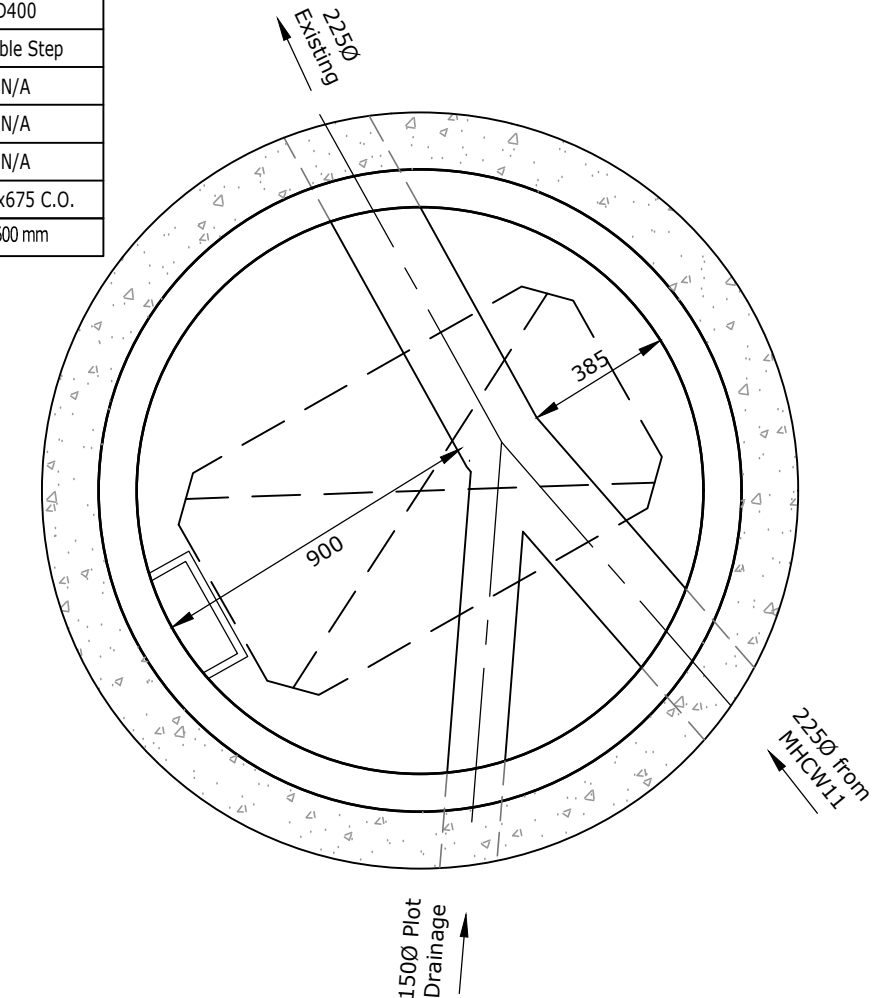
MANHOLE NO.	CWMH08
DIAMETER	1500
COVER LEVEL	92.110
INVERT LEVEL	90.700
MH TYPE	4
DEPTH TO SOFFIT	1.185
COVER SIZE	1200x675
COVER DEPTH	150
COVER SPEC	D400
LADDER OR DOUBLE STEPS?	Double Step
SAFETY CHAIN	N/A
SAFETY RAILS	N/A
INVERT ACCESS STEPS	N/A
HOLE SIZE IN COVER SLAB	1200x675 C.O.
ROCKER PIPES	600 mm



MANHOLE NO.	CWMH10
DIAMETER	1500
COVER LEVEL	92.110
INVERT LEVEL	90.047
MH TYPE	1
DEPTH TO SOFFIT	1.838
COVER SIZE	600x600
COVER DEPTH	150
COVER SPEC	D400
LADDER OR DOUBLE STEPS?	Double Step
SAFETY CHAIN	N/A
SAFETY RAILS	N/A
INVERT ACCESS STEPS	N/A
HOLE SIZE IN COVER SLAB	750x600 E.O.
ROCKER PIPES	600 mm



MANHOLE NO.	CWMH12
DIAMETER	1500
COVER LEVEL	91.000
INVERT LEVEL	89.600
MH TYPE	4
DEPTH TO SOFFIT	1.175
COVER SIZE	1200x675
COVER DEPTH	150
COVER SPEC	D400
LADDER OR DOUBLE STEPS?	Double Step
SAFETY CHAIN	N/A
SAFETY RAILS	N/A
INVERT ACCESS STEPS	N/A
HOLE SIZE IN COVER SLAB	1200x675 C.O.
ROCKER PIPES	600 mm



NOTES

- All drainage construction is to be in accordance with United Utilities Standard Details and the relevant clauses from the Civil Engineering Specification for the Water Industry (CESWI) 6th Edition and Design and Construction Guidance (DCG Version 2.0)
- Invert levels shown on all incoming and outgoing pipes for manholes indicate the invert levels at the intersection of the pipes within the manhole.
- CONCRETE BENCHING AND PIPE SURROUND**
Concrete shall be placed in a single continuous operation from top of base slab to top of benching and pipe surround.
- CONNECTION INTO MANHOLES**
Connections into manholes shall be constructed with the soffits at the same level unless detailed differently on the contract drawings.

5) METALWORK

Ladders, handrailing and safety chains shall be constructed as shown on UU Standard Detail STND/19/002.
All components to be fabricated in Stainless steel grade X6 Cr Ni Mo Ti 17-12-2 to BS EN 10088-1. Refer to UU Standard Detail STND/19/002 for details.

6) CONCRETE SURROUND TO MANHOLES

All manhole to have min 150mm surround of at least 20N/mm2 concrete (FND3Z in accordance with ground investigation report). Any joints should be staggered with pre-cast concrete joints.

7) MANHOLE ACCESSSES

For manhole access options and details refer to UU Standard Detail STND/19/010.
Double steps shall be plastic encapsulated carbon steel to BS EN 1247-2 manhole steps.

8) COVER AND FRAME FOR TYPE A AND TYPE B ACCESS

150mm deep covers are to be used.
Double triangular covers are to be used in carriageway.
Frame to be set as per manufacturers specification.
Manhole cover and frame to be in accordance with BS EN 124 Class D400, class M1, mortar bed and haunch, with minimum clear opening of 600x600 unless noted otherwise.

9) COVER AND FRAME FOR INSPECTION CHAMBERS

PPIC cover to suit BS EN 124 loading with appropriate clear openings. PPIC located in driveways and footpaths - Grade B125.

10) ROCKER PIPES

Start of rocker pipe to be as close to face of manhole as possible and not greater than 750mm. Rocker pipes to be used until the pipe outside diameter exceeds the effective length of the rocker pipe. Refer to UU Standard Detail STND/19/010.

Rocker pipe effective length shall be as follows:
600mm for pipes up to 600mm ø

11) BENCHING WIDTH

Minimum benching widths shall be as follows:
For depth to soffit < 1.5m
225mm min for all pipe sizes
For depth to soffit ≥ 1.5m
600mm min for 150mm ø to 375mm ø pipes
750mm min for 450mm ø & 525mm ø pipes

12) INVERT ACCESS STEPS

Invert access steps with double steps are required where pipes are greater than 450mm ø.

13) CHANNEL FITTINGS

Proprietary channel fittings are to be used up to and including 300mm ø pipes, above which granolithic in-situ channels can be used.
Incoming and outgoing 'T' junctions, square junctions and 90° bends are not acceptable especially on foul systems, to be replaced by 'Y' junctions, oblique junctions and 2 No. 45° bends respectively.



C	Manhole Type 4 cover sizes updated	19/07/23	CA	TM	TM
B	Manhole notation updated	05/07/23	CA	TM	TM
A	Manhole notation updated	13/06/23	CA	TM	TM
Rev	Description	Date	Revised by	Checked by	Approved
Issue Purpose:					
APPROVAL					
Do not scale from this drawing					

R G PARKINS
Kendal | 01539 729393 | Lancaster | 01524 32548

Client: **Thomas Armstrong Ltd**
Project: **Windermere Rd & Fell View Ave**
Drawing Title: **Manhole Construction Details
Fell View Avenue**

Scale @ A1: 1:20	First Issue: 26/05/23	Office of Origin: Kendal
Drawn by: CA	Checked by: TM	Approved: TM
Project No: K39225	Drawing No: 209	Rev: C
BIM No:		