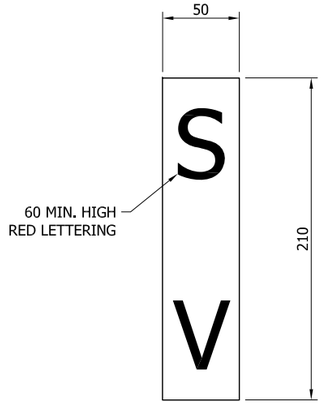
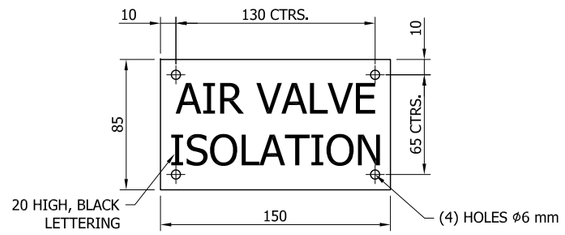


MATERIAL: REFLECTIVE ADHESIVE VINYL
COATING: N/A
FINISH COLOUR: CLASS 1 , WHITE REFLECTIVE BACKGROUND
MASS: N/A

MARKER POST LABEL

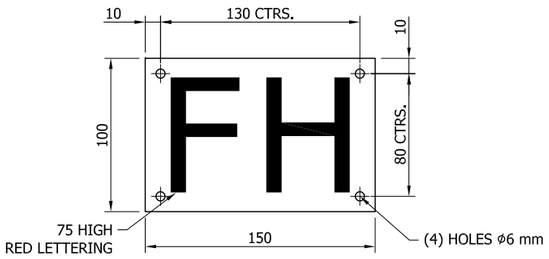
ITEM	AMDT.
PN133001	B



MATERIAL: 1.6 mm THICK ALUMINIUM
COATING: N/A
FINISH COLOUR: CLASS 1 , WHITE REFLECTIVE BACKGROUND
MASS: N/A

AIR VALVE ISOLATION VALVE
MARKER LABEL

ITEM	AMDT.
PN133003	A



MATERIAL: 1.6 mm THICK ALUMINIUM
COATING: N/A
FINISH COLOUR: CLASS 1 , WHITE REFLECTIVE BACKGROUND
MASS: N/A

KERB MARKER LABEL

ITEM	AMDT.
PN133002	B

TABLE 2: MARKER POST COLOURS

SERVICE	MARKING POST COLOUR
POTABLE WATER	BLUE
SEWAGE	CREAM
RAW WATER	GREEN
RECYCLED WATER	LILAC

TABLE 1: MARKER ABBREVIATIONS/IDENTIFIERS

ABBREV.	DESCRIPTION
AV	AIR VALVE - SINGLE
ALT	ALTITUDE VALVE - ALL TYPES
BAV	BACKUP ALTITUDE VALVE - ALL TYPES
BVR	BURIED VERTICAL RISER
DCV	DOUBLE CHECK VALVE
DAV	DOUBLE AIR VALVE
FH	FIRE HYDRANT
FAV	FLOW RATE ALTITUDE COMBINATION VALVE - ALL TYPES
FRCV	FLOW RATE CONTROL VALVE - ALL TYPES
OCV	OUTLET CONTROL GLOBE VALVE
PRV	PRESSURE REDUCING GLOBE VALVE
PCV	PUMP CONTROL GLOBE VALVE
PSV	PRESSURE SUSTAINING GLOBE VALVE
RPZD	RPZ VALVE
SCV	SCOUR VALVE
SRM	SEWER RISING MAIN
SV	STOP VALVE
WM	WATER MAIN

NOTES:

1. REFER TO ICON WATER'S APPROVED PRODUCTS LIST FOR MARKER POST DETAILS.
2. MARKER POST LABELS TO FACE TOWARDS THE VALVE OR HYDRANT.
3. MARKER POSTS FOR BURIED PIPELINES SHALL BE PLACED IN THE LINE OF SIGHT AT A MAXIMUM SPACING OF 100 m AND SHALL BE LOCATED PERPENDICULAR TO THE PIPELINE AXIS.
4. MARKER POST LABEL LETTERING TO BE VERTICALLY ORIENTATED; KERB MARKER LETTERING TO BE HORIZONTALLY ORIENTATED.
5. KERB MARKERS MAY ALSO BE FIXED TO WALLS AND PAVEMENTS AS APPROPRIATE USING MASONRY NAILS OR EPOXY ADHESIVE.

DRAFT FOR COMMENTS

No.	ISSUE	DATE	DRAWN	CHECKED	AUTHORISED
A	INITIAL ISSUE	15/06/2018	C. Dickson	K. Danenbergsons	D. Eager
B	TEXT HEIGHT DIMENSIONS ADDED	11/12/2018	S. Essery	K. Danenbergsons	C. Patrick
C	ADDED AIR VALVE ISOLATION LABEL	15/11/2023	M. Matuslak	P. Ngan	

DAM	X	RES	X	SPS		
BWS	X	WAT	X	STP		
WTP	X	SEW	X			
WPS	X	REC	X			

ASSET AREA APPLICABILITY

STANDARD DRAWING
PIPELINE AND NETWORKS
MARKER POSTS, KERB MARKINGS AND LABELS
SHEET 1 OF 2

DRAWING STATUS: Draft For Comment

SD-1330-D

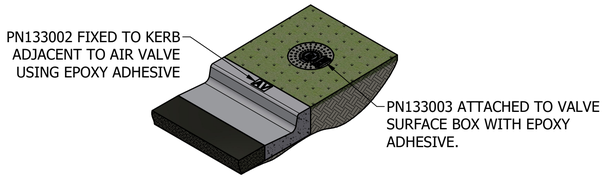
A1

ISSUE: C

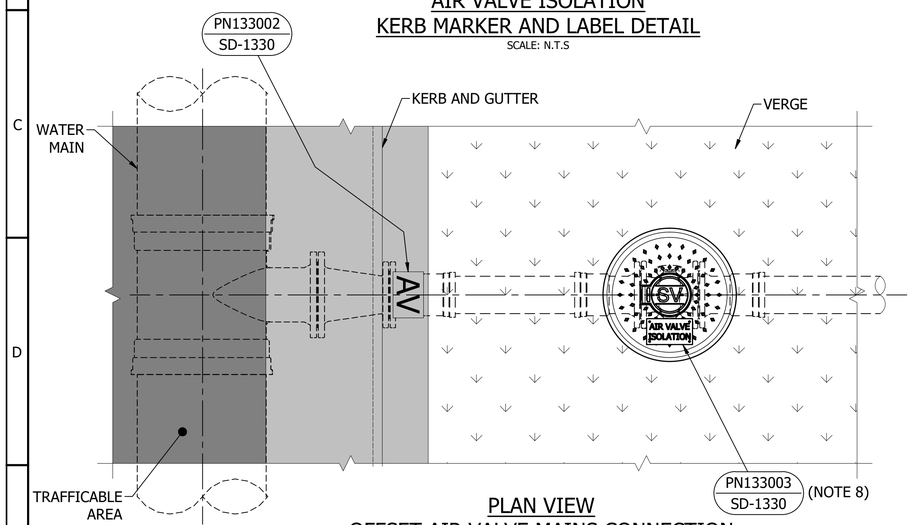
PARTS LIST - OFFSET CONNECTION

ITEM	MATERIAL	SIZE	CLASS	DESCRIPTION
1	DICL	REFER TABLE 1	FLANGE CLASS PN16	SCOUR TEE SO-SO-FL
2	DICL	DN150x100	FLANGE CLASS PN16	ECCENTRIC TAPER FL-FL (NOTE 1)
3	DICL	DN100	FLANGE CLASS PN16	FL-SO ADAPTER
4	DICL	DN100	FLANGE CLASS PN16	PIPE SP-SP
5	DI	DN100	FLANGE CLASS PN16	GATE VALVE
6	PLASTIC	N/A	N/A	VALVE SURFACE BOX AND SLEEVE (AS PER SD-3202)

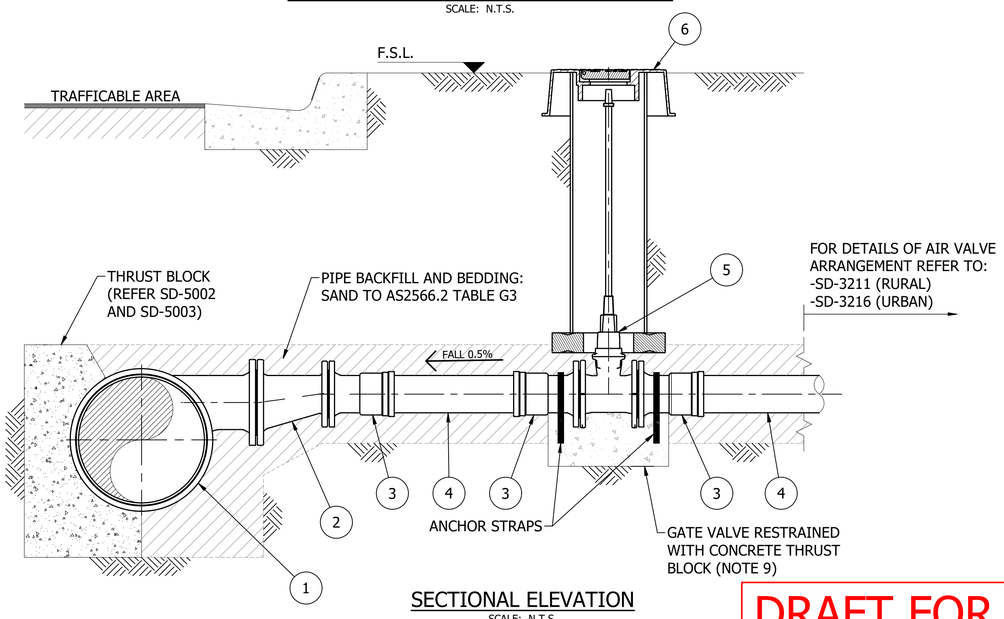
TABLE 1	
MAIN SIZE	BRANCH SIZE
DN300-DN750	DN150



AIR VALVE ISOLATION KERB MARKER AND LABEL DETAIL
SCALE: N.T.S



PLAN VIEW OFFSET AIR VALVE MAINS CONNECTION
SCALE: N.T.S.



SECTIONAL ELEVATION
SCALE: N.T.S.

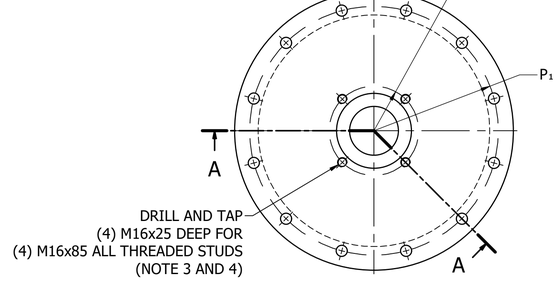
NOTES:

1. CONCENTRIC REDUCERS ARE **NOT** PERMITTED FOR THE OFFSET ARRANGEMENT.
2. FOR MAINS <DN300 SPRING HYDRANTS SHALL BE USED IN LIEU OF AIR VALVES, ICON WATER MAY REQUEST AIR VALVES IN SPECIAL CIRCUMSTANCES.
3. AIR VALVE OFFTAKE FLANGE (ITEM 102) TO BE SUPPLIED WITH FASTENER KIT, CONSISTING OF THE FOLLOWING: (4) M16x85 mm GAL. ALL THREADED STUDS, NUTS, 3 mm THICK WASHERS & (1) DN80 GASKET. TAPPED HOLES SHALL BE MAINTAINED IN GOOD CONDITION AND PROTECTED AGAINST CORROSION DURING STORAGE BEFORE INSTALLATION BY APPLYING SUITABLE RUST INHIBITOR SUCH AS LOCTITE PC9660 TO FLANGE THREADS.
4. TO ENSURE SMOOTH INSTALLATION TO THE DEPTH OF THE THREADED HOLE, APPLY SUITABLE LUBRICANT TO PORTIONS OF THE THREADED STUDS TO BE ENGAGED WITH THE FLANGE THREADS. APPLY SUITABLE THREAD SEALANT COMPOUND TO REMAINDER OF THE STUDS TO PROTECT THREAD INTERFACE.
5. AIR VALVES SHALL BE LOCATED ON MAINS ≥DN300 AT:
   a. HIGH POINTS
   b. AT INTERVALS NOT MORE THAN 1000 m
   c. ON THE DOWN HILL SIDE OF ISOLATION VALVES
6. ALL DI FITTINGS AND FLANGES TO BE COATED TO AS/NZS 4158.
7. THE AIR VALVE ARRANGEMENT SHOWN IN SD-3212, WITH AN INLINE INSTALLATION AND PARTIALLY BURIED PIT, IS THE PREFERRED ARRANGEMENT AND SHALL BE PRIORITISED. ALTERNATE ARRANGEMENTS SHOWN IN SD-3211, 3216 & 3217 MAY BE USED WHERE SPECIFIC CONSTRAINTS OR REQUIREMENTS PREVENT THE IMPLEMENTATION OF THE PREFERRED ARRANGEMENT.
8. LOCATION OF ISOLATION VALVE FOR OFFSET CONNECTION (ITEM 5) SHALL BE SURVEYED AND DOCUMENTED IN THE AS-CONSTRUCTED DRAWINGS AS A HOLD POINT.
9. THRUST WALL AS PER SD-5001-D IS ACCEPTABLE IN LIEU OF GATE VALVE RESTRAINED WITH CONCRETE THRUST BLOCK.

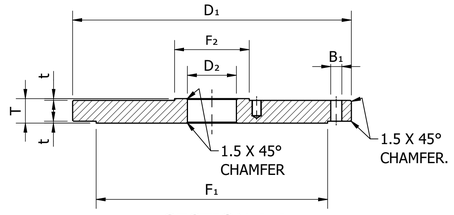
AIR VALVE OFFTAKE FLANGE DETAILS

"DN" BRANCH SIZE	"D_1" FLANGE OD	"D_2" OUTLET ID	"T" THICKNESS	"t" RF THK.	"F_1" MAIN RF DIA	"F_2" OUTLET RF DIA	"P_1" MAIN PCD	"P_2" OUTLET PCD	"B_1" BOLT HOLE DIA	"n" No. BOLT HOLES
225	370	80	40	3	300	122	324	146	18	8
300	455	80	40	3	378	122	406	146	22	12

NOTE: HOLES DRILLED TO AS4087 FIG B5. LONGER BOLTS REQUIRED TO ACCOMMODATE GREATER FLANGE THICKNESS



TOP VIEW
SCALE: N.T.S.

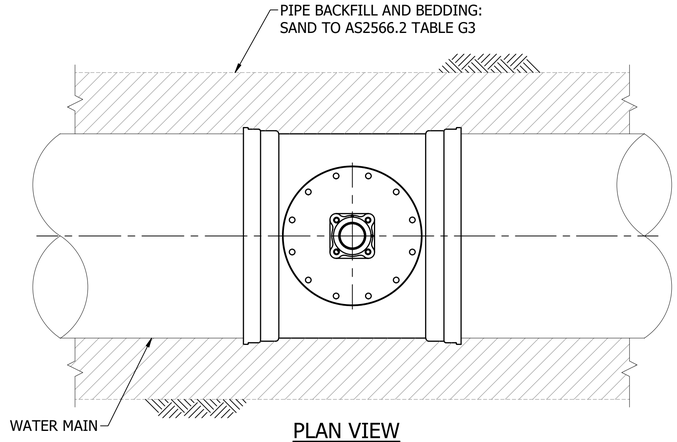


SECTION A-A
SCALE: N.T.S.

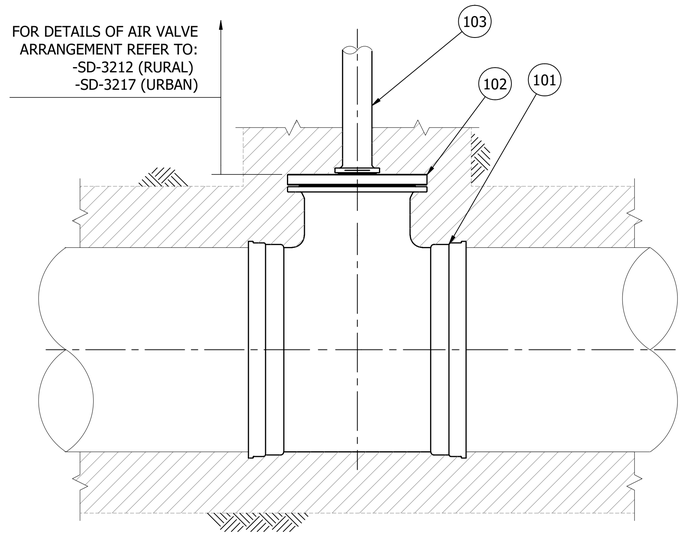
PARTS LIST - INLINE CONNECTION

ITEM	MATERIAL	SIZE	CLASS	DESCRIPTION
101	DICL	REFER TABLE 2	FLANGE CLASS PN16	TEE SO-SO-FL
102	DI	TO SUIT BRANCH		AIR VALVE OFFTAKE FLANGE (REFER DETAIL)
103	DICL	DN80	FLANGE CLASS PN16	HYDRANT RISER FL-FL (LENGTH TO SUIT DEPTH OF MAIN)

TABLE 2	
MAIN SIZE	BRANCH SIZE
DN300	DN225
DN375	DN225
DN450	DN225
DN500	DN300
DN600	DN300
DN750	DN300



PLAN VIEW INLINE AIR VALVE MAINS CONNECTION
SCALE: N.T.S.



SECTIONAL ELEVATION
SCALE: N.T.S.

DRAFT FOR COMMENTS

AIR VALVE OFFTAKE FLANGE

No.	ISSUE	DATE	DRAWN	CHECKED	AUTHORISED
A	INITIAL ISSUE	15/06/2018	M. Matusiak	K. Danenbergsons	D. Eager
B	ACCESS GRATING ARRANGEMENT UPDATED	10/09/2018	S. Essery	K. Danenbergsons	C. Patrick
C	UPADTED MAINS CONNECTION DETAILS, AV MOVED TO NEW DRAWINGS	24/03/2025	M. Matusiak		

DAM	X	RES	X	SPS				
BWS	X	WAT	X	STP				
WTP	X	SEW						
WPS	X	REC						

ASSET AREA APPLICABILITY

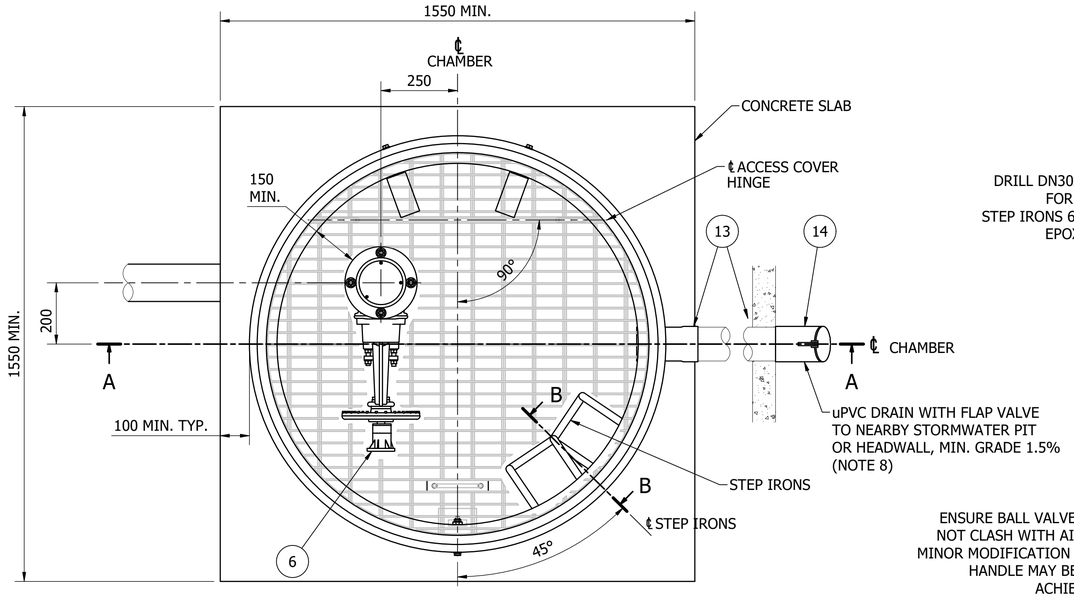
icon WATER

STANDARD DRAWING
WATER NETWORK
AIR VALVE CONNECTION FOR MAINS DN300 TO DN750
DETAILS

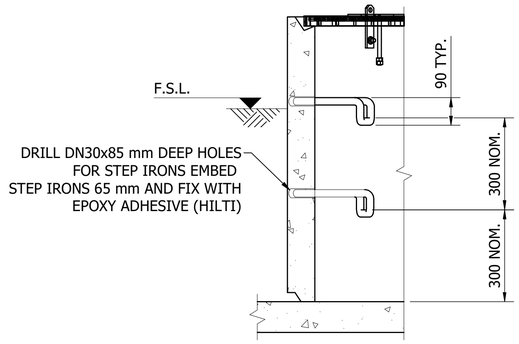
DRAWING STATUS: Draft For Comment

SD-3210-C

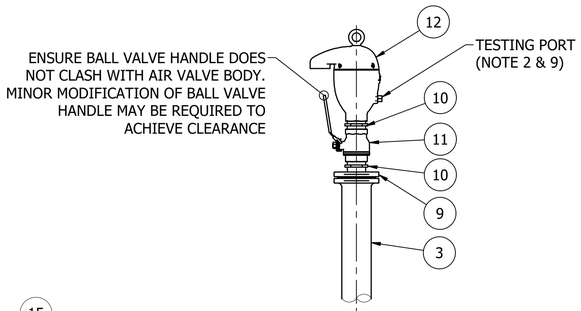
ISSUE C



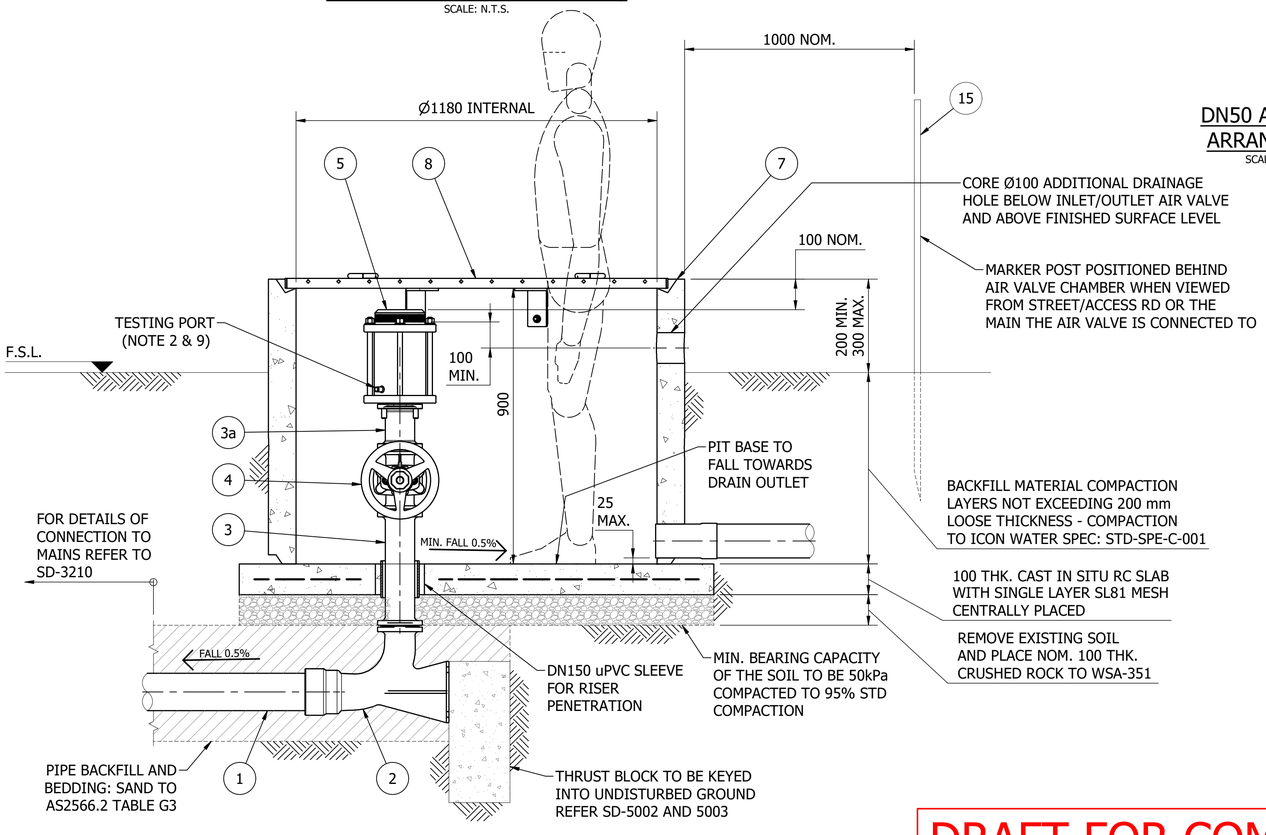
PLAN VIEW
DN50/DN80 AIR VALVE ARRANGEMENT (DN80 SHOWN)
SCALE: N.T.S.



SECTION B-B
STEP IRON DETAIL
SCALE: N.T.S.



DN50 AIR VALVE ARRANGEMENT
SCALE: N.T.S.



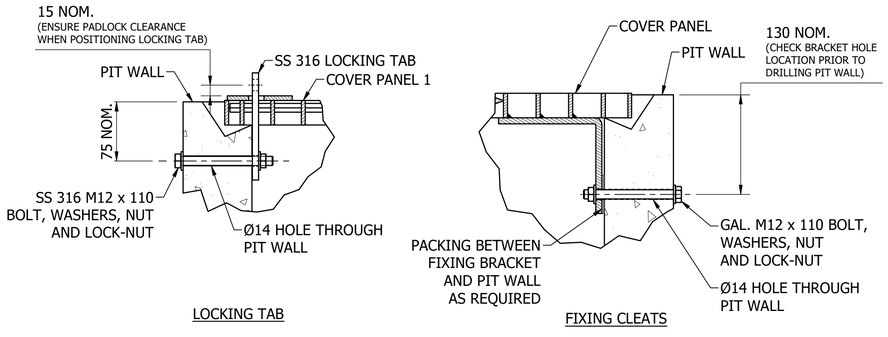
SECTION A-A
SCALE: N.T.S

PARTS LIST

ITEM	MATERIAL	SIZE	CLASS	DESCRIPTION
1	DICL	DN100	PN16	PIPE SP-SP
2	DI	DN100x80	PN16	HYDRANT BEND
3	DI	DN80	PN16	HYDRANT RISER FL-FL (LENGTH TO SUIT DEPTH OF MAIN)
3a	DI	DN80	PN16	HYDRANT RISER FL-FL 150 mm LONG (FOR BERMAD VALVES ONLY, NOTE 10)
4	DI	DN80	PN16	GATE VALVE, RESILIANT SEATED, FL-FL (RISING SPINDLE)
5	DI	DN80	PN16	AIR VALVE (MASS APPROX. 25 kg)
6	PP	DN25-32	N/A	REBAR SAFETY CAP CUSHION (OR SIMILAR)
7	RC	DN1200	N/A	MANHOLE RISER SECTION
8	AL		N/A	HINGED, GRATED ACCESS COVER REFER SD-8240 AND SD-8241 (NOTE 5)
9	SS	DN80	PN16	BLANK FLANGE WITH TAPPED DN50 BSP HOLE
10	SS	DN50	PN16	BSP NIPPLE (FOR BERMAD VALVES ONLY)
11	SS	DN50	PN16	BALL VALVE F-F, ANTI-FREEZE WITH WATERMARK/ AS 4020 APPROVAL
12	DI	DN50	PN16	AIR VALVE (MASS APPROX. 15 kg)
13	uPVC	DN100	SN10	DWV PIPE
14	uPVC	DN100	SN10	DWV FLAP VALVE
15	STEEL	100x1340		FLEXIBLE STEEL MARKER POST (REFER SD-1331) WITH "AV" LABEL (PN133001 ON SD-1330)

NOTES:

1. BUTTERFLY VALVES ARE **NOT** APPROVED FOR AIR VALVE ISOLATION.
2. AIR VALVES SHALL COME WITH A PRESSURE TEST POINT AND TO BE FITTED WITH A MIN. DN15 BALL VALVE FOR BLEEDING REQUIREMENTS.
3. FOR MAINS <DN300 SPRING HYDRANTS SHALL BE USED IN LIEU OF AIR VALVES, ICON WATER MAY REQUEST AIR VALVES IN SPECIAL CIRCUMSTANCES.
4. THE NOMINAL SIZE OF AIR VALVES SHALL BE:
   -FOR MAINS ≤DN450 AIR VALVE SIZE = DN50
   -FOR MAINS ≥500 AND <750 AIR VALVE SIZE = DN80
5. ALUMINIUM GRATE TO BE PAD-LOCKABLE AND TO PREVENT UNAUTHORISED ACCESS. 32 kg MAX. WEIGHT; CAPABLE OF MAX. MID-SPAN DEFLECTION OF 5 mm UDL @ 2.5 kPa.
6. CHAMBERS TO BE LOCATED A MINIMUM CLEARANCE OF 3.0 m AWAY FROM EDGE OF LANEWAY. IF THIS CLEARANCE IS NOT ACHIEVABLE, BOLLARDS SHALL BE UTILISED. SEEK ADVICE FROM THE ICON WATER PRINCIPAL ENGINEER FOR REQUIREMENTS.
7. THE DESIGNER SHALL FAMILIARISE THEMSELVES WITH THE REQUIREMENTS OF ICON WATER SPECIFICATIONS STD-SPE-G-008 AND 009 PRIOR TO DESIGNING ANY STRUCTURE WHICH REQUIRES HEIGHT SAFETY TO BE TAKEN INTO CONSIDERATION.
8. DRAIN POSITION SHOWN INDICATIVELY, DRAIN OUTLET MAY BE LOCATED FOR BEST CONNECTIVITY TO DRAINAGE AND FOR CLEANING ACCESSIBILITY, THE FLAP VALVE SHALL PROVIDE A LEAK TIGHT ARRANGEMENT.
9. AIR VALVE TO BE ORIENTATED SO THAT THE PRESSURE TESTING PORT IS NOT ALIGNED WITH THE BALL VALVE HANDLE, AND TO BE 200 mm MIN. CLEAR OF ANY OTHER OBSTACLE OR PIT WALL.
10. BERMAD AIR VALVES SHALL NOT BE BOLTED DIRECTLY TO ISOLATION VALVES, INSTALL 150 mm LONG SPOOL PIECE BETWEEN AIR VALVE AND GATE VALE TO PROVIDE CLEARANCE FOR BOLTS.
11. ALL AIR VALVES SHALL BE SUPPLIED WITH INSECT SCREEN.
12. ALL AIR VALVES SHALL INCORPORATE ANTI-SLAM DEVICES.
13. AIR VALVE FLANGES SHALL COMPLY WITH AS 4087 TABLE B5 FOR PN16 AND TABLE B6 FOR PN35 PRESSURE RATINGS
14. ALL DI FITTINGS AND FLANGES TO BE COATED TO AS/NZS 4158.
15. THIS DRAWING IS FOR A TEST PRESSURE OF MAX. 1400kPa.
16. OFFSET INSTALLATION OF AIR VALVE SHALL BE USED WHERE THE WATER MAIN IS BENEATH A TRAFFICABLE AREA.



TYPICAL ACCESS COVER FIXING DETAILS
SCALE: N.T.S.

DRAFT FOR COMMENTS

No.	ISSUE	DATE	DRAWN	CHECKED	AUTHORISED
A	INITIAL ISSUE	19/01/2024	M. Matusiak		

DAM	RES	SPS
BWS	WAT	STP
WTP	SEW	
WPS	REC	

ASSET AREA APPLICABILITY

icon WATER

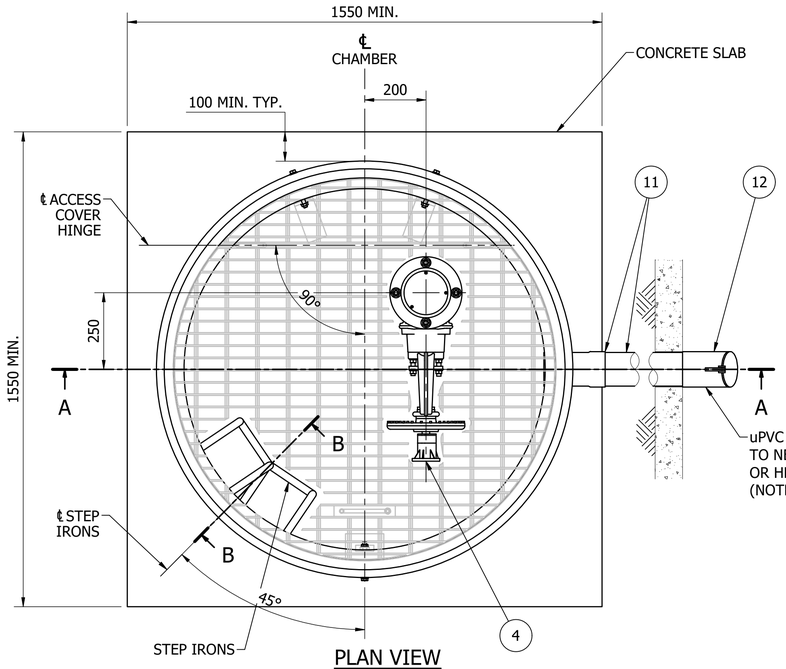
STANDARD DRAWING
AIR VALVES IN CIRCULAR MANHOLE RISER
OFFSET INSTALLATIONS
RURAL AND SEMI URBAN AREAS
GENERAL ARRANGEMENT (DN50 & DN80)

DRAWING STATUS: Draft For Comment

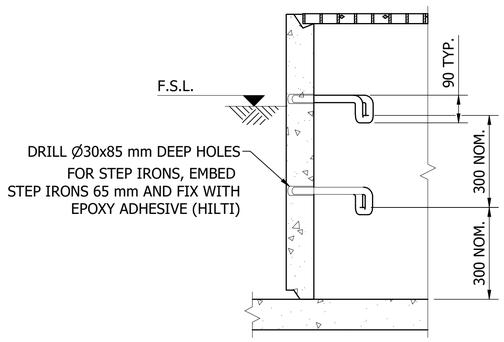
SD-3211-C

A1

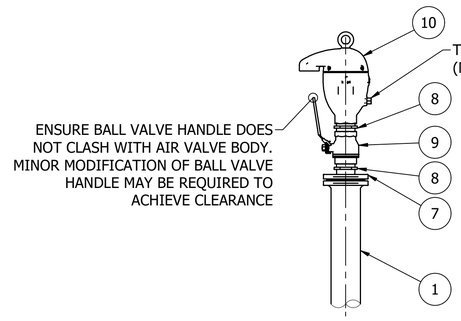
ISSUE: A



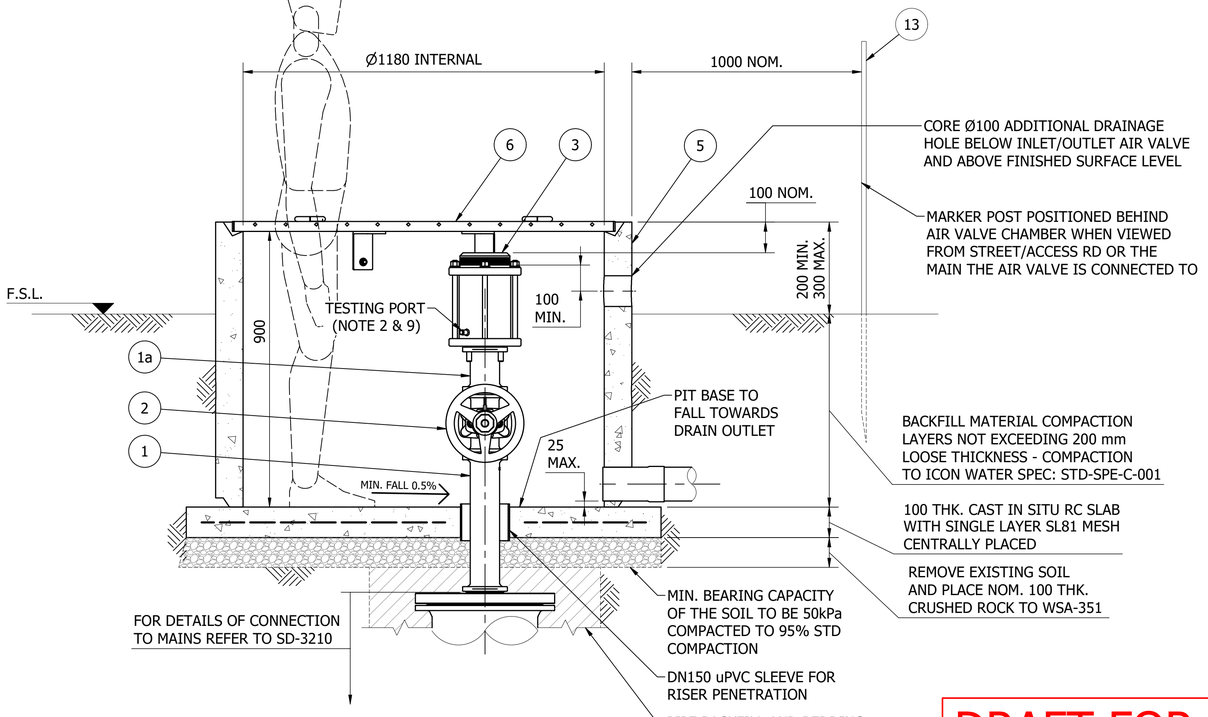
PLAN VIEW
DN80 AIR VALVE ARRANGEMENT
SCALE: N.T.S.



SECTION B-B
STEP IRON DETAIL
SCALE: N.T.S.



DN50 AIR VALVE ARRANGEMENT
SCALE: N.T.S.



SECTION A-A
SCALE: N.T.S.

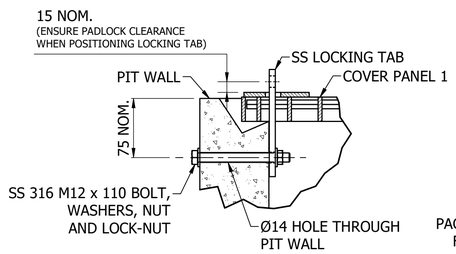
DRAFT FOR COMMENTS

PARTS LIST

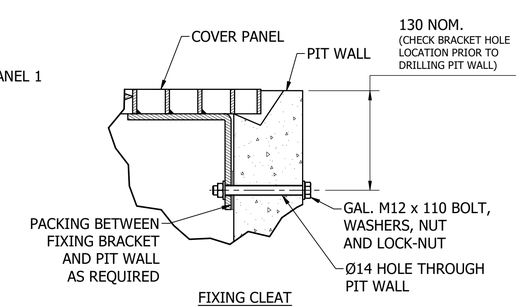
ITEM	MATERIAL	SIZE	CLASS	DESCRIPTION
1	DI	DN80	PN16	HYDRANT RISER FL-FL (LENGTH TO SUIT DEPTH OF MAIN)
1a	DI	DN80	PN16	HYDRANT RISER FL-FL 150 mm LONG (FOR BERMAD VALVES ONLY, NOTE 10)
2	DI	DN80	PN16	GATE VALVE, RESILIANT SEATED, FL-FL (RISING SPINDLE)
3	DI	DN100	PN16	AIR VALVE (MASS APPROX. 25 kg)
4	PP	DN25-32	N/A	REBAR SAFETY CAP CUSHION (OR SIMILAR)
5	RC	DN1200	N/A	MANHOLE RISER SECTION
6	AL		N/A	HINGED, GRATED ACCESS COVER REFER SD-8240 AND SD-8241 (NOTE 5)
7	SS	DN80	PN16	BLANK FLANGE WITH TAPPED DN50 BSP HOLE
8	SS	DN50	PN16	BSP NIPPLE (FOR BERMAD VALVES ONLY)
9	SS	DN50	PN16	BALL VALVE F-F, ANTI-FREEZE WITH WATERMARK/ AS 4020 APPROVAL
10	DI	DN50	PN16	AIR VALVE (MASS APPROX. 15 kg)
11	uPVC	DN100	SN10	DVW PIPE
12	uPVC	DN100	SN10	DWV FLAP VALVE
13	STEEL	100x1340		FLEXIBLE STEEL MARKER POST (REFER SD-1331) WITH "AV" LABEL (PN133001 ON SD-1330)

NOTES:

1. BUTTERFLY VALVES ARE **NOT** APPROVED FOR AIR VALVE ISOLATION.
2. AIR VALVES SHALL COME WITH A PRESSURE TEST POINT AND TO BE FITTED WITH A MIN. DN15 BALL VALVE FOR BLEEDING REQUIREMENTS.
3. FOR MAINS <DN300 SPRING HYDRANTS SHALL BE USED IN LIEU OF AIR VALVES, ICON WATER MAY REQUEST AIR VALVES IN SPECIAL CIRCUMSTANCES.
4. THE NOMINAL SIZE OF AIR VALVES SHALL BE:
   -FOR MAINS ≤DN450 AIR VALVE SIZE = DN50
   -FOR MAINS ≥500 AND <750 AIR VALVE SIZE = DN80
5. ALUMINIUM GRATE TO BE PAD-LOCKABLE AND BOLTED IN PLACE TO PREVENT UNAUTHORISED ACCESS. 32 kg MAX. WEIGHT; CAPABLE OF MAX. MID-SPAN DEFLECTION OF 5 mm UDL @ 2.5 kPa.
6. CHAMBERS TO BE LOCATED A MINIMUM CLEARANCE OF 3.0 m AWAY FROM EDGE OF LANE WAY. IF THIS CLEARANCE IS NOT ACHIEVABLE, BOLLARDS SHALL BE UTILISED. SEEK ADVICE FROM THE ICON WATER PRINCIPAL ENGINEER FOR REQUIREMENTS.
7. THE DESIGNER SHALL FAMILIARISE THEMSELVES WITH THE REQUIREMENTS OF ICON WATER SPECIFICATIONS STD-SPE-G-008 AND 009 PRIOR TO DESIGNING ANY STRUCTURE WHICH REQUIRES HEIGHT SAFETY TO BE TAKEN INTO CONSIDERATION.
8. DRAIN POSITION SHOWN INDICATIVELY, DRAIN OUTLET MAY BE LOCATED FOR BEST CONNECTIVITY TO DRAINAGE AND FOR CLEANING ACCESSIBILITY, THE FLAP VALVE SHALL PROVIDE A LEAK TIGHT ARRANGEMENT.
9. AIR VALVE TO BE ORIENTATED SO THAT THE PRESSURE TESTING PORT IS NOT ALIGNED WITH THE BALL VALVE HANDLE, AND TO BE 200 mm MIN. CLEAR OF ANY OTHER OBSTACLE OR PIT WALL.
10. BERMAD AIR VALVES SHALL NOT BE BOLTED DIRECTLY TO ISOLATION VALVES, INSTALL 150 mm LONG SPOOL PIECE BETWEEN AIR VALVE AND GATE VALE TO PROVIDE CLEARANCE FOR BOLTS.
11. ALL AIR VALVES SHALL BE SUPPLIED WITH INSECT SCREEN.
12. ALL AIR VALVES SHALL INCORPORATE ANTI-SLAM DEVICES.
13. AIR VALVE FLANGES SHALL COMPLY WITH AS 4087 TABLE B5 FOR PN16 AND TABLE B6 FOR PN35 PRESSURE RATINGS
14. ALL DI FITTINGS AND FLANGES TO BE COATED TO AS/NZS 4158.
15. THIS DRAWING IS FOR A TEST PRESSURE OF MAX. 1400kPa.



LOCKING TAB



FIXING CLEAT

ACCESS COVER FIXING DETAILS
SCALE: N.T.S.

No.	ISSUE	DATE	DRAWN	CHECKED	AUTHORISED
A	INITIAL ISSUE	10/05/2023	M. Matusiak		

ASSET AREA APPLICABILITY					
DAM	X	RES	X	SPS	
BWS	X	WAT	X	STP	
WTP	X	SEW			
WPS	X	REC			

icon WATER

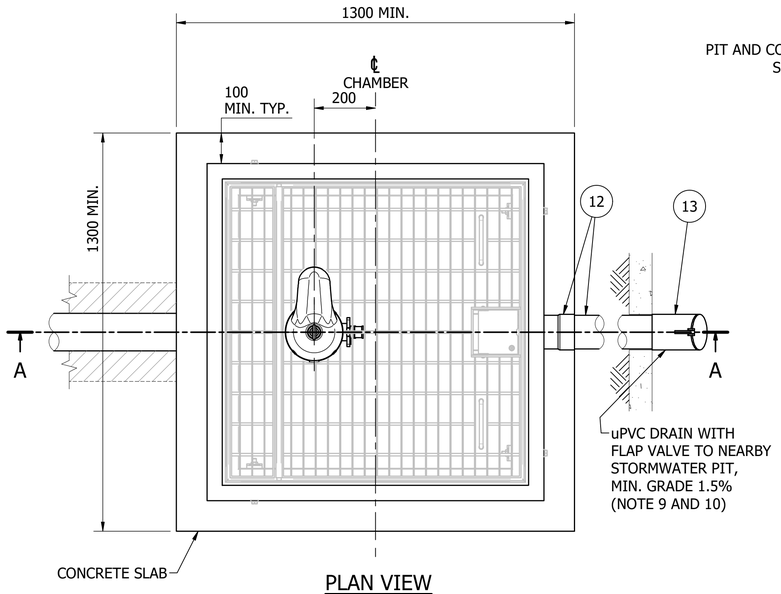
STANDARD DRAWING
AIR VALVES IN CIRCULAR MANHOLE RISER
INLINE INSTALLATIONS
RURAL AND SEMI URBAN AREAS
GENERAL ARRANGEMENT (DN50 & DN80)

DRAWING STATUS: Draft For Comment

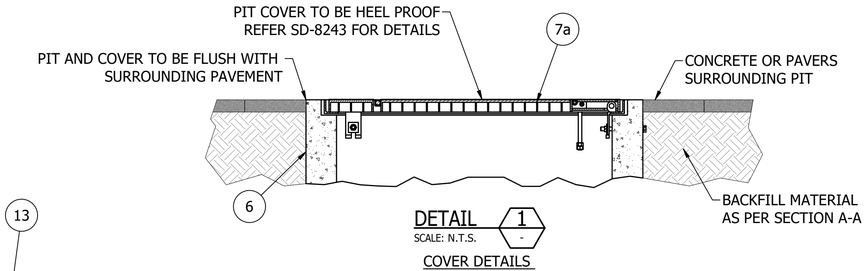
SD-3212-C

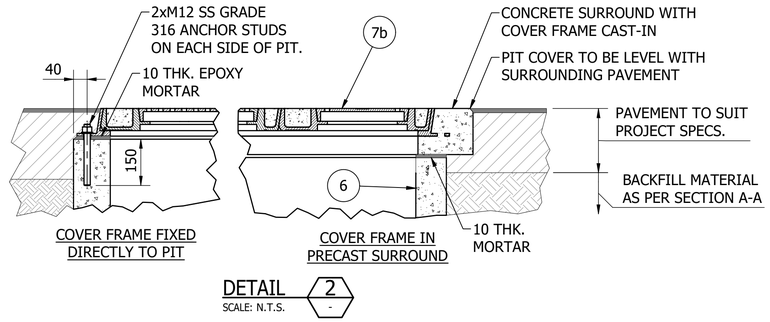
A1

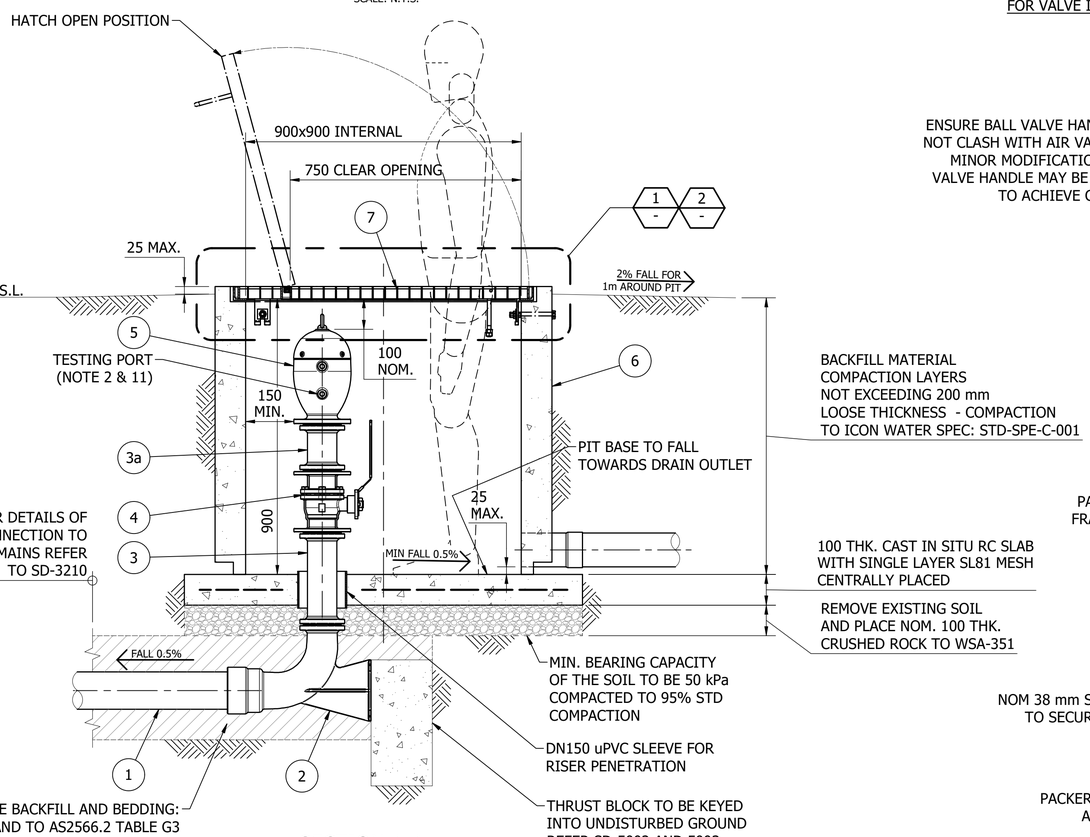
ISSUE: A



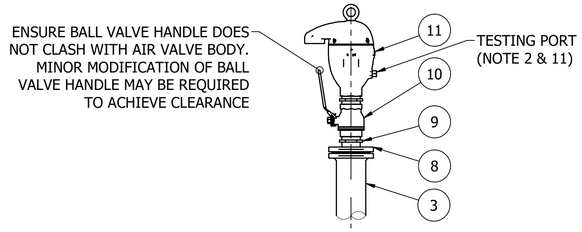
PLAN VIEW
DN80 AIR VALVE
ARRANGEMENT
SCALE: N.T.S.



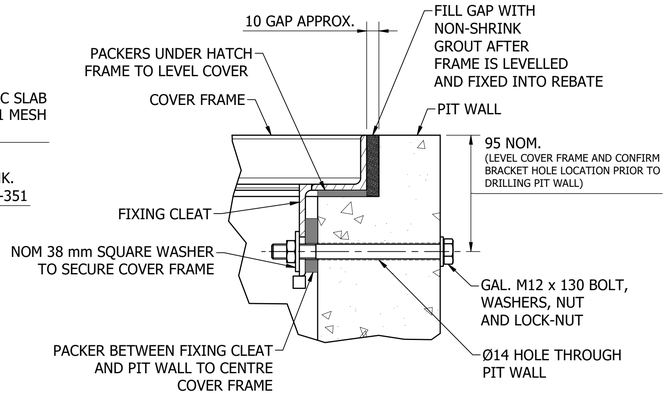




SECTION A-A
VALVE IN GRASSED AREA, VERGE OR PARKLAND
SCALE: N.T.S.



DN50 AIR VALVE
ARRANGEMENT
SCALE: N.T.S.



TYPICAL ACCESS HINGED COVER FIXING DETAILS
SCALE: N.T.S.

PARTS LIST

ITEM	MATERIAL	SIZE	CLASS	DESCRIPTION
1	DICL	DN100	PN16	PIPE SP-SP
2	DI	DN100x80	PN16	HYDRANT BEND
3	DI	DN80	PN16	HYDRANT RISER FL-FL (LENGTH TO SUIT DEPTH OF MAIN)
3a	DI	DN80	PN16	HYDRANT RISER FL-FL 150 mm LONG (FOR BERMAD VALVES ONLY, NOTE 12)
4	SS	DN80	PN16	BALL VALVE FL-FL
5	DI	DN80	PN16	AIR VALVE (MASS APPROX. 25 kg)
6	RC	900x900x900	N/A	SW PIT RISER SECTION
7	GMS	900x750 C/O	N/A	HINGED, GRATED ACCESS COVER REFER SD-8242 AND SD-8243 (NOTE 5)
7a	GMS	900x750 C/O	N/A	HINGED, HEEL PROOF, GRATED ACCESS COVER REFER SD-8242 AND SD-8243 (NOTE 5)
7b	DI	900x900 C/O	CLASS D	'GATIC' CLASS D 2 PART AIR VALVE COVER WITH 2x Ø225 VENTILATION GRATES (NOTE 6)
8	SS	DN80	PN16	BLANK FLANGE WITH TAPPED DN50 BSP HOLE
9	SS	DN50	PN16	BSP NIPPLE (FOR BERMAD VALVES ONLY)
10	SS	DN50	PN16	BALL VALVE F-F, ANTI-FREEZE WITH WATERMARK/ AS 4020 APPROVAL
11	DI	DN50	PN16	AIR VALVE (MASS APPROX. 15 kg)
12	uPVC	DN100	SN10	DWV PIPE
13	uPVC	DN100	SN10	DN100 DWV FLAP VALVE

NOTES:

1. BUTTERFLY VALVES ARE **NOT** APPROVED FOR AIR VALVE ISOLATION.
2. AIR VALVES SHALL COME WITH A PRESSURE TEST POINT AND TO BE FITTED WITH A MIN DN15 BALL VALVE FOR BLEEDING REQUIREMENTS.
3. FOR MAINS <DN300 SPRING HYDRANTS SHALL BE USED IN LIEU OF AIR VALVES. ICON WATER MAY REQUEST AIR VALVES IN SPECIAL CIRCUMSTANCES.
4. THE NOMINAL SIZE OF AIR VALVES SHALL BE:
   -FOR MAINS ≤DN450 AIR VALVE SIZE = DN50
   -FOR MAINS ≥500 AND <750 AIR VALVE SIZE = DN80
5. GALVANISED GRATE TO BE PAD-LOCKABLE AND BOLTED IN PLACE USING KEEPER PLATES TO PREVENT UNAUTHORISED ACCESS. 32 kg MAX. WEIGHT; CAPABLE OF MAX. MID-SPAN DEFLECTION OF 5 mm UDL @ 2.5 kPa.
6. 'GATIC' AIR VALVE COVERS MUST BE FITTED WITH 2x Ø225 VENTILATION GRATES.
7. CHAMBERS TO BE LOCATED A MINIMUM CLEARANCE OF 3.0 m AWAY FROM EDGE OF LANEWAY. IF THIS CLEARANCE IS NOT ACHIEVABLE, BOLLARDS SHALL BE UTILISED. SEEK ADVICE FROM THE ICON WATER PRINCIPAL ENGINEER FOR REQUIREMENTS.
8. THE DESIGNER SHALL FAMILIARISE THEMSELVES WITH THE REQUIREMENTS OF ICON WATER SPECIFICATIONS STD-SPE-G-008 AND 009 PRIOR TO DESIGNING ANY STRUCTURE WHICH REQUIRES HEIGHT SAFETY TO BE TAKEN INTO CONSIDERATION.
9. DRAIN POSITION SHOWN INDICATIVELY, DRAIN OUTLET MAY BE LOCATED FOR BEST CONNECTIVITY TO DRAINAGE AND FOR CLEANING ACCESSIBILITY.
10. AIR VALVES PITS IN URBAN AREAS MUST BE FREE DRAINING TO LOCAL STORMWATER SYSTEM AND FITTED WITH A FLAP VALVE AT THE OUTLET TO PREVENT FLOODING. THE FLAP VALVE SHALL PROVIDE A LEAK TIGHT ARRANGEMENT.
11. AIR VALVE TO BE ORIENTATED SO THAT THE PRESSURE TESTING PORT IS NOT ALIGNED WITH THE BALL VALVE HANDLE AND TO BE 200 mm MIN. CLEAR OF ANY OTHER OBSTACLE OR PIT WALL.
12. BERMAD AIR VALVES SHALL NOT BE BOLTED DIRECTLY TO ISOLATION VALVES, INSTALL 150 mm LONG SPOOL PIECE BETWEEN AIR VALVE AND GATE VALE TO PROVIDE CLEARANCE FOR BOLTS.
13. ALL AIR VALVES SHALL BE SUPPLIED WITH INSECT SCREEN.
14. ALL AIR VALVES SHALL INCORPORATE ANTI-SLAM DEVICES.
15. AIR VALVE FLANGES SHALL COMPLY WITH AS 4087 TABLE B5 FOR PN16 AND TABLE B6 FOR PN35 PRESSURE RATINGS.
16. ALL DI FITTINGS AND FLANGES TO BE COATED TO AS/NZS 4158.
17. THIS DRAWING IS FOR A TEST PRESSURE OF MAX. 1400kPa.
18. SQUARE AIR VALVE CHAMBERS ARE NOT ACCEPTABLE IN RURAL AREAS.
19. OFFSET INSTALLATION OF AIR VALVE SHALL BE USED WHERE THE WATER MAIN IS BENEATH A TRAFFICABLE AREA.

DRAFT FOR COMMENTS

No.	ISSUE	DATE	DRAWN	CHECKED	AUTHORISED
A	INITIAL ISSUE	22/03/2023	M. Matusiak		

DAM	X	RES	X	SPS	
BWS	X	WAT	X	STP	
WTP	X	SEW			
WPS	X	REC			

ASSET AREA APPLICABILITY

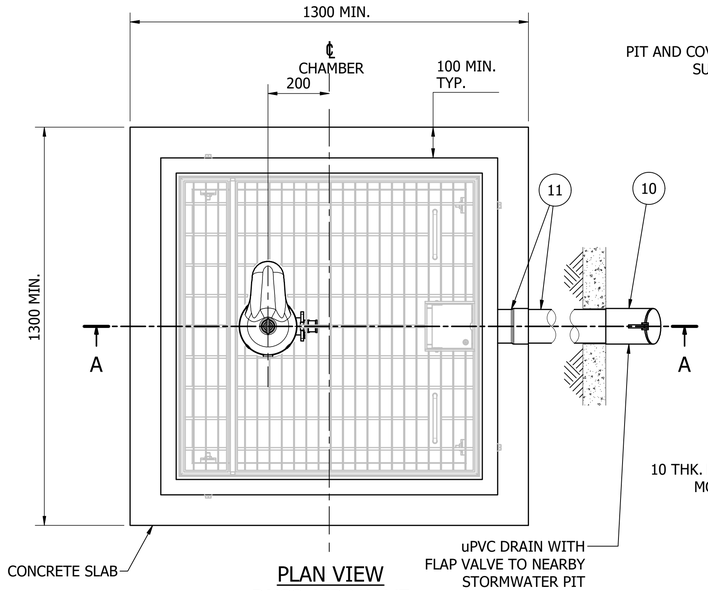
STANDARD DRAWING
AIR VALVES IN SQUARE CHAMBERS
OFFSET INSTALLATIONS
URBAN AREAS
GENERAL ARRANGEMENT (DN50 & DN80)

DRAWING STATUS: Draft For Comment

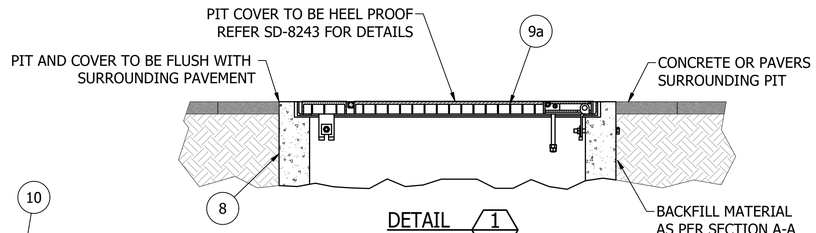
SD-3216-C

A1

ISSUE: A

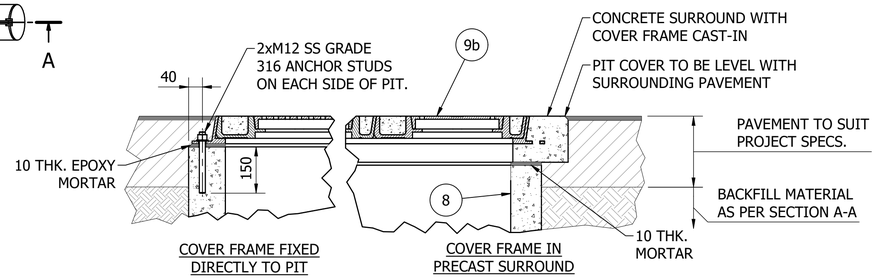


PLAN VIEW
DN80 AIR VALVE
ARRANGEMENT
SCALE: N.T.S.



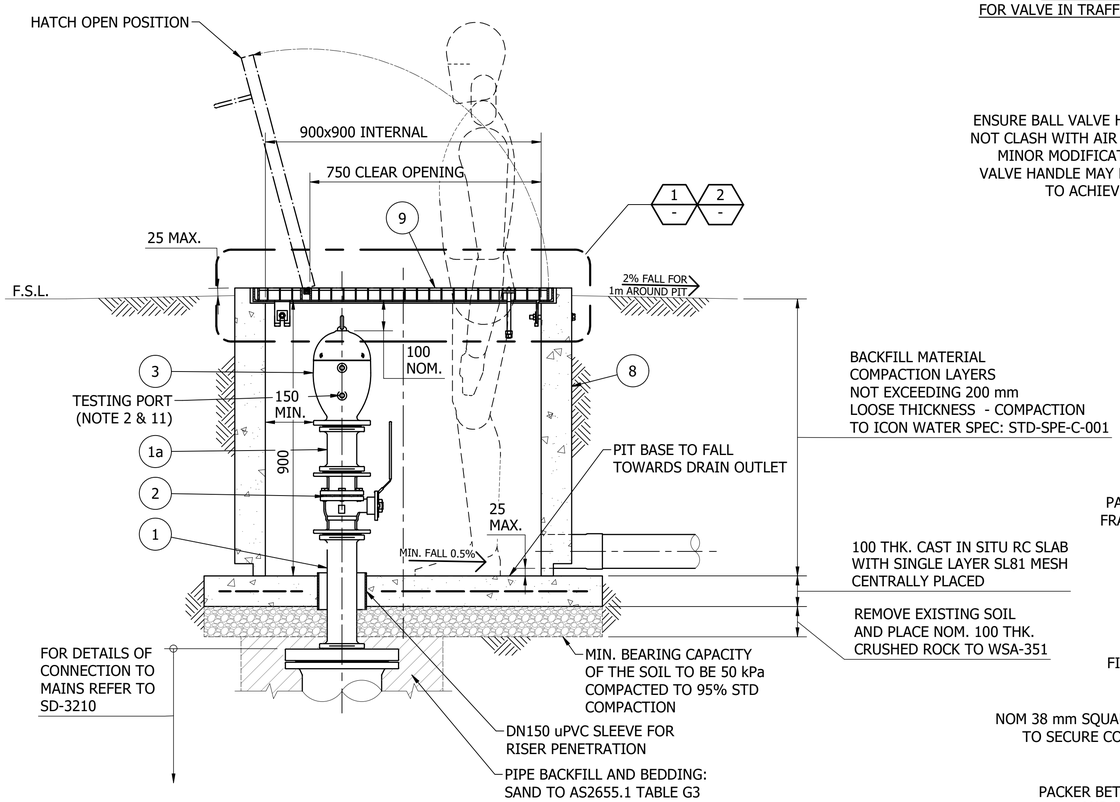
DETAIL 1
SCALE: N.T.S.

COVER DETAILS
FOR VALVE IN PEDESTRIAN AREAS

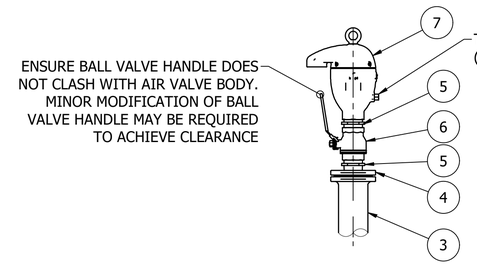


DETAIL 2
SCALE: N.T.S.

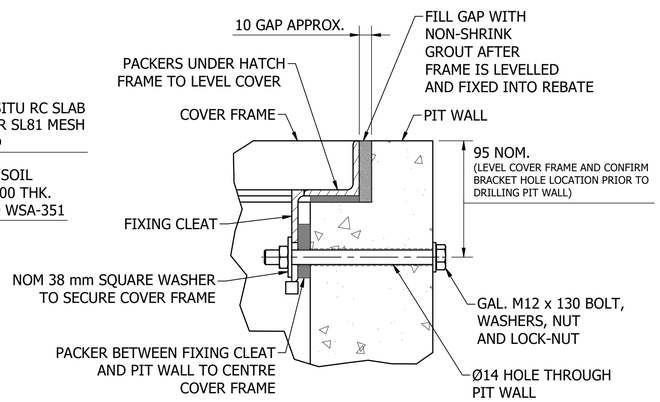
COVER DETAILS
FOR VALVE IN TRAFFICABLE AREAS



SECTION A-A
VALVE IN GRASSED AREA, VERGE OR PARKLAND
SCALE: N.T.S.



DN50 AIR VALVE
ARRANGEMENT
SCALE: N.T.S.



TYPICAL HINGED ACCESS COVER FIXING DETAILS
SCALE: N.T.S.

PARTS LIST

ITEM	MATERIAL	SIZE	CLASS	DESCRIPTION
1	DI	DN80	PN16	HYDRANT RISER FL-FL (LENGTH TO SUIT DEPTH OF MAIN)
1a	DI	DN80	PN16	HYDRANT RISER FL-FL 150 mm LONG (FOR BERMAD VALVES ONLY, NOTE 11)
2	SS	DN80	PN16	BALL VALVE FL-FL
3	DI	DN80	PN16	AIR VALVE (MASS APPROX. 25 kg)
4	SS	DN80	PN16	BLANK FLANGE WITH TAPPED DN50 BSP HOLE
5	SS	DN50	PN16	BSP NIPPLE (FOR BERMAD VALVES ONLY)
6	SS	DN50	PN16	BALL VALVE F-F, ANTI-FREEZE WITH WATERMARK/ AS 4020 APPROVAL
7	DI	DN50	PN16	AIR VALVE (MASS APPROX. 15 kg)
8	RC	900x900x900	N/A	SW PIT RISER SECTION
9	GMS	900x750 C/O	N/A	HINGED, GRATED ACCESS COVER REFER SD-8242 AND SD-8243 (NOTE 5)
9a	GMS	900x750 C/O	N/A	HINGED, HEEL PROOF, GRATED ACCESS COVER REFER SD-8242 AND SD-8243 (NOTE 5)
9b	DI	900x900 C/O	CLASS D	'GATIC' CLASS D 2 PART AIR VALVE COVER WITH 2x Ø225 VENTILATION GRATES (NOTE 6)
10	uPVC	DN100	SN10	DWV FLAP VALVE
11	uPVC	DN100	SN10	DWV PIPE

NOTES:

1. BUTTERFLY VALVES ARE **NOT** APPROVED FOR AIR VALVE ISOLATION.
2. AIR VALVES SHALL COME WITH A PRESSURE TEST POINT AND TO BE FITTED WITH A MIN DN15 BALL VALVE FOR BLEEDING REQUIRMENTS.
3. FOR MAINS <DN300 SPRING HYDRANTS SHALL BE USED IN LIEU OF AIR VALVES. ICON WATER MAY REQUEST AIR VALVES IN SPECIAL CIRCUMSTANCES.
4. THE NOMINAL SIZE OF AIR VALVES SHALL BE:
   -FOR MAINS ≤DN450 AIR VALVE SIZE = DN50
   -FOR MAINS ≥500 AND <750 AIR VALVE SIZE = DN80
5. GALVANISED GRATE TO BE PAD-LOCKABLE AND BOLTED IN PLACE USING KEEPER PLATES TO PREVENT UNAUTHORISED ACCESS. 32 kg MAX. WEIGHT; CAPABLE OF MAX. MID-SPAN DEFLECTION OF 5 mm UDL @ 2.5 kPa.
6. 'GATIC' AIR VALVE COVERS MUST BE FITTED WITH 2x Ø225 VENTILATION GRATES.
7. CHAMBERS TO BE LOCATED A MINIMUM CLEARANCE OF 3.0 m AWAY FROM EDGE OF LANEWAY. IF THIS CLEARANCE IS NOT ACHIEVABLE, BOLLARDS SHALL BE UTILISED. SEEK ADVICE FROM THE ICON WATER PRINCIPAL ENGINEER FOR REQUIREMENTS.
8. THE DESIGNER SHALL FAMILIARISE THEMSELVES WITH THE REQUIREMENTS OF ICON WATER SPECIFICATIONS STD-SPE-G-008 AND 009 PRIOR TO DESIGNING ANY STRUCTURE WHICH REQUIRES HEIGHT SAFETY TO BE TAKEN INTO CONSIDERATION.
9. DRAIN POSITION SHOWN INDICATIVELY, DRAIN OUTLET MAY BE LOCATED FOR BEST CONNECTIVITY TO DRAINAGE AND FOR CLEANING ACCESSIBILITY.
10. AIR VALVES PITS IN URBAN AREAS MUST BE FREE DRAINING TO LOCAL STORMWATER SYSTEM AND FITTED WITH A FLAP VALVE AT THE OUTLET TO PREVENT FLOODING. THE FLAP VALVE SHALL PROVIDE A LEAK TIGHT ARRANGEMENT.
11. AIR VALVE TO BE ORIENTATED SO THAT THE PRESSURE TESTING PORT IS NOT ALIGNED WITH THE BALL VALVE HANDLE AND TO BE 200 mm MIN. CLEAR OF ANY OTHER OBSTACLE OR PIT WALL.
12. BERMAD AIR VALVES SHALL NOT BE BOLTED DIRECTLY TO ISOLATION VALVES, INSTALL 150 mm LONG SPOOL PIECE BETWEEN AIR VALVE AND GATE VALVE TO PROVIDE CLEARANCE FOR BOLTS.
13. ALL AIR VALVES SHALL BE SUPPLIED WITH INSECT SCREEN.
14. ALL AIR VALVES SHALL INCORPORATE ANTI-SLAM DEVICES.
15. AIR VALVE FLANGES SHALL COMPLY WITH AS 4087 TABLE B5 FOR PN16 AND TABLE B6 FOR PN35 PRESSURE RATINGS.
16. ALL DI FITTINGS AND FLANGES TO BE COATED TO AS/NZS 4158.
17. THIS DRAWING IS FOR A TEST PRESSURE OF MAX. 1400 kPa.
18. SQUARE AIR VALVE CHAMBERS ARE NOT ACCEPTABLE IN RURAL AREAS.

DRAFT FOR COMMENTS

No.	ISSUE	DATE	DRAWN	CHECKED	AUTHORISED
A	INITIAL ISSUE	22/03/2023	M. Matusiak		

DAM	X	RES	X	SPS	
BWS	X	WAT	X	STP	
WTP	X	SEW			
WPS	X	REC			

ASSET AREA APPLICABILITY

STANDARD DRAWING
AIR VALVES IN SQUARE CHAMBERS
INLINE INSTALLATIONS
URBAN AREAS
GENERAL ARRANGEMENT (DN50 & DN80)

DRAWING STATUS: Draft For Comment

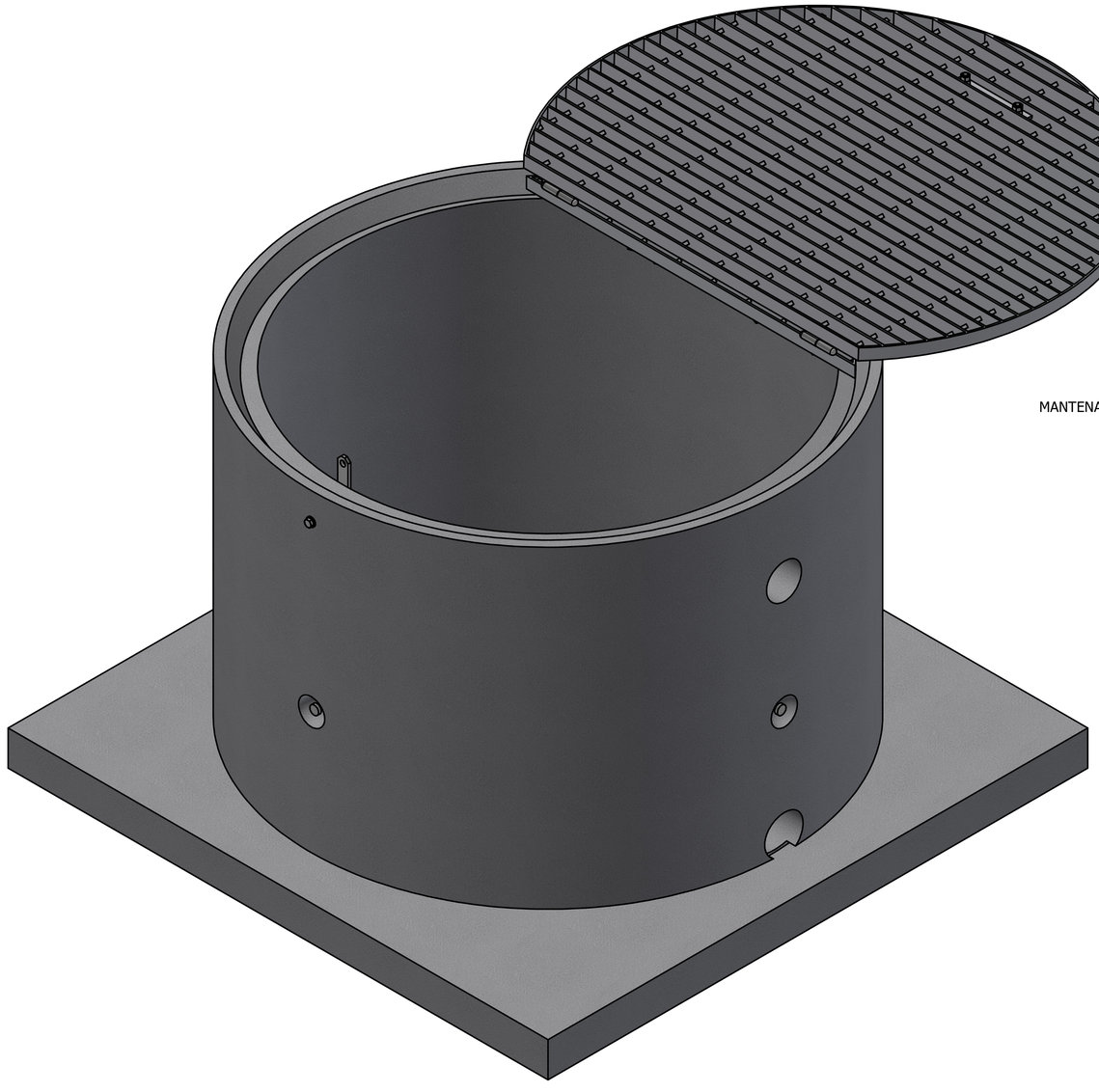
SD-3217-C

A1

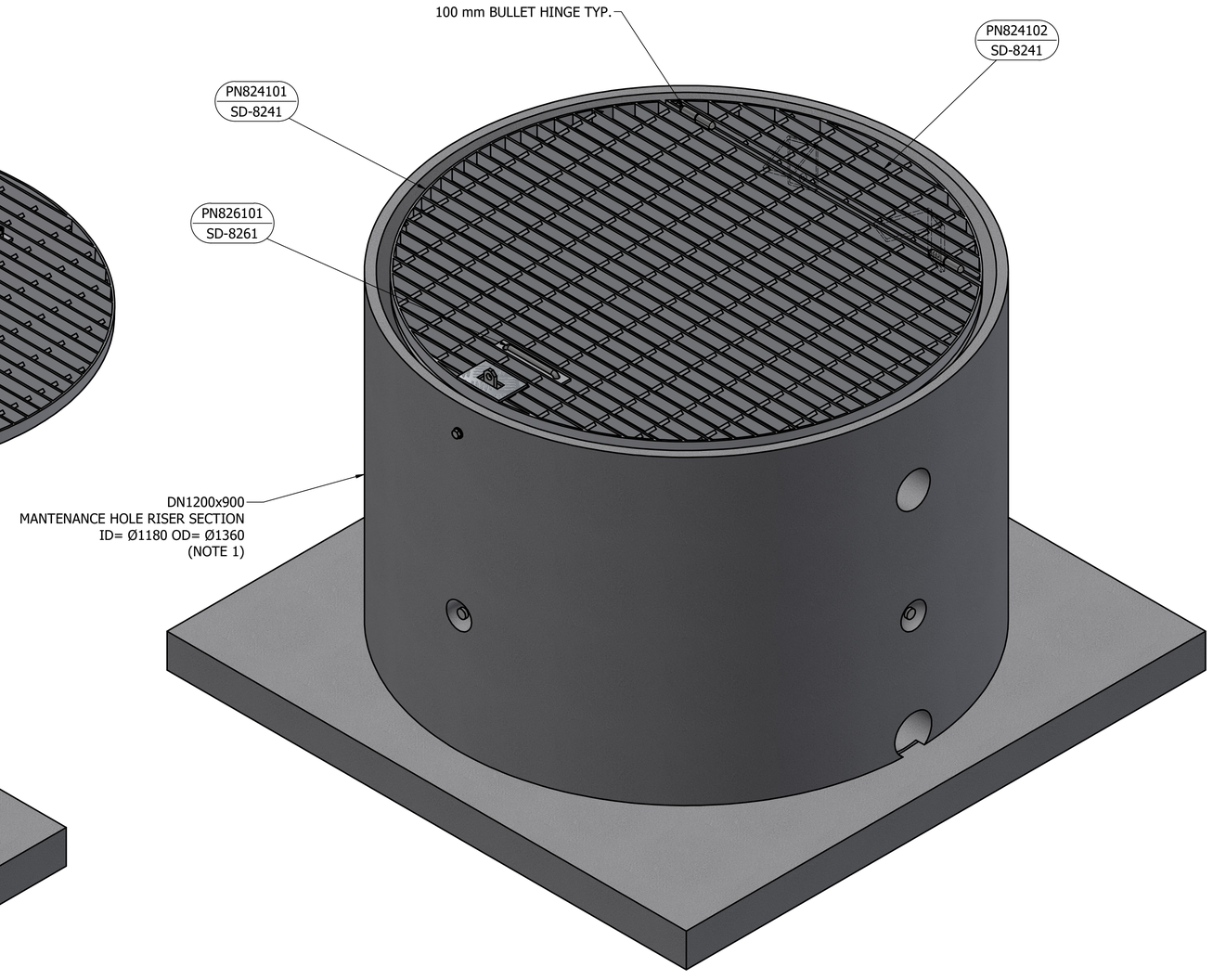
ISSUE: A

NOTES:

1. REFER TO SD-3211 OR SD-3212 FOR INSTALLATION DETAILS OF RC RISER SECTION



OPEN POSITION



CLOSED POSITION

PARTS LIST				
PART NUMBER	DESCRIPTION	QTY	MASS	REFERENCE
PN824101	COVER PANEL 1	1	20 kg	SD-8241
PN824102	COVER PANEL 2	1	10 kg	SD-8241
PN826101	LIFTING HANDLE	1	0.5 kg	SD-8261
N/A	100 mm BULLET HINGE	2	0.5 kg	N/A

DRAFT FOR COMMENTS

ITEM	AMDT.
PN824001	B

No.	ISSUE	DATE	DRAWN	CHECKED	AUTHORISED
A	INITIAL ISSUE	17/09/2018	S. Essery	K. Danenbergsons	C. Patrick
B	UPDATED TO SUIT DN1200 MH RISER	10/05/2023	M. Matusiak		

DAM	X	RES	X	SPS	X
BWS	X	WAT	X	STP	X
WTP	X	SEW	X		
WPS		REC			

ASSET AREA APPLICABILITY

icon WATER

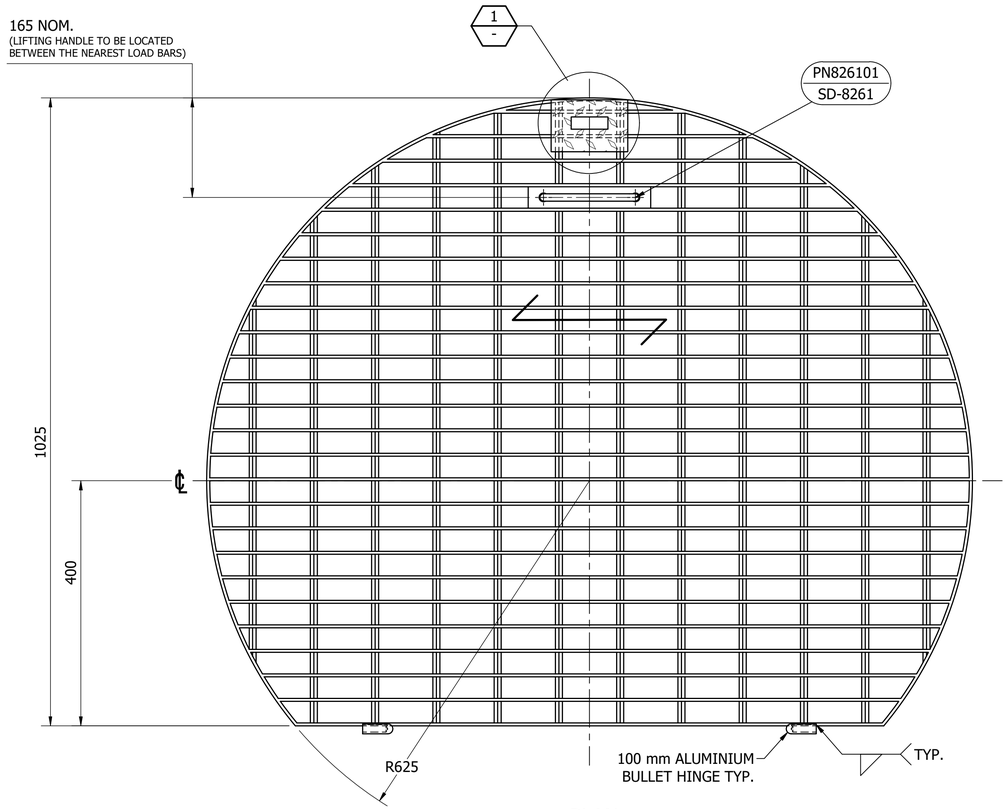
STANDARD DRAWING
ACCESS COVERS
DN1200 CIRCULAR MANHOLE RISER
GENERAL ARRANGEMENT

DRAWING STATUS: Draft For Comment

SD-8240-D

A1

ISSUE B

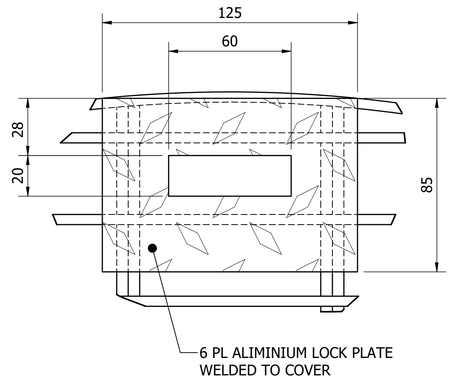


PLAN

COVER PANEL 1

MATERIAL: ALUMINIUM WEBFORGE C325 APM BANDED ALL ROUND
MASS: 20 kg

ITEM	AMDT.
PN824101	



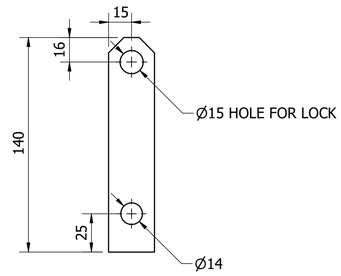
DETAIL 1

LOCKING PLATE

SCALE: 1 : 2

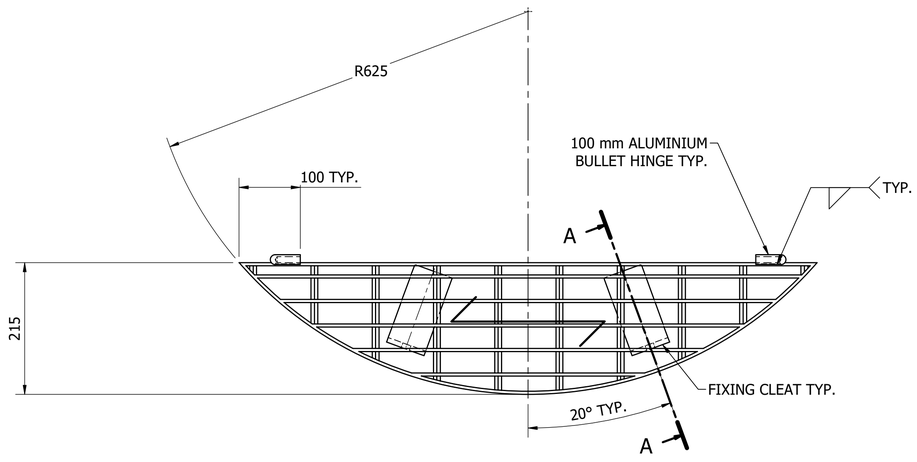
NOTES:

1. COVER PANELS HAVE BEEN DESIGNED TO BE LESS THAN 32 kg EACH AND CAPABLE OF SUPPORTING A 2.5 kPa UDL WITH A MAX. MIDSPAN DEFLECTION OF 5.0 mm.



LOCKING TAB

MATERIAL: STAINLESS STEEL GRADE 316, 6 THK.
MASS: 0.5 kg

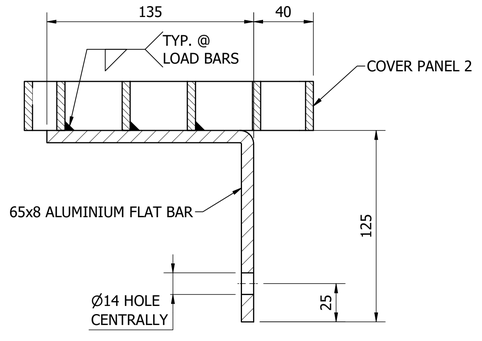


PLAN

COVER PANEL 2

MATERIAL: AS PER PANEL 1
MASS: 10 kg

ITEM	AMDT.
PN824102	C



SECTION A-A

TYPICAL FIXING CLEAT DETAILS
SCALE: 1 : 2

DRAFT FOR COMMENTS

No.	ISSUE	DATE	DRAWN	CHECKED	AUTHORISED
A	INITIAL ISSUE	15/06/2018	M. Matusiak	K. Danenbergsons	D. Eager
B	DRAWING NAME & NUMBER, HINGE, AND KEEPER PLATE UPDATE	17/09/2018	S. Essery	K. Danenbergsons	C. Patrick
C	UPDATED TO SUIT DN1200 MH RISER PIT	10/05/2023	M. Matusiak		

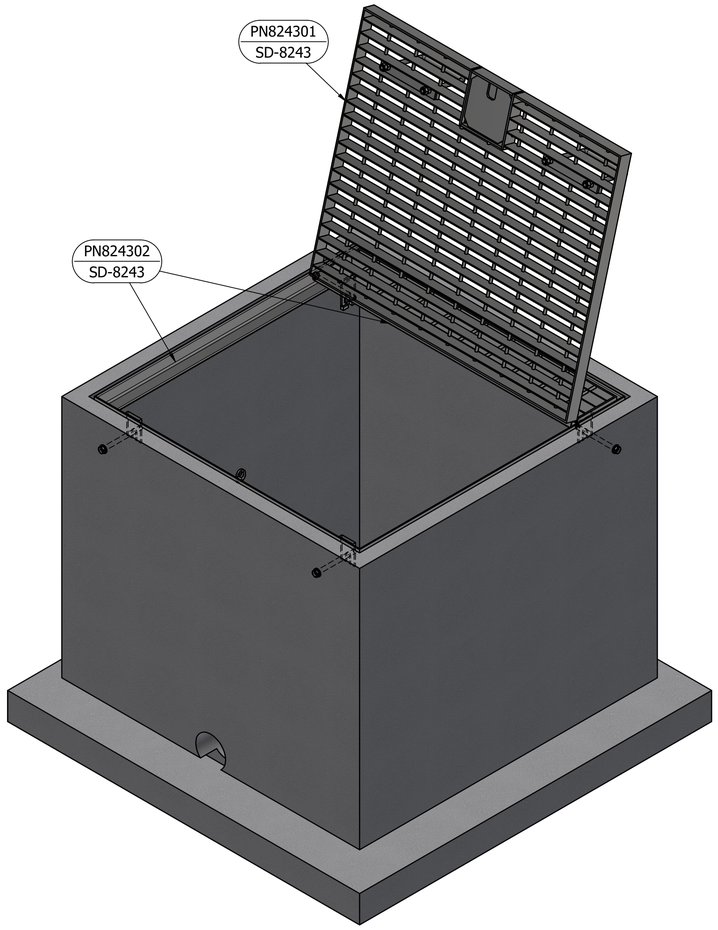
ASSET AREA APPLICABILITY					
DAM	X	RES	X	SPS	X
BWS	X	WAT	X	STP	X
WTP	X	SEW	X		
WPS	X	REC	X		

STANDARD DRAWING
ACCESS COVERS
DN1200 CIRCULAR MANHOLE RISER
COVER DETAILS

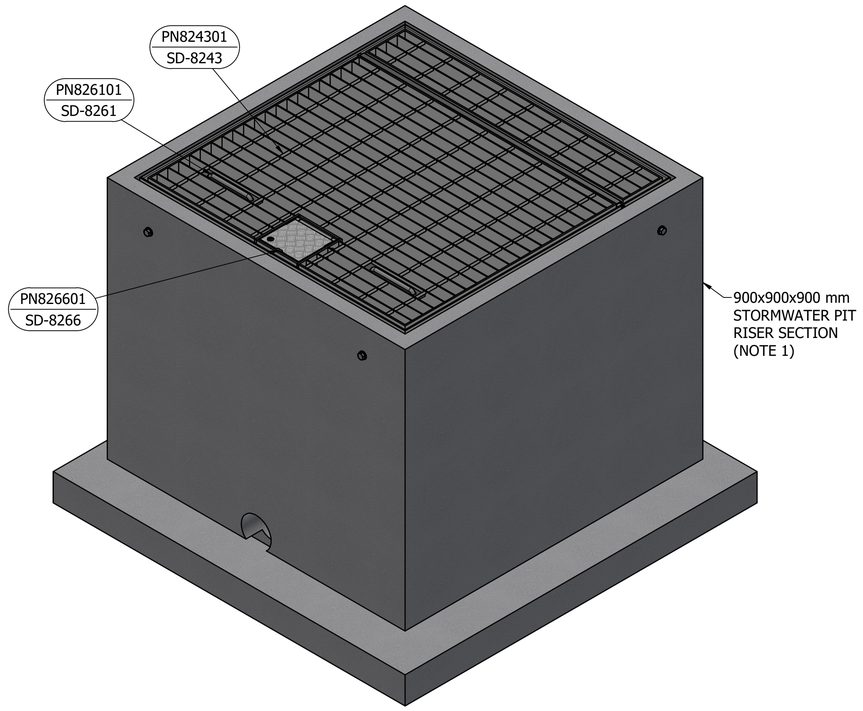
DRAWING STATUS
Draft For Comment

SD-8241-D

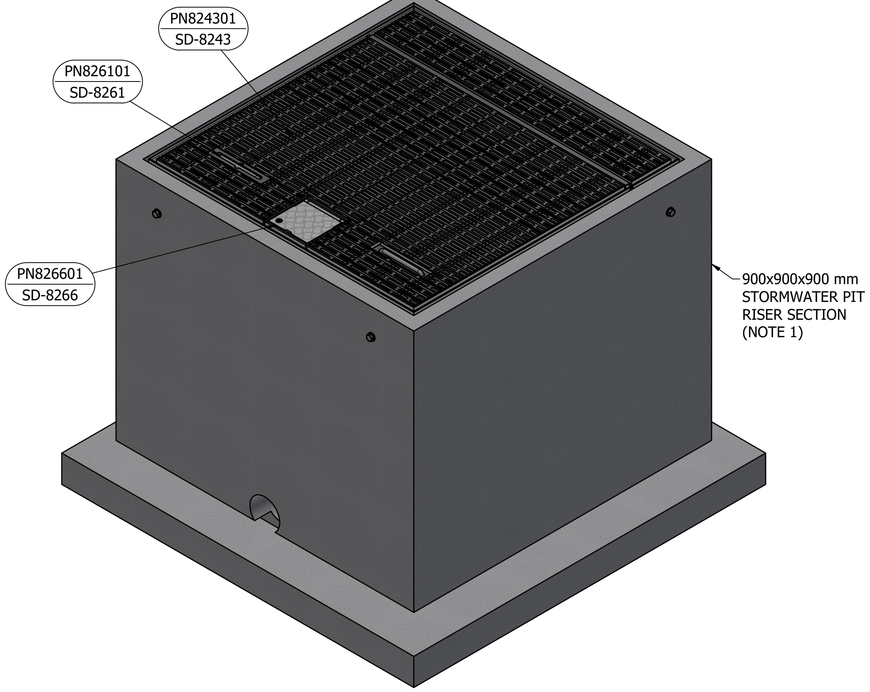
ISSUE C



OPEN POSITION



CLOSED POSITION



CLOSED POSITION
(HEEL PROOF COVER)

NOTES:

1. REFER TO SD-3216 OR SD-3217 FOR INSTALLATION DETAILS OF RC RISER SECTION.

PARTS LIST				
PART NUMBER	DESCRIPTION	QTY	MASS	REFERENCE
PN824301	HINGED COVER PANEL	1	30 kg	SD-8243
PN824302	COVER FRAME	1	20 kg	SD-8243
PN826601	LOCK BOX	1	8 kg	SD-8243
PN826101	LIFTING HANDLE	2	0.5 kg	SD-8261

DRAFT FOR COMMENTS

ITEM	AMDT.
PN824201	A

No.	ISSUE	DATE	DRAWN	CHECKED	AUTHORISED
A	INITIAL ISSUE	25/09/2023	M. Matusiak		

DAM		RES		SPS	
BWS	X	WAT	X	STP	
WTP		SEW			
WPS		REC	X		

ASSET AREA APPLICABILITY

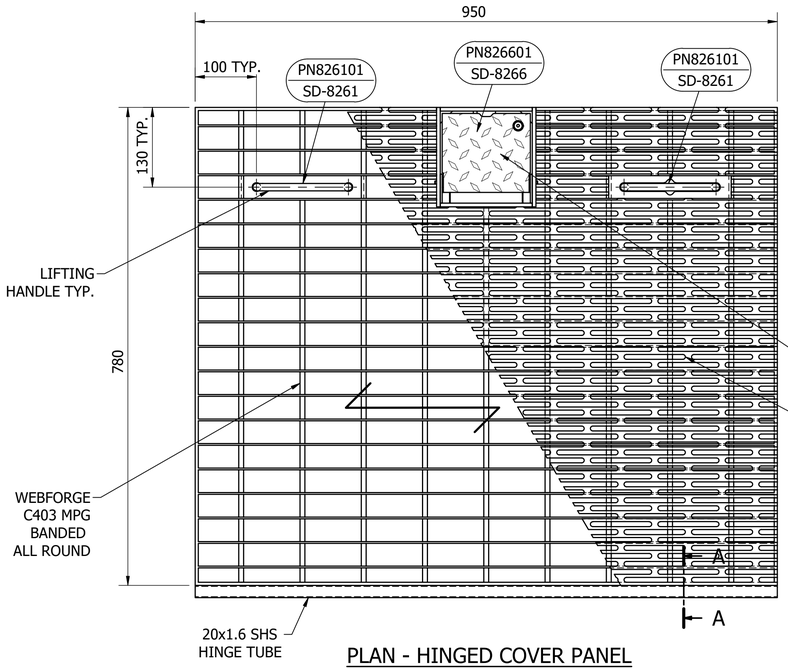
STANDARD DRAWING
ACCESS COVERS
900 mm SQUARE VALVE CHAMBER
GENERAL ARRANGEMENT

DRAWING STATUS: Draft For Comment

SD-8242-D

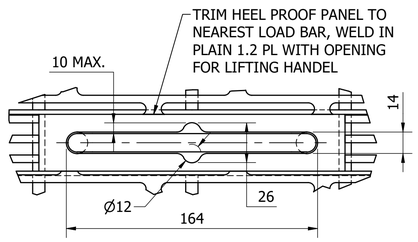
A1

ISSUE: A



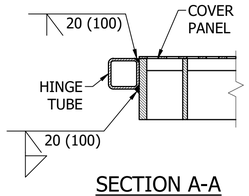
PLAN - HINGED COVER PANEL

MATERIAL: MILD STEEL
COATING: HOT DIP GALVANISED
FINISH COLOUR: N/A
MASS: 30 kg



HEEL PROOF DETAIL AT LIFTING HANDLE

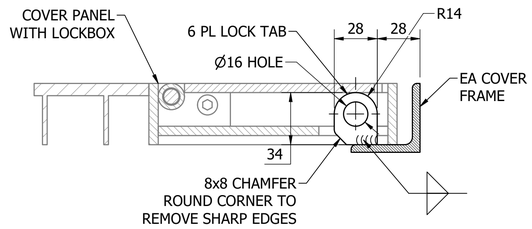
SCALE: 1 : 2



SECTION A-A

SCALE: 1 : 2

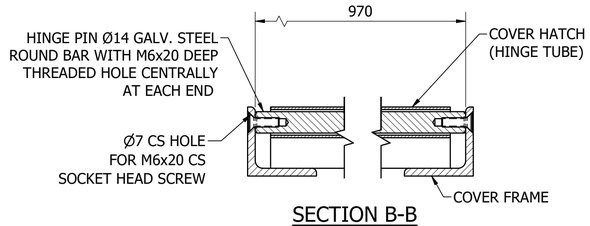
ITEM	AMDT.
PN824301	A



SECTION C-C

LOCK TAB DETAILS

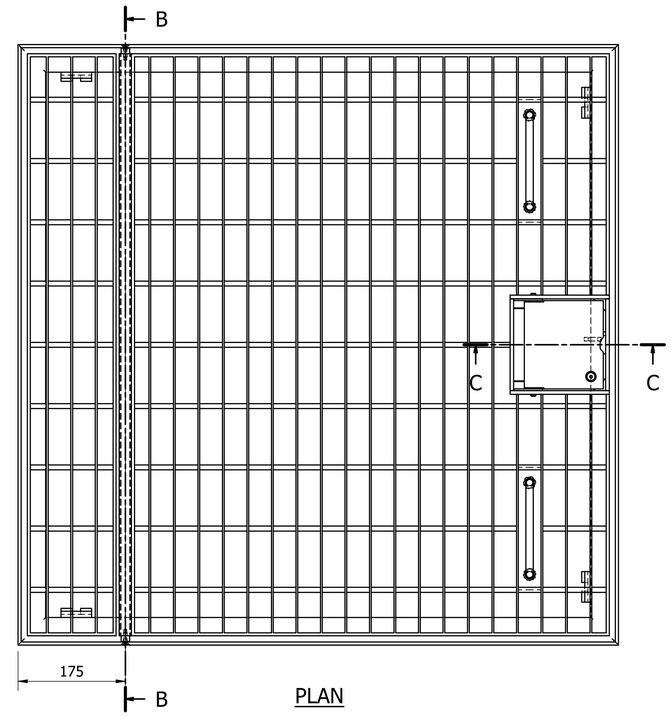
SCALE: 1 : 2



SECTION B-B

HATCH HINGE DETAILS

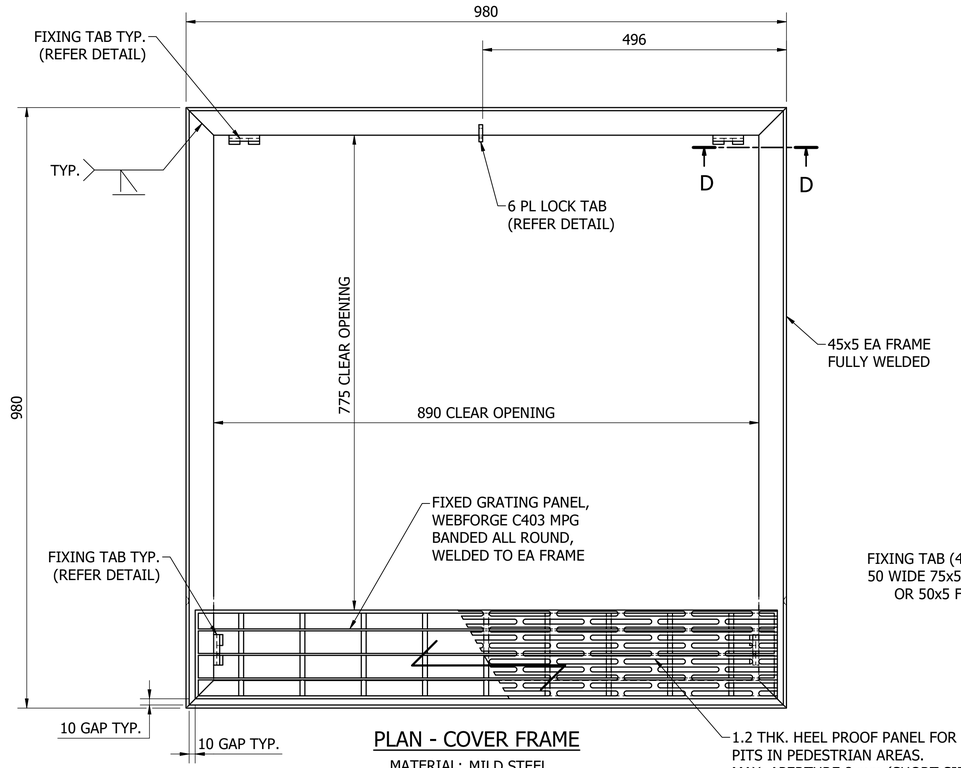
SCALE: 1 : 2



PLAN

FRAME AND HATCH ASSEMBLY DETAILS

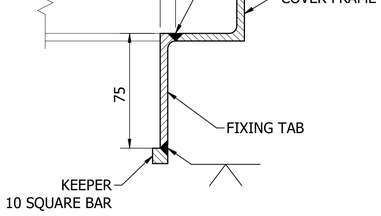
SCALE: 1 : 5



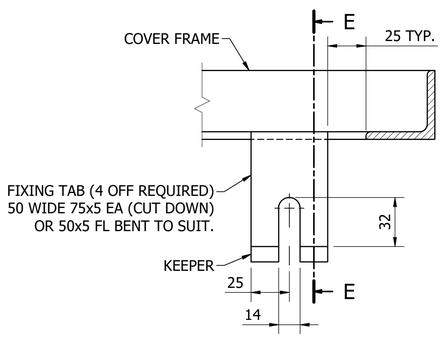
PLAN - COVER FRAME

MATERIAL: MILD STEEL
COATING: HOT DIP GALVANISED
FINISH COLOUR: N/A
MASS: 20 kg

ITEM	AMDT.
PN824302	A



SECTION E-E



SECTION D-D

KEEPER TAB DETAILS

SCALE: 1 : 2

1.2 THK. HEEL PROOF PANEL FOR
PITS IN PEDESTRIAN AREAS.
MAX. APERTURE 8 mm (SHORT SIDE)
(COVER MUST REMAIN FREE VENTING)

DRAFT FOR COMMENTS

NOTES:

1. COVER PANELS HAVE BEEN DESIGNED TO BE LESS THAN 32 kg EACH AND CAPABLE OF SUPPORTING A 2.5 kPa UDL WITH A MAX. MIDSPAN DEFLECTION OF 5.0 mm.
2. THIS DESIGN IS BASED ON A 900x900x900 mm PRECAST CONCRETE PIT RISER WITH A 50x50 mm JOINT REBATE.
3. ALL ITEMS EXCEPT HINGES ARE TO BE HOT DIP GALVANISED AFTER FABRICATION. HINGES ARE TO BE "COLD GALVANISED" IN ACCORDANCE WITH WSA-201 AFTER INSTALLATION ON SITE.

No.	ISSUE	DATE	DRAWN	CHECKED	AUTHORISED
A	INITIAL ISSUE	25/09/2023	M. Matusiak		

DAM		RES		SPS	
BWS	X	WAT	X	STP	
WTP		SEW			
WPS		REC	X		

ASSET AREA APPLICABILITY

icon WATER

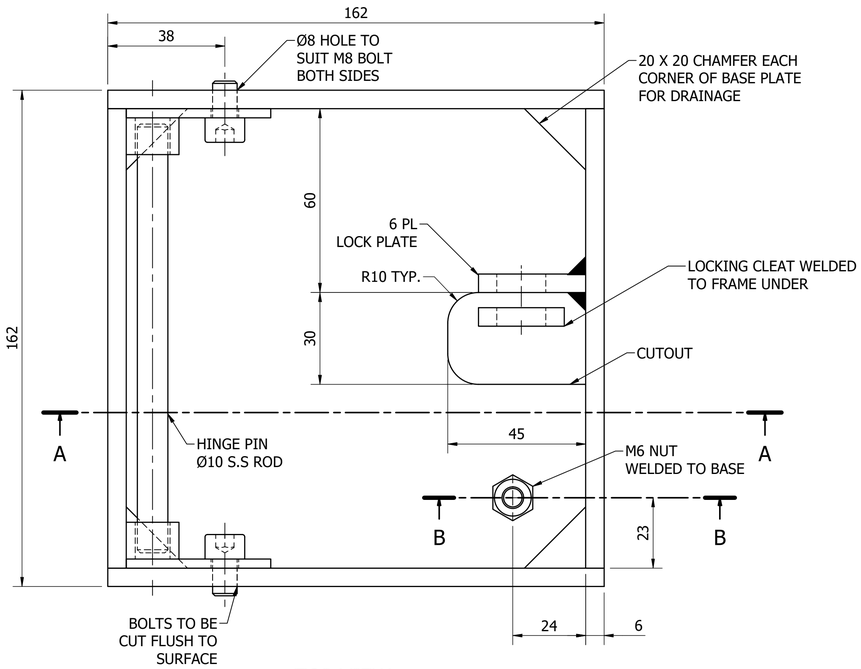
STANDARD DRAWING
ACCESS COVERS
900 mm SQUARE VALVE CHAMBER
COVER DETAILS

DRAWING STATUS: Draft For Comment

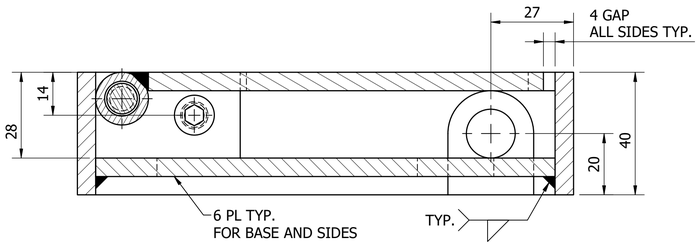
SD-8243-D

A1

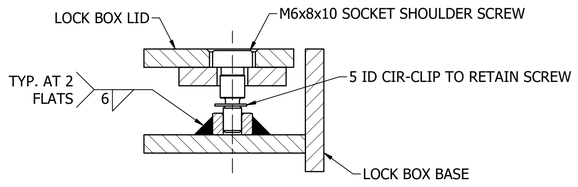
ISSUE: A



TOP VIEW
(LID OMITTED FOR CLARITY)



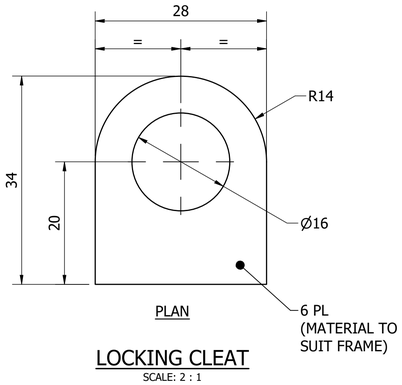
SECTION A-A



SECTION B-B
BOLT DOWN DETAILS

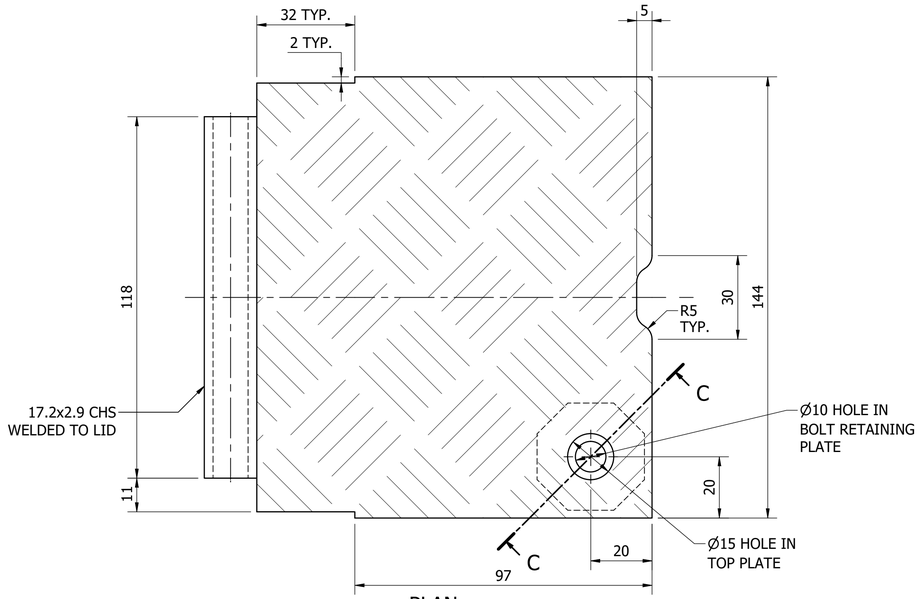
LOCK BOX
LOCKING PLATE STYLE
SCALE: 1 : 1

MATERIAL: CARBON STEEL / STAINLESS STEEL
COATING: HOT DIP GALVANISED (CARBON STEEL ONLY)
FINISH COLOUR: N/A
MASS: 8 kg

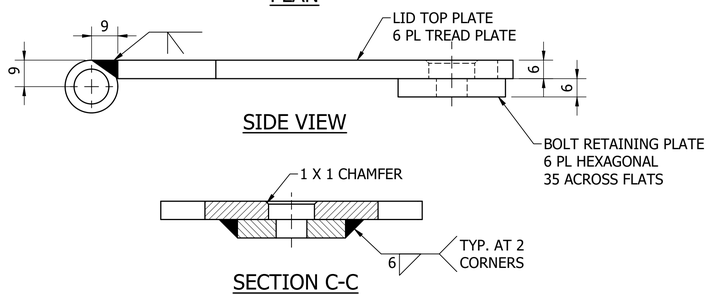


PLAN

LOCKING CLEAT
SCALE: 2 : 1



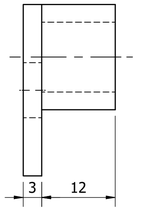
PLAN



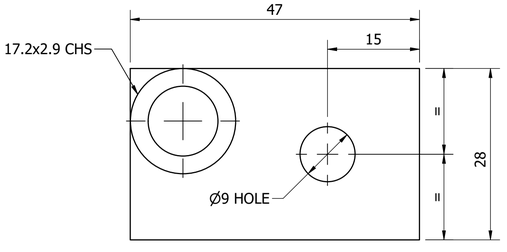
SIDE VIEW

SECTION C-C

LID
SCALE: 1 : 1



SIDE VIEW



FRONT VIEW

HINGE BRACKET
(MIRRORED FOR OPP. SIDE)
SCALE: 2 : 1

NOTES:

1. THIS DESIGN MAY ALSO BE USED FOR STAINLESS STEEL.
2. BOLT DOWN LID MAY NOT BE REQUIRED IF HATCH IS IN A NON PEDESTRIAN AREA.

DRAFT FOR COMMENTS

ITEM	AMDT.
PN826601	

No.	ISSUE	DATE	DRAWN	CHECKED	AUTHORISED
A	INITIAL ISSUE	15/06/2018	S. Essery	K. Danenbergsons	D. Eager
B	BOLT DOWN LID DETAILS ADDED	13/11/2023	M. Matusiak		

ASSET AREA APPLICABILITY					
DAM	X	RES	X	SPS	X
BWS	X	WAT	X	STP	X
WTP	X	SEW	X		
WPS	X	REC	X		

icon WATER

STANDARD DRAWING
ACCESS COVERS - HOT DIP GALVANISED STEEL, HINGED
LOCK BOX LOCKING PLATE TYPE
DETAILS

DRAWING STATUS: Draft For Comment

SD-8266-D

A1

ISSUE B