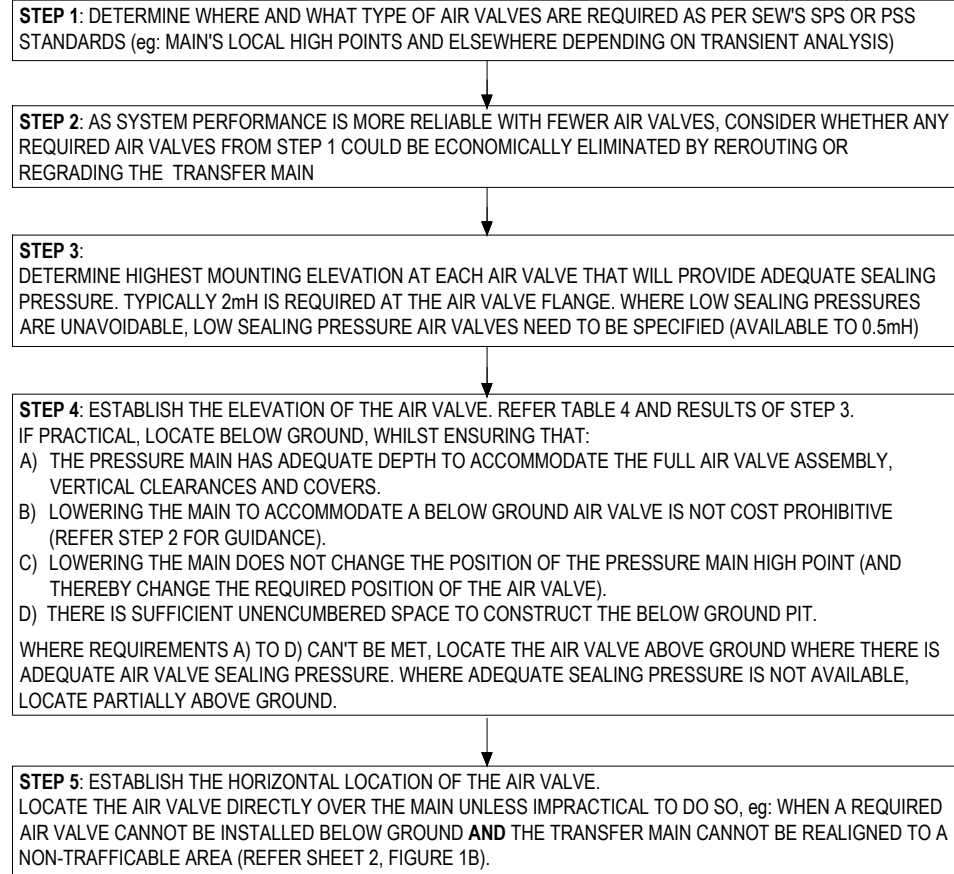


PROCESS FOR LOCATING AIR VALVES



GENERAL

- A. THESE AIR VALVE STANDARDS APPLY TO SEWAGE PUMP STATION PRESURE MAINS AND PRESSURE SEWERAGE SYSTEMS AND SHALL TAKE PRECEDENCE OVER WASAA OR MRWA REQUIREMENTS.
- B. THE DESIGNER IS TO TAKE INTO CONSIDERATION THE HYDRAULIC GRADE LINE AND THE REQUIRED SEALING PRESSURE WHEN SPECIFYING SUITABLE AIR VALVES.
- C. AIR VALVES PITS SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH AM2884-PIT STANDARD.
- D. EXAMPLE FIGURES IN THIS STANDARD ARE SHOWN WITH DN80 AIR VALVES. THE DESIGNER SHALL UNDERTAKE HYDRAULIC AND AIR HANDLING ANALYSIS TO CONFIRM THE OPTIMUM TYPE, SIZE AND LOCATION OF AIR VALVES.
- E. TO ENSURE ACCEPTABLE ACCESS, CONSULT WITH SEW WHEN DETERMINING AIR VALVE LOCATIONS.
- F. THE DRAWINGS DISPLAY A BERMAID AIR VALVE. REFER TO SEW APPROVED PRODUCTS LIST ON THE MRWA PRODUCTS PORTAL FOR ALTERNATIVES.
- G. ALL FITTINGS AND MATERIALS SHALL BE SEW APPROVED PRODUCTS LISTED ON THE MRWA PRODUCTS PORTAL UNLESS OTHERWISE STATED.
- H. SCHEMATICS THROUGHOUT THIS STANDARD ARE INDICATIVE SHOULD NOT BE TAKEN LITERALLY.
- I. COMPLETE CONCRETE WORKS IN ACCORDANCE WITH SEW STANDARDS AND AS 3600.

ODOUR, VENTS AND CARBON CANISTERS

- a. IN CONSULTATION WITH SEW, THE CONSULTANT SHALL ASSESS THE ODOUR RISKS OF ALL AIR VALVES.
- b. ODOUR RISK IS LARGELY DEPENDANT ON (AS EXPANDED ON IN MRWA-S-401):
 - b.a. THE DETENTION TIME OF SEWAGE AT THE AIR VALVE
 - b.b. THE QUALITY OF SEWAGE (IN PARTICULAR B.O.D)
 - b.c. THE LEVEL OF EXPOSURE OF CUSTOMERS TO THE ODOUR (ie: BUFFER TO RESIDENTS AND NUMBER OF CUSTOMERS IMPACTED)
 - b.d. AIR VOLUMES PASSING THROUGH THE AIR VALVE (ie: TYPICALLY HIGH RISK IF A MOVING HYDRAULIC GRADE LINE SUCH THAT THE MAIN RE-CHARGES AFTER EACH PUMP START). REFER SEW SPS STANDARDS.
- c. AIR VALVES SHALL VENT TO ATMOSPHERE WITH MINIMAL AIR FLOW RESTRICTION AS FOLLOWS:
 - c.a. TO A NEARBY ASHDOWN VENT (AS PER SHEET 4 FIGURE 3) WHEN ODOUR RISK IS LOW.
 - c.b. TO A HIGH LEVEL VENT STACK (AS PER SHEET 7) WHEN ODOUR RISK IS NOT LOW.
 - c.c. TO A CARBON CANISTER (AS PER SHEETS 5 & 6) WHEN ODOUR RISK IS NOT LOW AND THERE IS NO REASONABLE ALTERNATIVE. CARBON CANISTERS REQUIRE SEW APPROVAL. CARBON CANISTER DRUMS SHALL BE SOURCED FROM APPROVED SUPPLIERS (REF MRWA PORTAL).

TABLE 1: KEY PRINCIPLES AFFECTING AIR VALVE DESIGN DECISIONS

PRIORITY	PRINCIPLE	PREFERENCE/ LIMITATION
1	ENSURE PRESSURE MAIN HYDRAULIC PERFORMANCE	REFER SEW SPS STANDARDS
2	MINIMISE ODOUR & CORROSION	ASSESS AND CONTROL ODOUR AND CORROSION RISK AS PER SEW SPS STANDARDS
3	CONTROL FALL AND CONFINED SPACE RISKS	AM2884: PIT STANDARD (IF AIR VALVE LOCATED IN A PIT)
4	MINIMISE RISK OF SEWAGE SPILLS	PREVENT AND CONTAIN SEWAGE DISCHARGES AS FAR AS PRACTICAL
5	PROTECTION OF INSTALLATIONS AND WORKERS FROM TRAFFIC RISKS	LOCATE AS PRIORITISED IN TABLE 3. PROTECT AS PER AM2759: FACILITY SECURITY SPECIFICATION
6	PROVIDE ERGONOMIC ACCESS TO EQUIPMENT	PROVIDE SAFE ACCESS TO ALL AREAS OF THE AIR VALVE ASSEMBLY. PITS SHALL COMPLY WITH AM2884: PIT STANDARD. ENSURE ANY CABINETS CAN BE EASILY REMOVED AND LIFTED OUT OF POSITION PRIOR TO ACCESSING EQUIPMENT.
7	MAINTAIN CLEARANCES FROM OTHER SERVICES AND STRUCTURES	REFER MRWA SEWER CODE SECTION 5.4 AND MRWA WATER CODE SECTION 5.12.5.2
8	ENSURE MAINTAINABLE ITEMS ARE REMOVABLE	ENSURE ADEQUATE OPENING OVER BELOW GROUND MAINTAINABLE ITEMS

TABLE 4: AIR VALVE ELEVATION PREFERENCE

PREFERENCE (NO CARBON CANISTER)	PREFERENCE (CARBON CANISTER)	PIT LOCATION	REQUIREMENT
1	2	BELOW GROUND	PRESSURE MAIN CAN PRACTICALLY BE LOW ENOUGH WITHOUT CHANGING THE LOCATION OF THE HIGH POINT
2	1*	ABOVE GROUND	SEALING PRESSURE ACCEPTABLE. TRAFFIC COLLISION RISKS (REFER SHEET 2 NOTES) AND COMMUNITY OUTCOMES ACCEPTABLE
3	3	PARTIALLY ABOVE GROUND	PREFERENCE 1 & 2 NOT PRACTICAL

* AIR VALVES TYPICALLY PREFERRED ABOVE GROUND WHEN DISCHARGING TO A CARBON CANISTER. THIS ENABLES THE CARBON CANISTER TO BE ABOVE GROUND BUT BELOW THE AIR VALVE DISCHARGE LEVEL

TABLE 5: DESIGN SCHEDULE- TYPICAL DATA OPTIONS

Criteria	Option A	Option B	Option C	Note to the Designer on Designating Criteria
Air Valve location	Trafficable	Non-trafficable		Non-trafficable preferred if practical
Air Valve offset from tapping	Over Main (Fig 4A)	Horizontal Offset (Fig 4B)		Above Main preferred if practical. If Air Valve is horizontally offset from the tapping, indicate alignment of offtake pipework
Air valve vertical location	Below Ground (Sheet 3)	Above Ground (Sheets 4, 6 & 7)	Partially Below Ground (Sheets 4, 6 & 7)	Below Ground preferred. Refer Sheet 1 Table 4.
Air valve type	Dual orifice, single acting	Dual orifice, double acting	Dual orifice, double acting, anti-surge	Air valve types available vary depending on the manufacturer
Minimum primary orifice diameter / area	30 -40 mm	41-50 mm	> 50 mm	Undertake hydraulic analysis to determine air valve size. Options vary depending on the product and connection size
Air valve & connecting pipe size (DN)	DN80	DN100	DN150	Minimum DN80. Indicate size of connecting pipework
Main size (relevant if below ground)	Large (> DN300, Sheet 3)	Small (<= DN300, Sheet 3)		Only relevant if below ground. "Large" main refers to mains greater than DN450. Remove table row if not required
Carbon cannister required	No	Yes (Sheet 5 & 6)		Fully primed AV downstream of 1st AV (after pump) don't require a vent stack or cannister unless AV is unusually close to someone.
Ashdown vent or vent stack required	No	Ashdown Vent (Sheet 3)	Vent Stack (Sheet 7)	

CABINETS SHALL BE:

1. DESIGNED AND INSTALLED ON THE ASSUMPTION THAT THEY WILL BE REMOVED EACH TIME EQUIPMENT WITHIN THE CABINET NEEDS TO BE ACCESSED. FASTENING OF THE CABINET AND LIFTING ATTACHMENT POINTS SHALL BE PROVIDED TO ENABLE THIS TO BE EFFICIENTLY UNDERTAKEN.
2. LOCATED ON A CONCRETE SLAB, WHICH IS AT LEAST: 150 THICK, GRADE N25 WITH SL81 REINFORCEMENT.
3. AS PER EXTERNAL SWITCHBOARD REQUIREMENTS DESCRIBED IN SEW STANDARD AM2714 - ELECTRICAL STANDARDS, IN REGARDS TO MATERIALS, COLOURS, DOORS, LOCKS, VENTILATION, LIFTING, SUPPORTING STRUCTURE.
4. LOCATED AND PROTECTED IN ACCORDANCE WITH AM2759- FACILITY SECURITY STANDARD.
5. IP42 OR HIGHER.
6. FABRICATED SO CABINET ROOF SLOPES AT 1:100 AWAY FROM THE DOOR FOR DRAINAGE.
7. FIX CABINET TO CONCRETE SLAB:
 - 7.1. WITH M10 SS316 (A4) BOLTS AT MAXIMUM 400 SPACING WITH ONE IN EACH CORNER.
 - 7.2. ENSURE ADEQUATE CLEARANCE AROUND BOLTS SO THEY CAN BE EASILY REMOVED.
 - 7.3. ALL BOLTS SHALL MATE WITH SS316 (A4) THREADED INSERTS CAST INTO THE CONCRETE SLAB.
8. PROVIDED WITH LIFTING ATTACHMENTS WHICH SHALL BE IN ACCORDANCE WITH AS4991- LIFTING DEVICES.
9. DOOR OPENINGS SHALL PROVIDE LINE OF SIGHT ACCESS TO ALL OPERABLE ITEMS, VALVE FASTENERS AND DISMANTLING JOINTS. TYPICALLY THIS MEANS FULL HEIGHT, FULL WIDTH DOOR OPENINGS ON TWO OPPOSITE FACES OF THE CABINET.
10. STIFFEN CABINETS (WITH INTERNAL RIBS, GUSSETS &/OR THICKER SHEET) AS REQUIRED TO COMPENSATE FOR DOOR OPENINGS.

TABLE 6: DESIGN SCHEDULE REQUIREMENTS AND EXAMPLES

Criteria	Air Valve 1	Air Valve 2	Air Valve 3
Air Valve location	Trafficable	Non-trafficable	Non-trafficable
Air Valve offset from tapping	Over Main	Over Main	Horizontal Offset
Air valve vertical location	Below Ground	Above Ground	Partially above ground
A = Pressure main highest downstream invert level	80mAHD	90mAHD	100mAHD
B = Air valve mounting flange level (AHD)	70mAHD	89mAHD	60mAHD
Sealing Head (m) (= A-B)	10m	1m	40m
Air valve type	Dual orifice, double acting	Dual orifice, double acting, anti-surge	Dual orifice, double acting, anti-surge
Minimum primary orifice diameter / area	30-40 mm	30-40 mm	41-50 mm
Air valve & connecting pipe size (DN)	DN80	DN80	DN100
Main size (relevant if below ground)	Small (<=DN300)	NA	NA
Carbon cannister required	No	No	Yes
Ashdown vent or vent stack required	Ashdown vent	No	No
RELEVANT FIGURES	Sheet 3, Figure 2	Sheet 4, Figure 2	Sheet 6, Figure 4

INSTRUCTIONS TO THE DESIGNER

- Magenta text is example text only. Completed design table contents shall be normal black text.
- Magenta text has mostly been selected from Table 5.

TABLE 2: SHEETS WITHIN AM2883- AIR VALVE STANDARD

SHEET NO.	SHEET TITLE
1	GENERAL REQUIREMENTS
2	GENERAL ARRANGEMENTS
3	AIR VALVES IN PITS
4	ABOVE OR PARTIALLY ABOVE GROUND AIR VALVES
5	BELOW GROUND AIR VALVES WITH CARBON CANISTERS
6	ABOVE GROUND AIR VALVES WITH CARBON CANISTERS
7	VENT AND ABOVE GROUND AIR VALVE

TABLE 3: AIR VALVE LOCATION AND ACCESS PREFERENCE

PREFERENCE	PIT LOCATION
1	SOUTH EAST WATER OWNED LAND
2	PUBLIC OPEN SPACE
3	NATURE STRIP / MEDIAN STRIP / ROAD SHOULDER
4	UNDER ROAD PAVEMENT (REQUIRES SEW APPROVAL) LOCATE AS CLOSE AS PRACTICAL TO THE KERB

NOTES REGARDING TABLE 3:

1. WHERE POSSIBLE, LOCATE PITS OUT OF ROAD PAVEMENT TO ENSURE SAFE ACCESS.
2. WHEN LOCATED IN ROAD PAVEMENT, MINIMISE TRAFFIC DISRUPTION AND TRAFFIC MANAGEMENT REQUIREMENTS. LOCATE AS PER SHEET 2 REQUIREMENTS.
3. LOCATE PITS TO PROVIDE CLEAR SPACE FOR ANY LIKELY FUTURE EXPANSION, eg: AIR TREATMENT OR VENT INSTALLATION.

CAD FILE NAME: S:\Projects\SEW-21801-SEW Standards Support\SEW Sewer Air Valve Standards\10 CAD\SEW-20013-C01.dwg

DESIGNER	R. JAGGER	OCT 21
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SOUTH EAST WATER
SEWER AIR VALVE STANDARDS
GENERAL REQUIREMENTS
SHEET 1 OF 7

DATUM:	
MELWAY REF: N/A	
SCALE:	
SHEET SIZE: A1	
SEW DRAWING NUMBER	
AM2883- SHEET 1	B
SEW JOB No:	
REV	

TYPICAL MAIN ALIGNMENTS AND AIR VALVE LOCATIONS

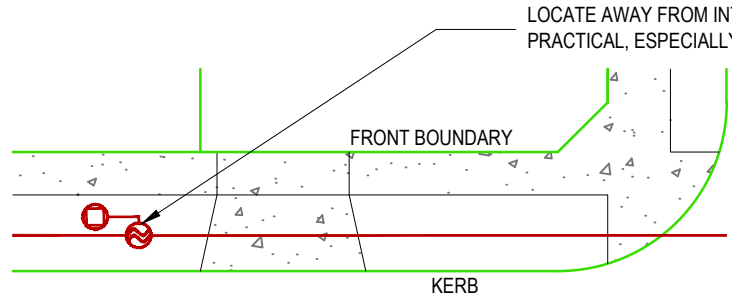


FIGURE 1A: NON-TRAFFICABLE OVER MAIN AIR VALVE
 • BELOW GROUND AIR VALVE, or
 • ABOVE GROUND WHERE TRAFFIC COLLISION RISK IS ACCEPTABLE

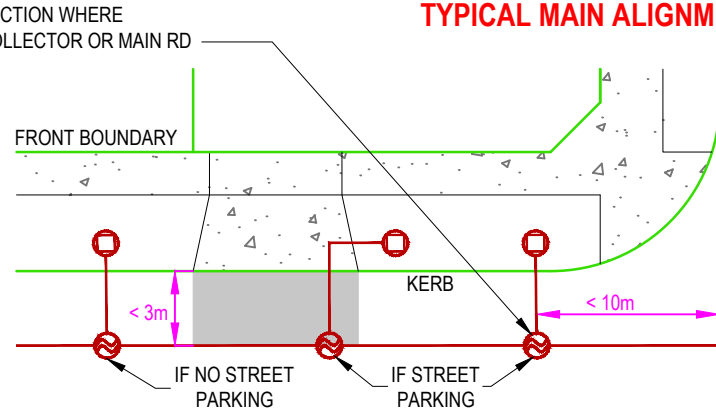


FIGURE 1C: TRAFFICABLE MAIN & BELOW GROUND AIR VALVE
 - BELOW GROUND AIR VALVES ONLY.
 - REDUCE RISK OF VEHICLES PARKING OVER AN AIR VALVE.
 • LOCATE AIR VALVE IN A NO PARKING AREA, or
 • LOCATE AIR VALVE IN FRONT OF DRIVEWAY, or
 • LOCATE AIR VALVE WITHIN 10m OF LOW TRAFFIC INTERSECTION GRADE TRANSFER MAIN AS REQUIRED TO ENSURE HIGH POINT LOCATED AT ONE OF THESE LOCATIONS.
 - LOCATE < 3m FROM BACK OF KERB TO MINIMISE TRAFFIC DISRUPTION.

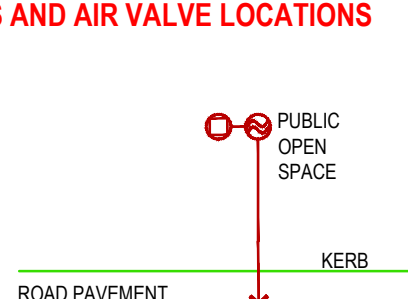


FIGURE 1D: TRAFFICABLE MAIN & HORIZONTALLY OFFSET PUBLIC OPEN SPACE AIR VALVE

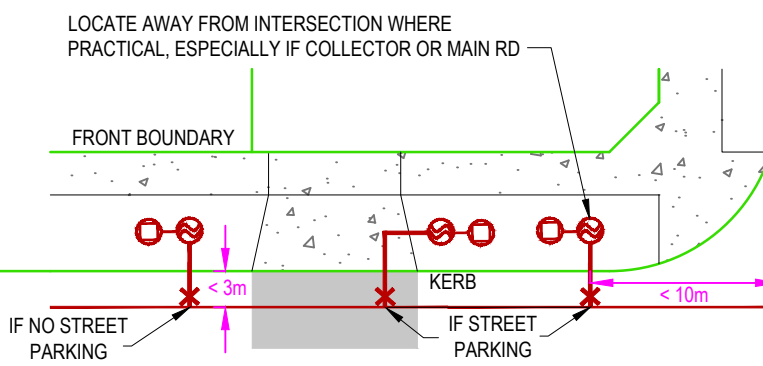


FIGURE 1E: TRAFFICABLE MAIN AND HORIZONTALLY OFFSET NATURE STRIP AIR VALVE

NOTES REGARDING HORIZONTALLY OFFSET AIR VALVE REQUIREMENTS:

- ONLY ACCEPTABLE WHEN BELOW GROUND TRAFFICABLE AIR VALVE IS IMPRACTICABLE, and TRANSFER MAIN CANNOT BE DEFLECTED TO A NON-TRAFFICABLE LOCATION.
- ENSURE HORIZONTAL OFFSET IS AS SHORT AS POSSIBLE
- IMPLEMENT TRAFFIC COLLISION RISK CONTROLS AS NECESSARY (REFER NOTES AT BOTTOM LEFT)

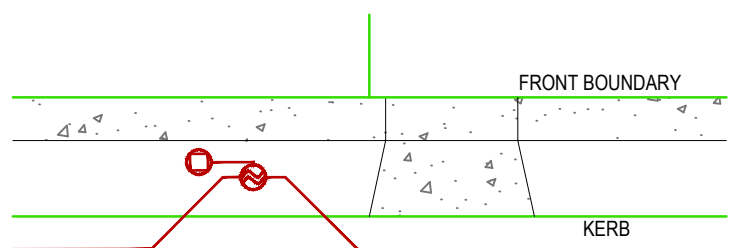
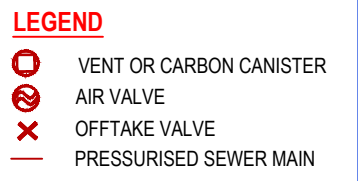


FIGURE 1B: TRAFFICABLE MAIN DEFLECTED TO NON-TRAFFICABLE OVER MAIN AIR VALVE
 • BELOW GROUND AIR VALVE, or
 • ABOVE GROUND WHERE TRAFFIC COLLISION RISK IS ACCEPTABLE



OVER MAIN AIR VALVE ARRANGEMENTS

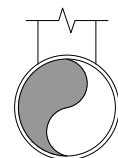
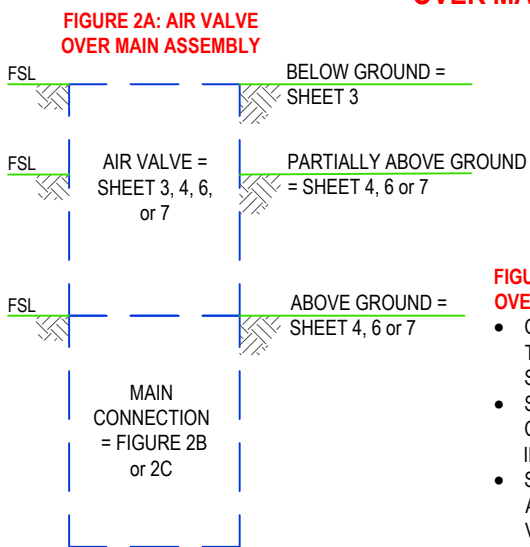


FIGURE 2B: STANDARD CONNECTION FOR OVER MAIN AIR VALVE
 • OFFTAKE IS AS CLOSE TO THE SIZE OF THE AIR VALVE AS POSSIBLE (BUT NO SMALLER)
 • SUITABLE WHERE THERE IS LIMITED COVER AND FIGURE 2C IS IMPRACTICAL, or
 • SUITABLE WHERE TRANSFER MAIN ALWAYS CHARGED AND SEWAGE VELOCITY IS LOW (ie: <1.5 m/s)

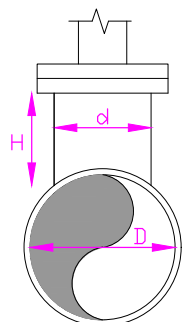


FIGURE 2C: OVERSIZED OFFTAKE FOR OVER MAIN AIR VALVE
 • MAY BE USED WHERE THE TRANSFER MAIN IS ADEQUATELY DEEP (ie: > 1300mm) AND THE AIR VALVE IS BELOW GROUND, or
 • THE AIR VALVE IS ABOVE GROUND.
 • PREFERRED WHEN TRANSFER MAIN WILL LOSE CHARGE &/OR SEWAGE VELOCITY IS HIGH (ie: ≥1.5 m/s)
 • 'd' AND 'H' SHOULD BE ≥ 0.5 X 'D'

NOTES ON TRAFFIC COLLISION RISK

A. TRAFFIC COLLISION RISK IS HIGHER WHEN ABOVE GROUND ASSETS ARE:

1. CLOSER TO ROADS (ie: < 2m FROM KERB).
2. THE ROAD HAS MORE TRAFFIC (ie: IS A COLLECTOR OR MAIN ROAD).
3. THE ROAD'S SPEED LIMIT IS HIGHER (ie: ≥ 70 km/hr).
4. IN ROAD RESERVE NEAR OUTSIDE BEND IN THE ROAD.
5. THERE ARE NO TREES, BARRICADES OR BOLLARDS TO PROTECT IT.

B. ALL ABOVE GROUND ASSETS (BOLLARDS, MARKER POSTS & HIGH LEVEL VENTS EXCEPTED) MUST HAVE A LOW RISK OF TRAFFIC DAMAGE.

C. LOW RISK OF TRAFFIC DAMAGE IS CONSIDERED TO EXIST WHEN:

- NONE OF CONDITIONS 1 to 4 ABOVE EXIST, or
- THERE IS SUFFICIENT TREE, BARRICADE, GUARDRAIL OR BOLLARD PROTECTION.

TAPPING AND OFFTAKE PRODUCTS AND FITTINGS:

- FOR OFFTAKES FROM NEW RRJ MAINS, INSTALL DI FLANGED TEE AND FLANGED PIPE.
- FOR OFFTAKES FROM WELDED MAINS (eg: PE & MS), INSTALL WELDED OFFTAKE STUB AND WELDED PIPE.
- FOR TAPPING OF AN EXISTING MAINS, REFER MRWA-W-106.

HORIZONTALLY OFFSET AIR VALVE ARRANGEMENTS (NOT PREFERRED)

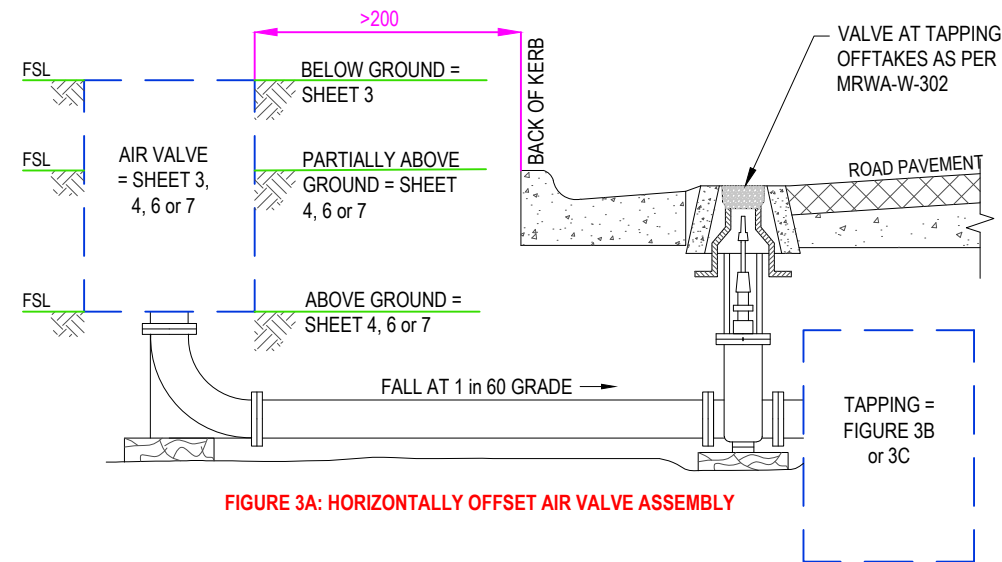


FIGURE 3A: HORIZONTALLY OFFSET AIR VALVE ASSEMBLY

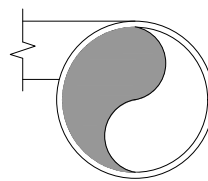


FIGURE 3B: STANDARD INVERTED SCOUR TEE CONNECTION
 • OFFTAKE SHALL BE AS CLOSE TO THE SIZE OF THE AIR VALVE AS POSSIBLE (BUT NO SMALLER)
 • SUITABLE WHERE THERE IS LIMITED COVER AND FIGURE 3C IS IMPRACTICAL, or
 • SUITABLE WHERE AIR ACCUMULATION IS EXPECTED TO OCCUR SLOWLY AND SEWAGE VELOCITY IS LOW (ie: < 1.5 m/s)

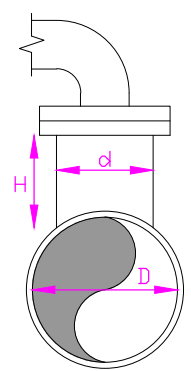


FIGURE 3C: OFFSET AIR VALVE CONNECTION TO MAINS ≥DN375
 • CHECK THAT THE TRANSFER MAIN HAS SUFFICIENT COVER FOR THIS ARRANGEMENT. ESPECIALLY SIGNIFICANT COVER REQUIRED WHEN THIS ARRANGEMENT IS ALSO USED IN COMBINATION WITH BELOW GROUND AIR VALVES.
 • PREFERRED WHEN AIR ACCUMULATION IS EXPECTED TO OCCUR MORE RAPIDLY &/OR SEWAGE VELOCITY IS HIGH (ie: ≥1.5 m/s)
 • 'd' AND 'H' SHOULD BE ≥ 0.5 X 'D'

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REV	DESCRIPTION	JOB No	DRAFTER	DES REVIEW	APPD	DATE
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DESIGN REVIEW M. LOWE OCT 21	DRAFT CHECK M. MAXWELL OCT 21	ASSET/ENG. MANAGER J. TULLY OCT 21
APPROVED C. PAXMAN OCT 21		VENDOR DRAWING No: SEW-200131-C06

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SOUTH EAST WATER
SEWER AIR VALVE STANDARDS
GENERAL ARRANGEMENTS
SHEET 2 OF 7

DATUM:	MELWAY REF: N/A	SHEET SIZE: A1
SCALE:		SEW DRAWING NUMBER
AM2883- SHEET 2		B
SEW JOB No:		REV

MATERIALS SCHEDULE	
ITEM	DESCRIPTION
1	COMBINATION AIR VALVE FOR SEWAGE (DN80 BERMAD MODEL SHOWN ON DRAWING)
2	FLANGED RESILIENT SEATED SLUICE VALVE + GEARBOX + EXTENSION SPINDLES TO BELOW COVER - CLOCKWISE CLOSING (DN80 SHOWN ON DRAWING)
3	SS316 SPINDLE OR GEARBOX SUPPORT BRACKET. PLACE PE BUSH AROUND RISING SPINDLE.
4	PIPE SUPPORT AS PER AM2884: PIT STANDARD
5	REDUCER IF REQUIRED
6	BLEED COCK (SUPPLIED INTEGRATED WITH AIR VALVE)
7	DN50 PN12 PVC-U SCJ PRESSURE PIPE & BENDS (OD=60)
8	DN50, 75 LONG WANG KWIK REPAIR CLAMP WITH SS FASTENERS (OD=60)
9	DN63 PE100 PN8 PIPE
10	DN63 X DN110 PE PIPE COMPRESSION REDUCER
11	DN110 PE100 PN8 VENT PIPE TO EXTERNAL VENT
12	TAPPING. REFER SHEET 2 FOR DETAILS
13	PIT. REFER AM2884- SEW PIT STANDARD
14	COVER (REFER AM2757- COVERS FOR UNDERGROUND STRUCTURES STANDARD)
15	COVER WITH VENT HOLES. REFER FIG 305-D FROM MRWA-W-305 NOT SHOWN FOR CLARITY
16	PENETRATION AND "COMPO". REFER TABLE 500-B FROM MRWA-S-500.
17	PENETRATION 400 x 400. FILLED WITH 1% CEMENT STABILISED EMBEDMENT. ENLARGED PENETRATION REQUIRED ONLY WHERE TAPPING WOULD BE ACCESSIBLE FROM THE PIT (ie: <300 FROM PIT FLOOR).
18	LOWER BACKFILL & EMBEDMENT AS PER AM2884 - PIT STANDARD, SHEET 3
19	PIT SIDE BACKFILL. REFER MRWA BACKFILL SPECIFICATION
20	DN100 STAINLESS STEEL REPAIR CLAMP
21	DUCTILE IRON ASHDOWN VENT
22	BOLLARD(S) OR POST WITH MARKER PLATE. REFER FIGURE 3
23	FLEXSEAL RUBBER BUSH IF REQUIRED TO BRING ASHDOWN OD TO 110

DESIGNER IS TO CONFIRM APPROPRIATE VALVE AND FITTING SIZE FOR EACH APPLICATION

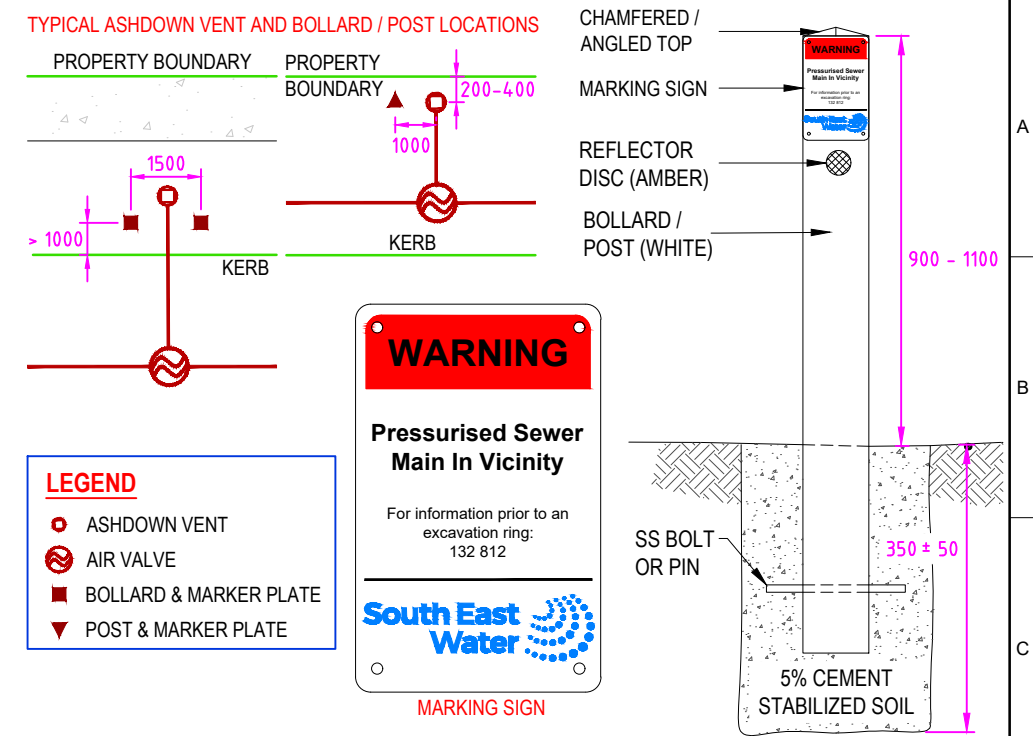


FIGURE 3: ASHDOWN VENT LOCATION, PROTECTION AND MARKING ARRANGEMENTS

- BOLLARD / POST REQUIREMENTS:**
1. USE BOLLARDS AS NECESSARY TO ENSURE ASHDOWN VENT HAS A LOW TRAFFIC COLLISION RISK (REFER SHEET 2).
 2. BOLLARDS SHALL BE 100 x 100 CLASS ONE RATED OUTDOOR IN GROUND TIMBER AS PER AS 5604.
 3. USE APPROVED MARKER POSTS WHERE LOW TRAFFIC COLLISION RISK.
 4. SHALL BE WHITE IN COLOUR
 5. ATTACH WARNING SIGN USING 40 LONG SS SELF TAPPING SCREWS
 6. FACE MARKING SIGN TOWARDS THE ROAD.
 7. WHERE MULTIPLE BOLLARDS, MARKING SIGN ONLY REQUIRED ON ONE BOLLARD.

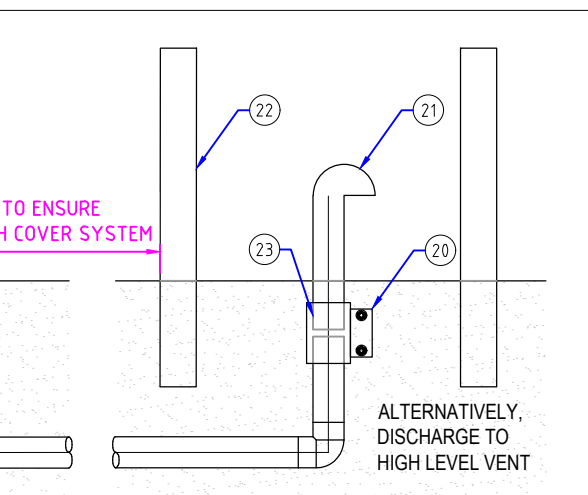


FIGURE 4: AIR VALVE PIT FOR > DN300 (LARGE) MAIN (SECTION A)

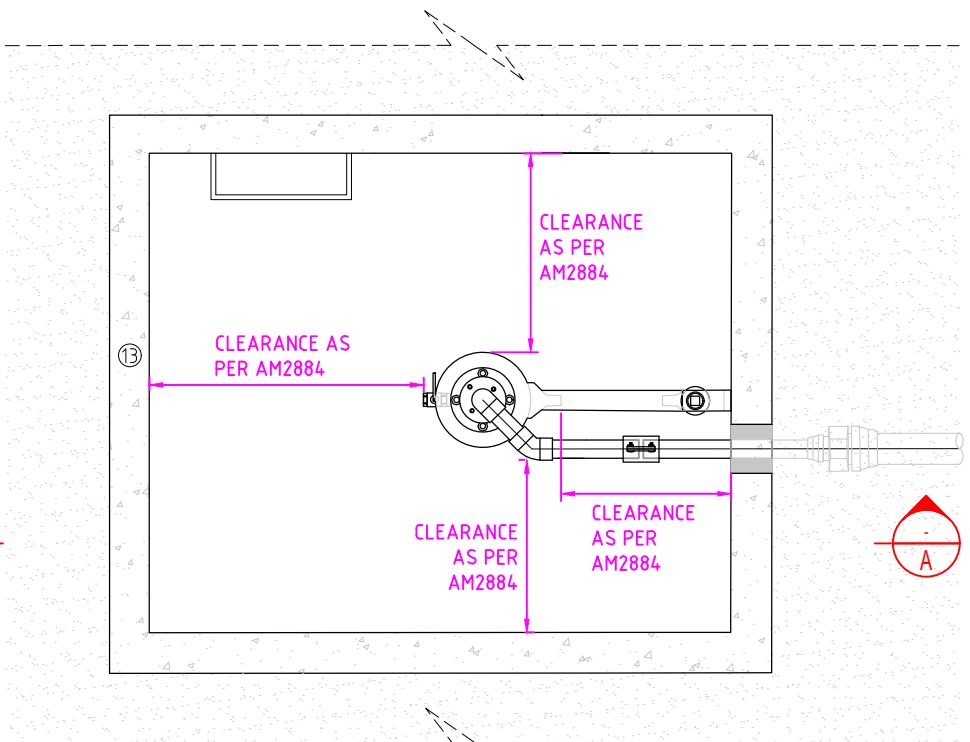


FIGURE 1: AIR VALVE PIT (PLAN)

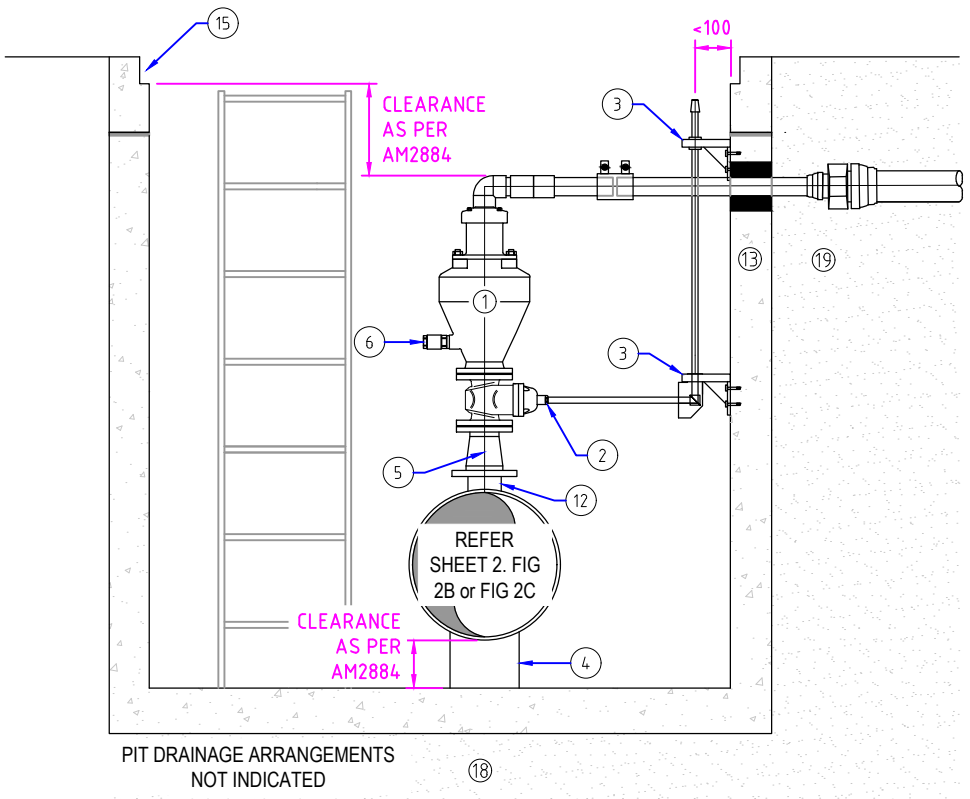


FIGURE 2: AIR VALVE PIT FOR <= DN300 (SMALL) MAIN (SECTION A)

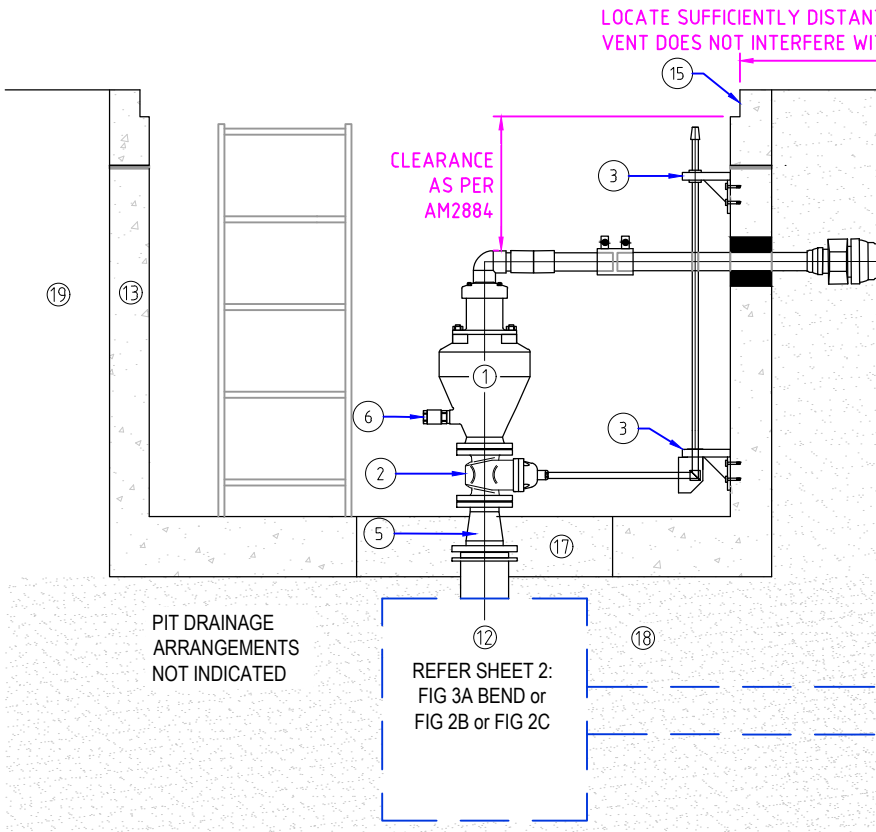
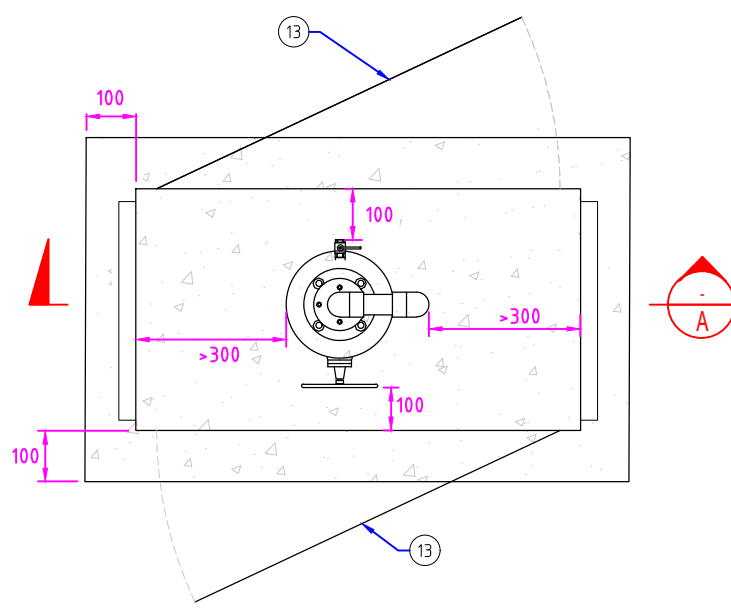


FIGURE 5: AIR PIPING DETAIL

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DESIGN REVIEW M. LOWE OCT 21		DRAFT CHECK M. MAXWELL OCT 21		ASSET/ENG. MANAGER J. TULLY OCT 21		APPROVED C. PAXMAN OCT 21		SEW DRAWING NUMBER AM2883- SHEET 3		SEW JOB No:	
B FIRST PUBLICATION VERSION OCT 21		A DRAFT FOR CONSULTATION JUN 21		VENDOR DRAWING No: SEW-200131-C02		REV 1 DESCRIPTION 2 3 4 5 6 7 8 9 10 11 12		REV B		REV	

CAD FILE NAME: S:\Projects\SEW-21881-SEW Standards Support\SEW Sewer Air Valve Standards\10 CAD\SEW-200131-C03.dwg
 Plotted @ 11/10/2021 1:24pm by rjagger



**FIGURE 1: ABOVE GROUND AIR VALVE
(PLAN LEVEL IS JUST BELOW CABINET ROOF)**

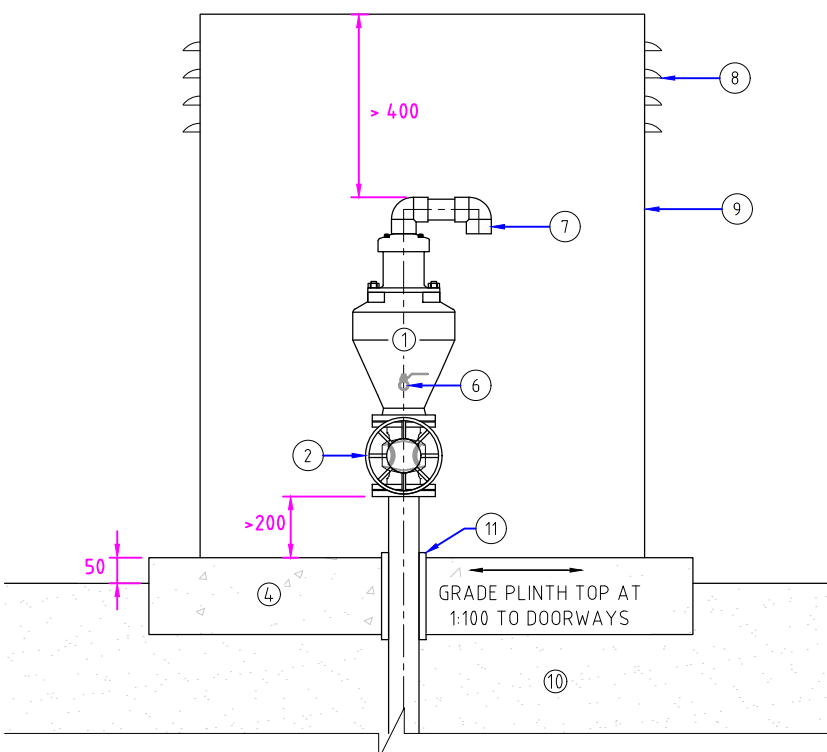
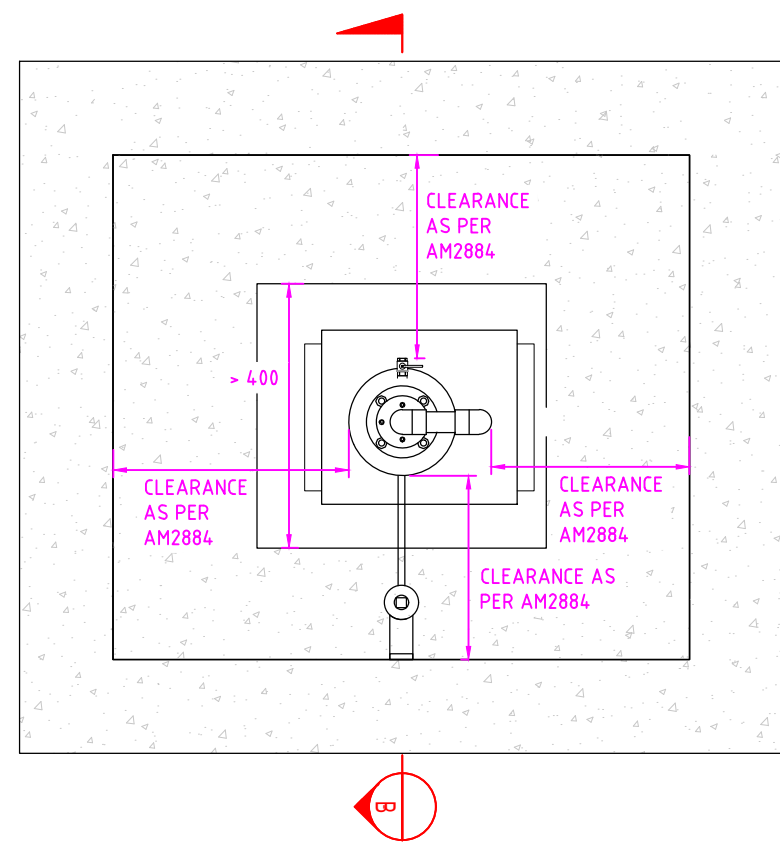


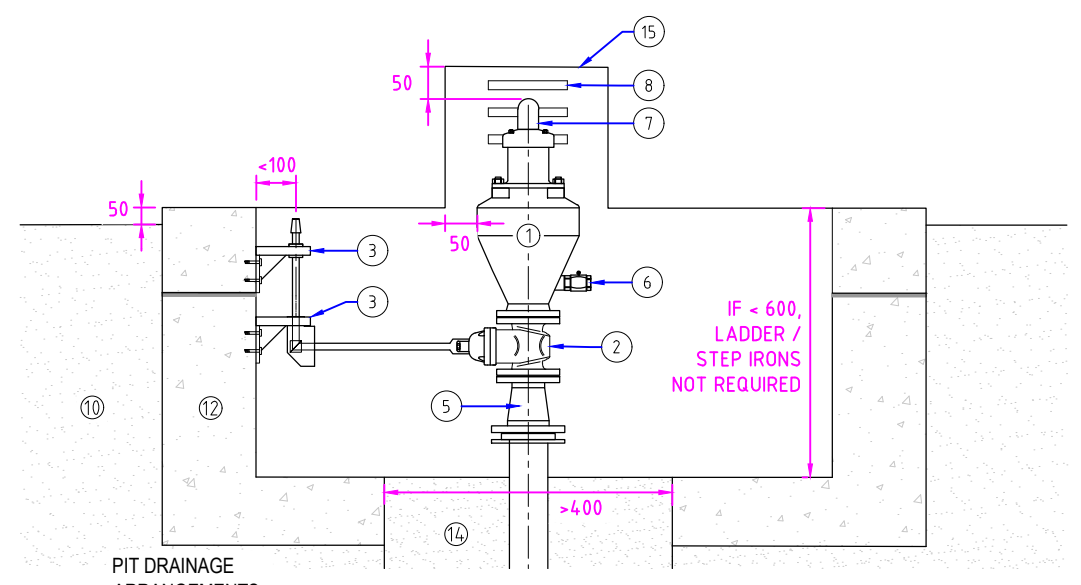
FIGURE 2: ABOVE GROUND AIR VALVE (SECTION A)

MATERIALS SCHEDULE	
ITEM	DESCRIPTION
1	COMBINATION AIR VALVE FOR SEWAGE (DN80 BERMAD MODEL SHOWN ON DRAWING)
2	FLANGED RESILIENT SEATED SLUICE VALVE + GEARBOX + EXTENSION SPINDLES AS REQUIRED TO BRING SPINDLE CAP TO TOP OF PIT EDGE. CLOCKWISE CLOSING (DN80 SHOWN ON DRAWING)
3	SS316 SPINDLE OR GEARBOX SUPPORT BRACKET. PLACE DELRIN BUSH AROUND RISING SPINDLE
4	CABINET SUPPORT PLINTH (≥100 THICK. ≥N32 CONCRETE WITH SL81 REINFORCEMENT MESH), OVERSIZED TO PREVENT GRASS INTRUSION
5	REDUCER IF REQUIRED. TRANSFER MAIN OFFTAKE PIPE SIZE SHALL MATCH THE AIR VALVE FLANGE IF PRACTICAL
6	BLEED COCK (SUPPLIED INTEGRATED WITH AIR VALVE)
7	DN50 PN12 PVC-U SCJ PRESSURE PIPE & ELBOWS (OD=60)
8	VENT LOUVERS
9	CABINET (REFER SHEET 1 NOTES)
10	BACKFILL & EMBEDMENT AS PER AM2884 - PIT STANDARD, SHEET 3
11	10 THICK COMPRESSIBLE MEMBRANE
12	PIT. REFER AM2884- SEW PIT STANDARD
13	CABINET DOOR. 600 WIDE LIMIT BEFORE TWO DOORS REQUIRED. CENTRAL STANCHION BETWEEN DOORS NOT PREFERRED. FULL HEIGHT OF CABINET PENETRATION AND 1% CEMENT STABILISED GRANULAR EMBEDMENT TO TAPPING FITTING. PLAN AREA > 400 x > 400. ENLARGED PENETRATION REQUIRED ONLY WHERE TAPPING WOULD BE ACCESSIBLE FROM THE PIT (ie: <300 FROM PIT FLOOR).
14	INTEGRATED COVER AND AIR VALVE ENCLOSURE. PIANO HINGE ALONG ONE LONG EDGE. TO CONFORM TO BOTH CABINET AND COVER REQUIREMENTS (SHEET 1 AND AM2757). PROVIDE PENETRATION AND SMALL COVER FOR OPERATION OF ISOLATION VALVE WHEN COVER-ENCLOSURE CLOSED.
15	DESIGNER IS TO CONFIRM APPROPRIATE VALVE AND FITTING SIZE FOR EACH APPLICATION

ABOVE GROUND AIR VALVES:
THESE AIR VALVES SHALL PREFERABLY BE LOCATED DIRECTLY OVER THE TAPPING.
MAY BE HORIZONTALLY OFFSET FROM THE TAPPING IF THIS IS NOT PRACTICAL.



**FIGURE 3: PARTIALLY ABOVE GROUND AIR VALVE
(PLAN LEVEL IS JUST BELOW CABINET ROOF)**



PIT DRAINAGE ARRANGEMENTS NOT INDICATED

FIGURE 4: PARTIALLY ABOVE GROUND AIR VALVE (SECTION B)
ENSURE TRIPPING HAZARD IS CONTROLLED.
ELEVATE THE ENCLOSURE TO > 900 OR PLACE A BOLLARD ADJACENT TO EACH CORNER OF THE PIT

CAD FILE NAME: S:\Projects\SEW-21881 - SEW Standards Support\SEW Sewer Air Valve Standards\10 CAD\SEW-200131-C4.dwg

REV	DESCRIPTION	JOB No	DRAFTER	DES REVIEW	APPD	DATE
B	FIRST PUBLICATION VERSION					OCT 21
A	DRAFT FOR CONSULTATION					JUN 21

DESIGNER R. JAGGER OCT 21	DRAFTER R. JAGGER OCT 21	SEW PROJECT MANAGER C. PAXMAN
DESIGN REVIEW M. LOWE OCT 21	DRAFT CHECK M. MAXWELL OCT 21	ASSET/ENG. MANAGER J. TULLY OCT 21
APPROVED C. PAXMAN OCT 21		

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SOUTH EAST WATER
SEWER AIR VALVE STANDARDS
ABOVE OR PARTIALLY ABOVE GRADE AIR VALVES
SHEET 4 OF 7

DATUM:	
MELWAY REF: N/A	
SCALE:	
SEW DRAWING NUMBER	SHEET SIZE: A1
AM2883- SHEET 4	B
SEW JOB No:	REV

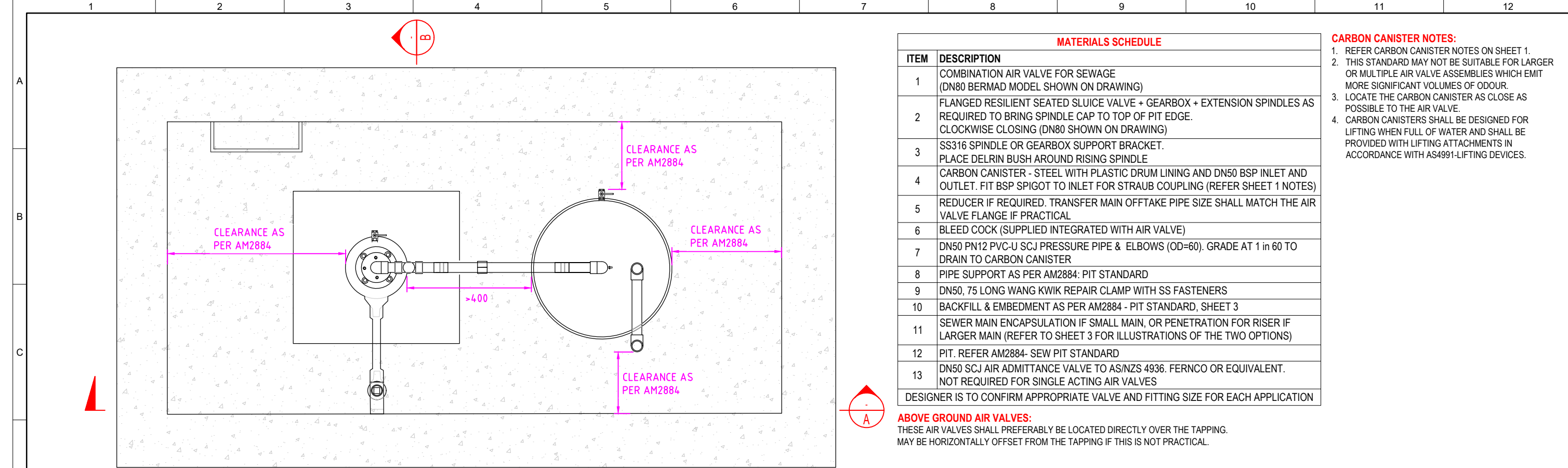


FIGURE 1: BELOW GROUND AIR VALVE AND CARBON CANISTER ASSEMBLY

MATERIALS SCHEDULE	
ITEM	DESCRIPTION
1	COMBINATION AIR VALVE FOR SEWAGE (DN80 BERMAD MODEL SHOWN ON DRAWING)
2	FLANGED RESILIENT SEATED SLUICE VALVE + GEARBOX + EXTENSION SPINDLES AS REQUIRED TO BRING SPINDLE CAP TO TOP OF PIT EDGE. CLOCKWISE CLOSING (DN80 SHOWN ON DRAWING)
3	SS316 SPINDLE OR GEARBOX SUPPORT BRACKET. PLACE DELRIN BUSH AROUND RISING SPINDLE
4	CARBON CANISTER - STEEL WITH PLASTIC DRUM LINING AND DN50 BSP INLET AND OUTLET. FIT BSP SPIGOT TO INLET FOR STRAUB COUPLING (REFER SHEET 1 NOTES)
5	REDUCER IF REQUIRED. TRANSFER MAIN OFFTAKE PIPE SIZE SHALL MATCH THE AIR VALVE FLANGE IF PRACTICAL
6	BLEED COCK (SUPPLIED INTEGRATED WITH AIR VALVE)
7	DN50 PN12 PVC-U SCJ PRESSURE PIPE & ELBOWS (OD=60). GRADE AT 1 in 60 TO DRAIN TO CARBON CANISTER
8	PIPE SUPPORT AS PER AM2884: PIT STANDARD
9	DN50, 75 LONG WANG KWIK REPAIR CLAMP WITH SS FASTENERS
10	BACKFILL & EMBEDMENT AS PER AM2884 - PIT STANDARD, SHEET 3
11	SEWER MAIN ENCAPSULATION IF SMALL MAIN, OR PENETRATION FOR RISER IF LARGER MAIN (REFER TO SHEET 3 FOR ILLUSTRATIONS OF THE TWO OPTIONS)
12	PIT. REFER AM2884- SEW PIT STANDARD
13	DN50 SCJ AIR ADMITTANCE VALVE TO AS/NZS 4936. FERNCO OR EQUIVALENT. NOT REQUIRED FOR SINGLE ACTING AIR VALVES
DESIGNER IS TO CONFIRM APPROPRIATE VALVE AND FITTING SIZE FOR EACH APPLICATION	

- CARBON CANISTER NOTES:**
1. REFER CARBON CANISTER NOTES ON SHEET 1.
 2. THIS STANDARD MAY NOT BE SUITABLE FOR LARGER OR MULTIPLE AIR VALVE ASSEMBLIES WHICH EMIT MORE SIGNIFICANT VOLUMES OF ODOUR.
 3. LOCATE THE CARBON CANISTER AS CLOSE AS POSSIBLE TO THE AIR VALVE.
 4. CARBON CANISTERS SHALL BE DESIGNED FOR LIFTING WHEN FULL OF WATER AND SHALL BE PROVIDED WITH LIFTING ATTACHMENTS IN ACCORDANCE WITH AS4991-LIFTING DEVICES.

ABOVE GROUND AIR VALVES:
 THESE AIR VALVES SHALL PREFERABLY BE LOCATED DIRECTLY OVER THE TAPPING. MAY BE HORIZONTALLY OFFSET FROM THE TAPPING IF THIS IS NOT PRACTICAL.

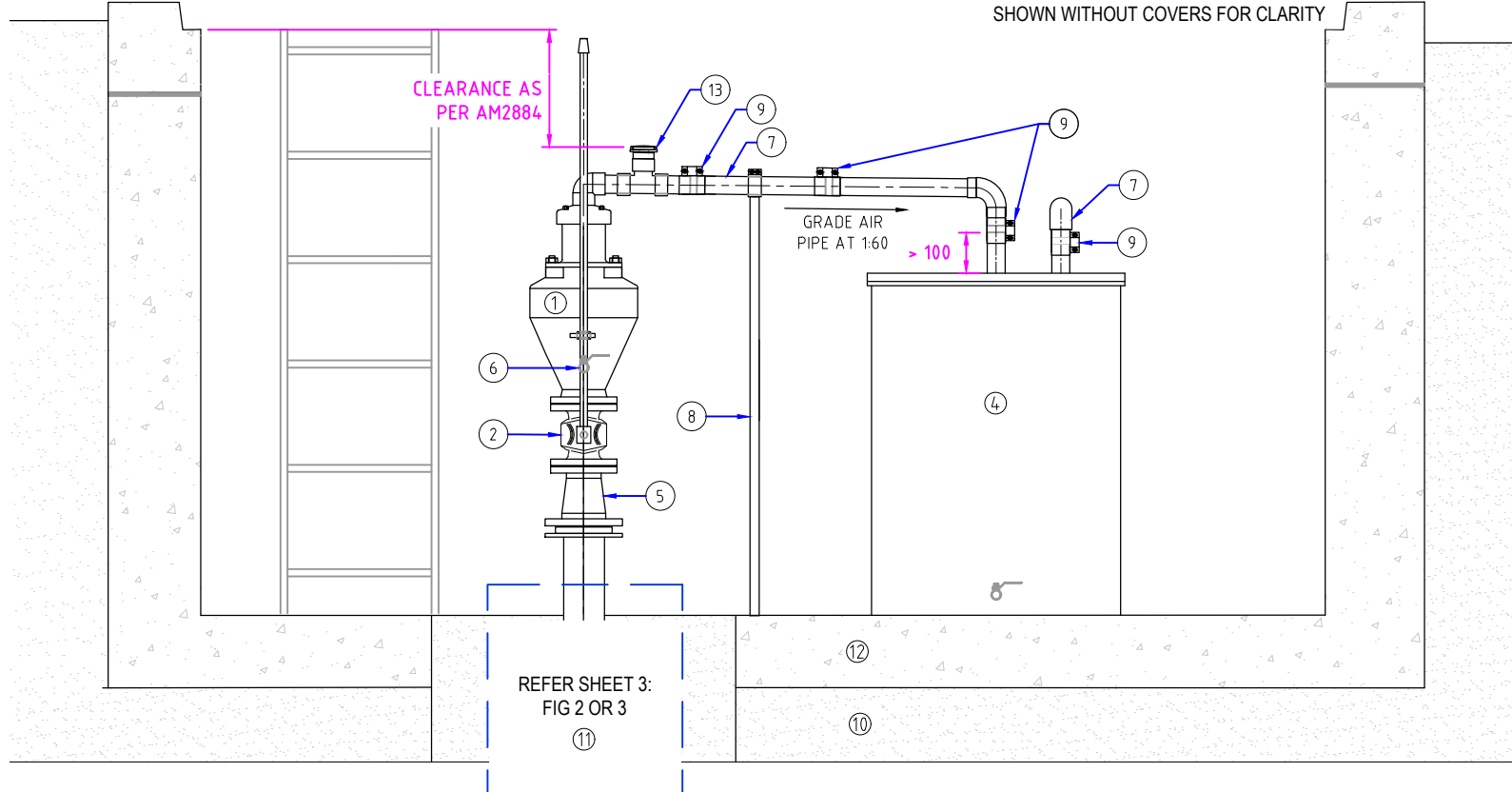


FIGURE 2: BELOW GROUND AIR VALVE AND CARBON CANISTER ASSEMBLY (SECTION A)

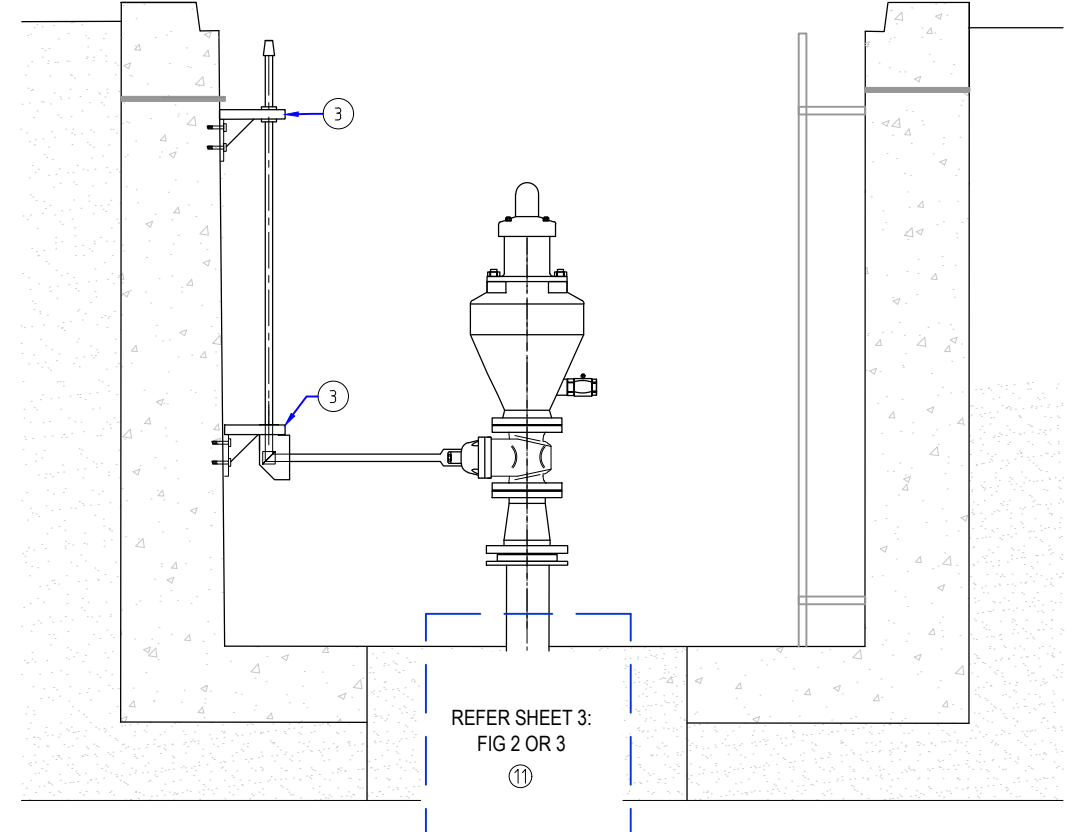


FIGURE 3: BELOW GROUND AIR VALVE AND CARBON CANISTER ASSEMBLY (SECTION B)

CAD FILE NAME: S:\Projects\SEW-21881-SEW Standards Support\SEW Sewer Air Valve Standards\10 CAD\SEW-20191-C05.dwg

DESIGNER	R. JAGGER	OCT 21
DRAFTER	R. JAGGER	OCT 21
SEW PROJECT MANAGER	C. PAXMAN	
DESIGN REVIEW	M. LOWE	OCT 21
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APPROVED	C. PAXMAN	OCT 21

DESIGNER	R. JAGGER	OCT 21
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SEW PROJECT MANAGER	C. PAXMAN	
DESIGN REVIEW	M. LOWE	OCT 21
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SOUTH EAST WATER
SEWER AIR VALVE STANDARDS
BELOW GROUND AIR VALVES WITH
CARBON CANISTERS. SHEET 5 OF 7

DATUM:	
MELWAY REF:	N/A
SCALE:	
SEW DRAWING NUMBER	AM2883- SHEET 5
SEW JOB No:	
SHEET SIZE:	A1
REV	B

MATERIALS SCHEDULE	
ITEM	DESCRIPTION
1	CARBON CANISTER - STEEL WITH PLASTIC DRUM LINING AND DN50 BSP INLET AND OUTLET. FIT BSP SPIGOT TO INLET FOR STRAUB COUPLING (REFER SHEET 1 NOTES)
2	CABINET (REFER SHEET 1 NOTES)
3	CABINET DOOR. 600 WIDTH LIMIT BEFORE TWO DOORS REQUIRED. FULL HEIGHT OF CABINET
4	VENT LOUVERS
5	CABINET CONCRETE SUPPORT PLINTH (≥100 THICK. ≥N32 CONCRTE. SL81 REINFORCEMENT MESH)
6	PIT. REFER AM2884- SEW PIT STANDARD
7	COMBINATION AIR VALVE FOR SEWAGE (DN80 BERMAD MODEL SHOWN ON DRAWING)
8	BLEED COCK (TYPICALLY SUPPLIED INTEGRATED WITH AIR VALVE/ CARBON CANISTER)
9	FLANGED RESILIENT SEATED SLUICE VALVE WITH GEARBOX AND EXTENSION SPINDLE - CLOCKWISE CLOSING (DN80 SHOWN ON DRAWING)
10	SPINDLE SUPPORT BRACKET WITH PE BUSH AROUND RISING SPINDLE. REFER SHEET 4, FIG 4 FOR DETAILS
11	10 THICK COMPRESSIBLE NEOPRENE MEMBRANE
12	DN50 PN12 PVC-U SCJ PRESSURE PIPE & ELBOWS (OD=60). GRADE AT 1 in 60 TO DRAIN TO CARBON CANISTER
13	DN50, 75 LONG WANG KWIK REPAIR CLAMP WITH SS FASTENERS
14	PIPE SUPPORT AS PER AM2884: PIT STANDARD
15	REDUCER IF REQUIRED. TRANSFER MAIN OFFTAKE PIPE SIZE SHALL MATCH THE AIR VALVE FLANGE IF PRACTICAL
16	PENETRATION AND 1% CEMENT STABILISED GRANULAR EMBEDMENT TO TAPPING FITTING. PLAN AREA > 400 x > 400. ENLARGED PENETRATION REQUIRED ONLY WHERE TAPPING WOULD BE ACCESSIBLE FROM THE PIT (ie: <300 FROM PIT FLOOR).
17	BACKFILL & EMBEDMENT AS PER AM2884 - PIT STANDARD, SHEET 3
18	DN50 SCJ AIR ADMITTANCE VALVE TO AS/NZS 4936. FERNCO OR EQUIVALENT. NOT REQUIRED FOR SINGLE ACTING AIR VALVES
DESIGNER IS TO CONFIRM APPROPRIATE VALVE AND FITTING SIZE FOR EACH APPLICATION	

ABOVE GROUND AIR VALVE LOCATION:
 THESE AIR VALVES SHALL PREFERABLY BE LOCATED DIRECTLY OVER THE TAPPING. MAY BE HORIZONTALLY OFFSET FROM THE TAPPING IF THIS IS NOT PRACTICAL.

- CARBON CANISTER NOTES:**
- REFER CARBON CANISTER NOTES ON SHEET 1.
 - THIS STANDARD MAY NOT BE SUITABLE FOR LARGER OR MULTIPLE AIR VALVE ASSEMBLIES WHICH EMIT MORE SIGNIFICANT VOLUMES OF ODOUR.
 - LOCATE THE CARBON CANISTER AS CLOSE AS POSSIBLE TO THE AIR VALVE.
 - CARBON CANISTERS SHALL BE DESIGNED FOR LIFTING WHEN FULL OF WATER AND SHALL BE PROVIDED WITH LIFTING ATTACHMENTS IN ACCORDANCE WITH AS4991-LIFTING DEVICES.

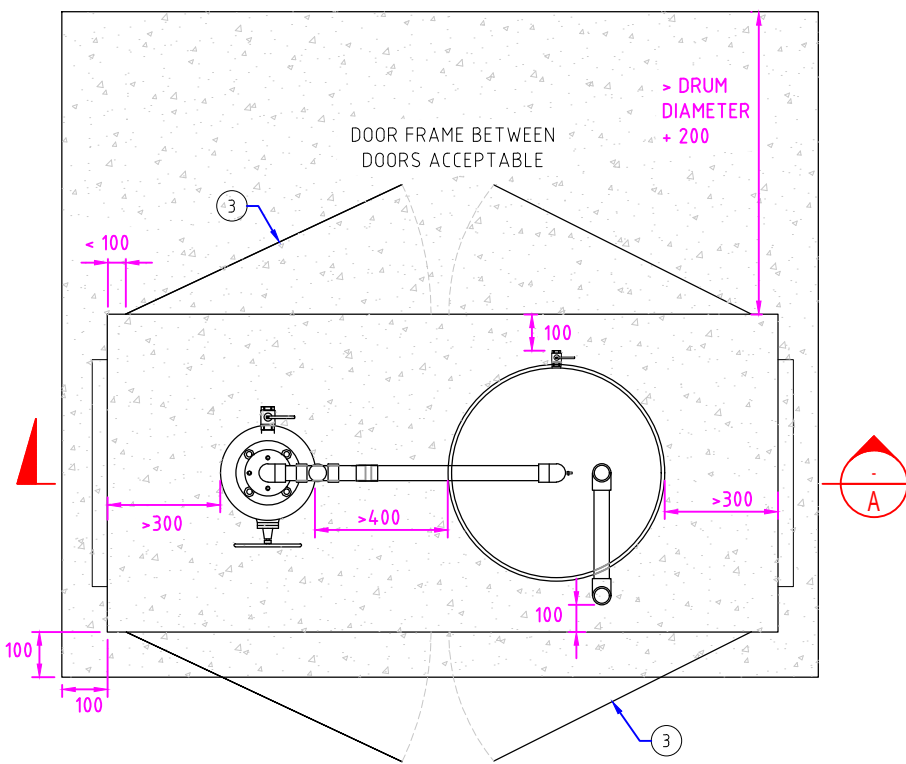


FIGURE 1: ABOVE GROUND AIR VALVE AND CARBON CANISTER ASSEMBLY (PLAN LEVEL IS JUST BELOW CABINET ROOF)

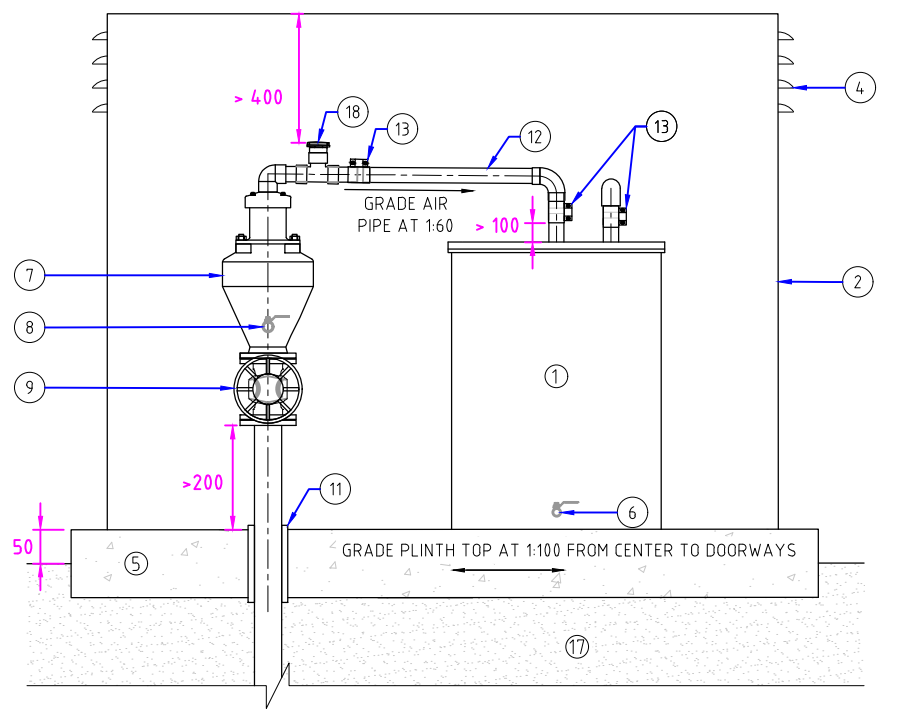


FIGURE 2: ABOVE GROUND AIR VALVE AND CARBON CANISTER ASSEMBLY (SECTION A)

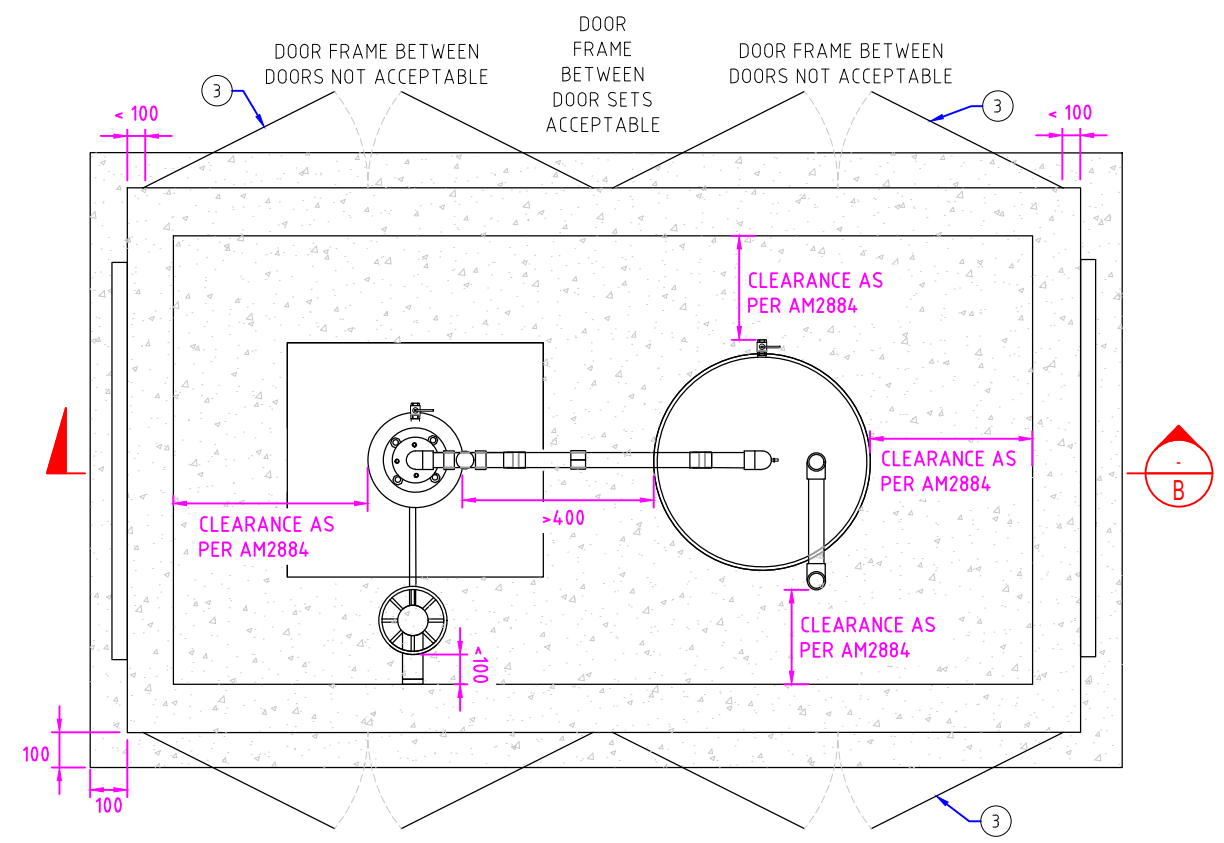


FIGURE 3: PARTIALLY ABOVE GROUND AIR VALVE AND CARBON CANISTER ASSEMBLY (PLAN LEVEL IS JUST BELOW CABINET ROOF)

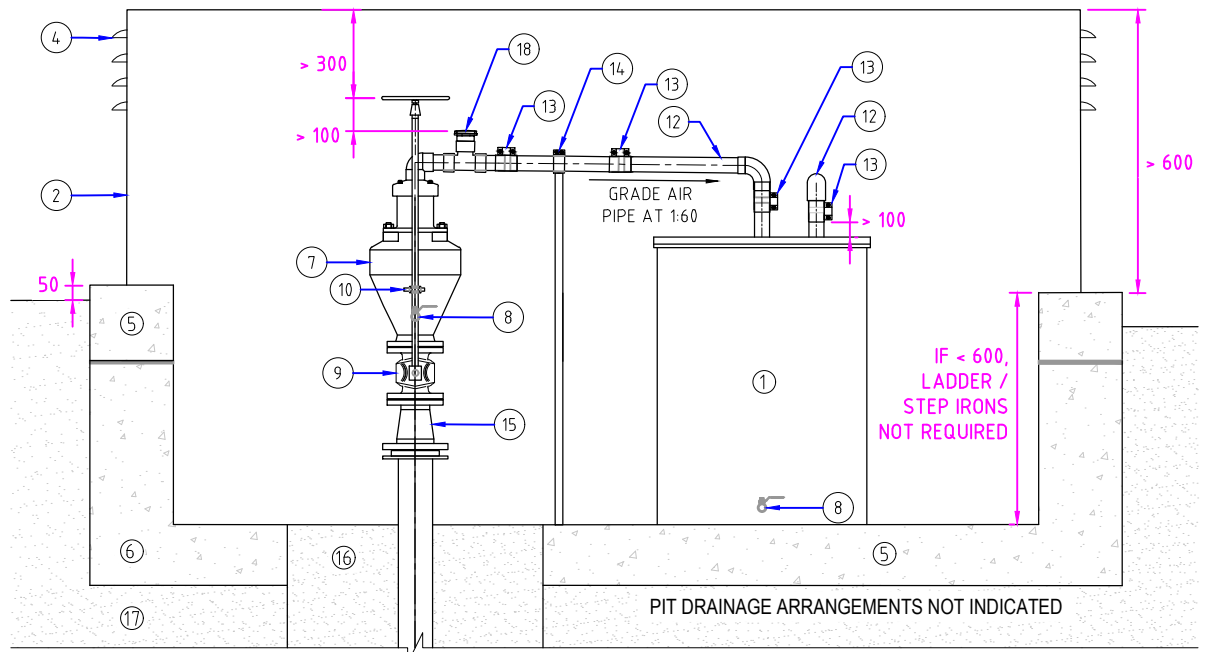


FIGURE 4: PARTIALLY ABOVE GROUND AIR VALVE AND CARBON CANISTER ASSEMBLY (SECTION B)

CAD FILE NAME: S:\Projects\SEW-21881- SEW Standards Support\SEW Sewer Air Valve Standards\10 CAD\SEW-20013-C06.dwg

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B	FIRST PUBLICATION VERSION					OCT 21
A	DRAFT FOR COMMENT					JUN 21

DESIGNER R. JAGGER OCT 21	DRAFTER R. JAGGER OCT 21	SEW PROJECT MANAGER C. PAXMAN
DESIGN REVIEW M. LOWE OCT 21	DRAFT CHECK M. MAXWELL OCT 21	ASSET/ENG. MANAGER J. TULLY OCT 21
APPROVED C. PAXMAN OCT 21		

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SOUTH EAST WATER
 SEWER AIR VALVE STANDARDS
 ABOVE GROUND CARBON CANISTERS
 & AIR VALVES. SHEET 6 OF 7

DATUM:	MELWAY REF: N/A	SHEET SIZE: A1
SCALE:		
SEW DRAWING NUMBER		
AM2883- SHEET 6		
SEW JOB No:		REV

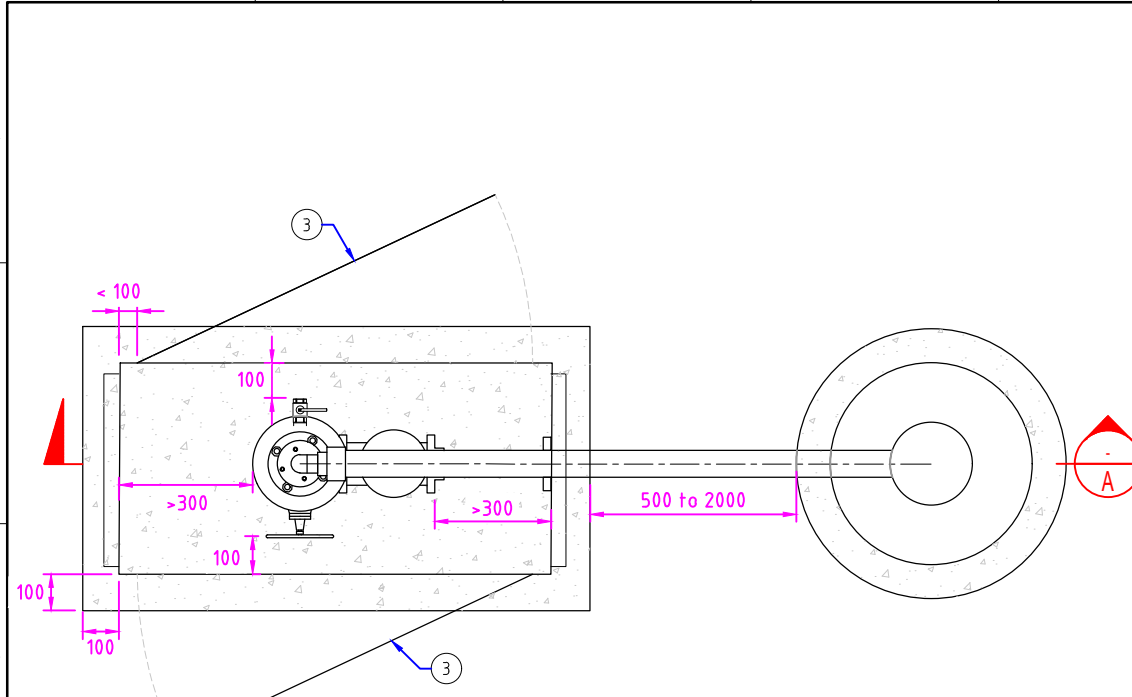


FIGURE 1: ABOVE GROUND AIR VALVE AND VENT ASSEMBLY (PLAN LEVEL IS JUST BELOW CABINET ROOF)

ABOVE GROUND AIR VALVE & VENT LOCATION:
THESE AIR VALVE AND VENT COMBINATIONS MAY BE LOCATED DIRECTLY OVER THE MAIN OR HORIZONTALLY OFFSET FROM THE TAPPING

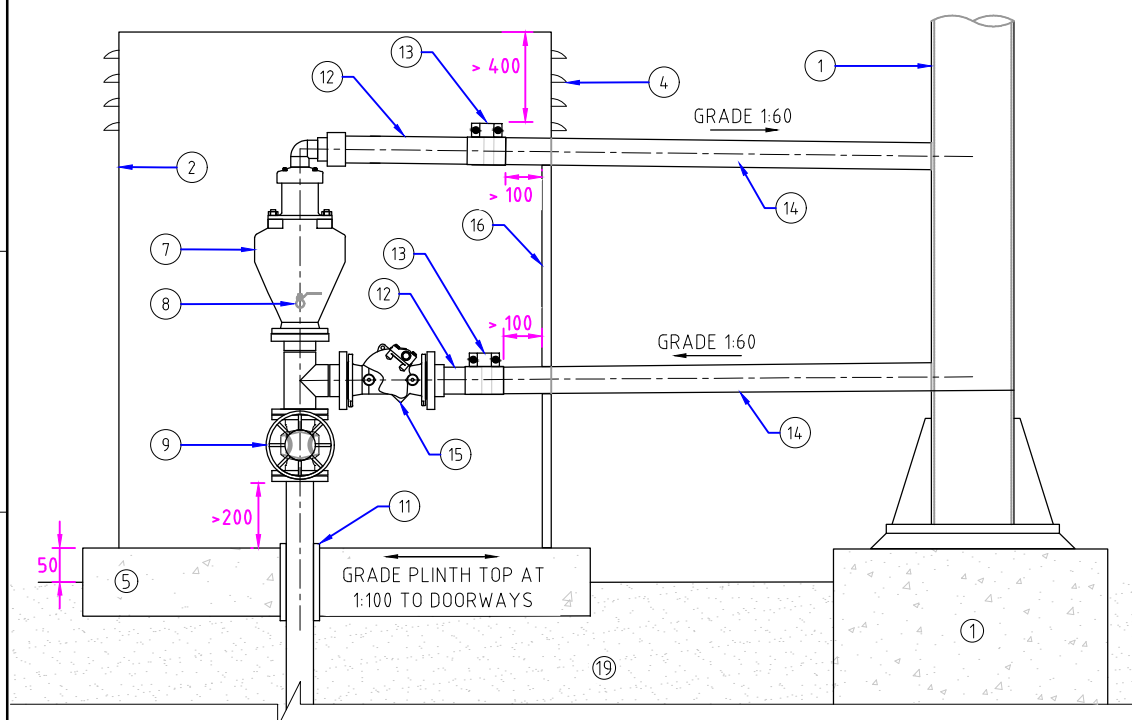


FIGURE 2: ABOVE GROUND AIR VALVE AND VENT ASSEMBLY (SECTION A)

MATERIALS SCHEDULE	
ITEM	DESCRIPTION
1	VENT STACK (REFER MRWA-S-402 & 402B)
2	CABINET (REFER SHEET 1 NOTES)
3	CABINET DOOR. 600 WIDTH LIMIT BEFORE TWO DOORS REQUIRED. FULL HEIGHT OF CABINET
4	VENT LOUVERS
5	CABINET CONCRETE SUPPORT PLINTH (≥ 100 THICK. $\geq N32$ CONCRTE. SL81 REINFORCEMENT MESH)
6	PIT. REFER AM2884- SEW PIT STANDARD
7	COMBINATION AIR VALVE FOR SEWAGE (DN80 BERMAID MODEL SHOWN ON DRAWING)
8	BLEED COCK (TYPICALLY SUPPLIED INTEGRATED WITH AIR VALVE)
9	FLANGED RESILIENT SEATED SLUICE VALVE WITH GEARBOX AND EXTENSION SPINDLE - CLOCKWISE CLOSING (DN80 SHOWN ON DRAWING)
10	SPINDLE SUPPORT BRACKET WITH PE BUSH AROUND RISING SPINDLE. REFER SHEET 4, FIG 4 FOR DETAILS
11	10 THICK COMPRESSIBLE NEOPRENE MEMBRANE
12	DN50 PN12 PVC-U SCJ PRESSURE PIPE & ELBOWS (OD=60)
13	DN50, 75 LONG WANG KWIK REPAIR CLAMP WITH SS FASTENERS
14	DN50 SS316 SC10S PIPE TO ASTM A312 (OD=60). WHERE VENT > 2m FROM AIR VALVE, UPSIZE THIS PIPE TO DN100
15	NON-RETURN VALVE WITH RUBBER FLAP
16	PIPE SUPPORT
17	REDUCER IF REQUIRED
18	PENETRATION AND 1% CEMENT STABILISED FILL TO TAPPING. ENLARGED PENETRATION REQUIRED ONLY WHERE TAPPING WOULD BE ACCESSIBLE FROM THE PIT (ie: < 300 FROM PIT FLOOR).
19	BACKFILL & EMBEDMENT AS PER AM2884 - PIT STANDARD, SHEET 3

RETURN VENT DRAIN TO BELOW AIR VALVE:
ONLY TO BE CONSTRUCTED AS SHOWN IN SITUATIONS WHEN THE SEWAGE PRESSURE MAIN IS AT TIMES NOT PIPE FULL. WHERE THIS MAIN IS ALWAYS UNDER PRESSURE, DRAIN VENT TO THE GRAVITY SEWERAGE SYSTEM WHERE PRACTICAL.

SAFETY OF ABOVE GROUND PIPEWORK:
ASSESS THE SAFETY IMPLICATIONS OF ABOVE GROUND PIPEWORK. PLACE BELOW GROUND, ENCLOSE OR PROTECT WITH BOLLARDS IF EXPOSED ABOVE GROUND PIPEWORK PRESENTS UNACCEPTABLE RISKS

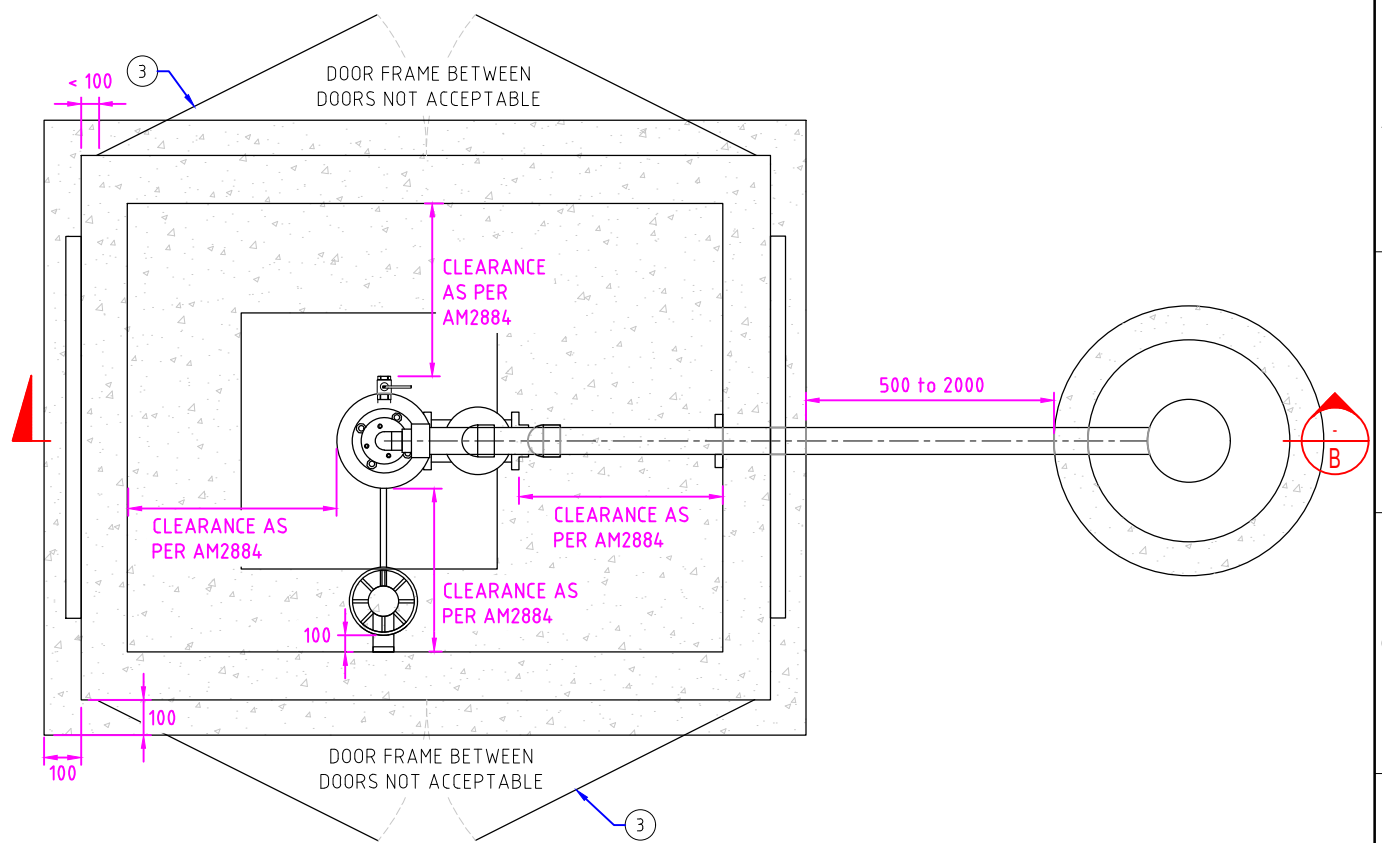


FIGURE 3: PARTIALLY ABOVE GROUND AIR VALVE AND VENT ASSEMBLY (PLAN LEVEL IS JUST BELOW CABINET ROOF)

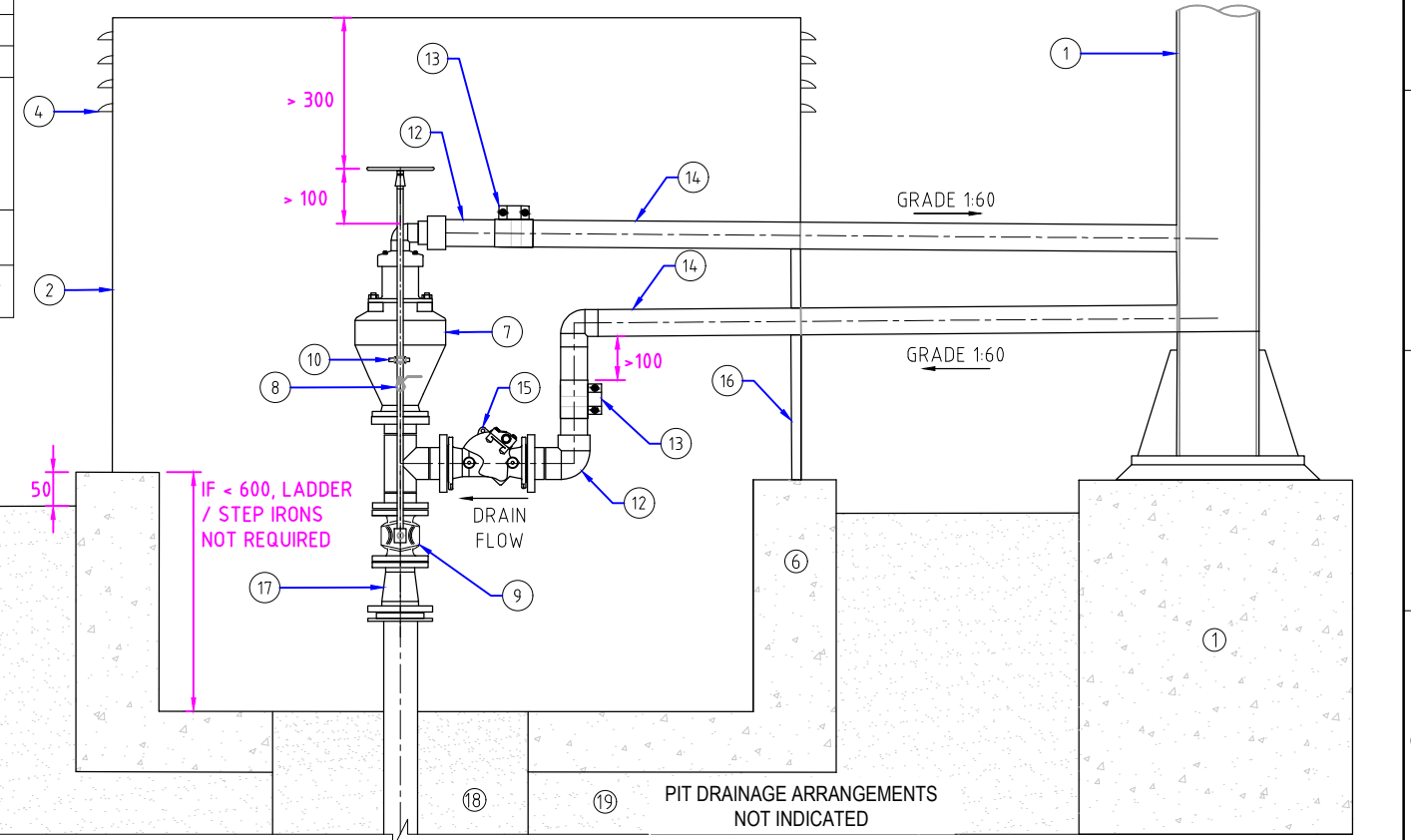


FIGURE 4: PARTIALLY ABOVE GROUND AIR VALVE AND VENT ASSEMBLY (SECTION B)

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DESIGN REVIEW M. LOWE OCT 21		DRAFT CHECK M. MAXWELL OCT 21		ASSET/ENG. MANAGER J. TULLY OCT 21		APPROVED C. PAXMAN OCT 21				B REV		B REV	
REV	DESCRIPTION	JOB No	DRAFTER	DES REVIEW	APPD	DATE	VENDOR DRAWING No:	SEW-200131-C11		1		2	
B	FIRST PUBLICATION VERSION		RJ			OCT 21				3		4	
A	DRAFT FOR CONSULTATION					JUN 21				5		6	