

**GENERAL REQUIREMENTS**

SCOPE OF STANDARD: SCOUR DRAINS FOR ≥DN100 SEWAGE PUMP STATION AND RETICULATED PRESSURE SEWERS.  
SCOUR DRAIN = OFFTAKE (SINGLE OR DOUBLE) + DISCHARGE (TO SEWER, COLLECTION PIT, OR DIRECT EDUCION CONNECTION)

**TABLE 1: DESIGN PROCESS** (READ THIS FIRST)

STEP	STEP DESCRIPTION	GUIDANCE
A	DETERMINE APPROXIMATE SEWAGE PRESSURE MAIN LOW POINT LOCATION(S) BASED ON OVERALL PRESSURE MAIN LONGITUDINAL DRAWINGS	REFER SPS STANDARDS
B	DETERMINE SHUT OFF VOLUMES AND ESTIMATED DRAINAGE TIMES. INCLUDE MID-SLOPE SCOURS IF REQUIRED	SHEET 1 SCOUR TIME ESTIMATION NOTES
C	REFINE PRESSURE MAIN VERTICAL ALIGNMENT, DETERMINE SCOUR OFFTAKE EXACT LOCATION, TYPE AND SIZE	TABLE 6
D	SELECT MOST SUITABLE SCOUR DISCHARGE EXACT LOCATION AND TYPE	SHEET 4, TABLE 10
E	DOCUMENT STEPS A TO D IN A DESIGN MEMO AND OBTAIN SEW APPROVAL FOR THE RECOMMENDATIONS	
F	DESIGN IN DETAIL PIPES, FITTINGS AND ANY STRUCTURES OR REFER TO STANDARD INSTALLATION DETAILS WHERE APPLICABLE	SHEETS 2, 3, 5 & 6

**TABLE 2: APPLICABLE STANDARDS**

NO	STANDARD	WHEN STANDARD APPLIES
1	WSA 04 SEWAGE PUMP STATION CODE	RAW SEWAGE PRESSURE MAINS AND LARGE DIAMETER MACERATED SEWAGE MAINS
2	SEW SUPPLEMENT TO WSA04 & ASSOCIATED STANDARDS	
3	WSA 07 PRESSURE SEWER SYSTEM (PSS) CODE	PSS-1017-M FLUSHING POINTS USED TO SCOUR RETICULATED PRESSURE SEWER PIPES WHICH ARE ≥ DN90PE
4	MRWA PRESSURE SEWER SYSTEM STANDARD DRAWINGS	
5	AM2761 FACILITY VEHICLE ACCESS STANDARD	SCOURS REQUIRING EDUCION OR PUMP OUT
6	MRWA-W-302 VALVE SURFACE ARRANGEMENTS	ALL BURIED VALVES
7	WSA 02 WSAA SEWERAGE CODE (MRWA EDITION)	GRAVITY SEWER CONNECTIONS AND ROUND COLLECTION PIT DESIGN AND CONSTRUCTION
8	MRWA GRAVITY SEWERAGE STANDARDS	

**TABLE 3 KEY PRINCIPLES AFFECTING SEWER SCOUR DESIGN DECISIONS**

ITEM	PRINCIPLE	REQUIREMENT
A	ENABLE THE FULL REMOVAL OF SEWAGE FROM ALL SEWAGE PRESSURE MAIN SHUT OFF SECTIONS*	EACH SEWAGE PRESSURE MAIN SHUT OFF SECTION REQUIRES A SCOUR AT ITS LOWEST POINT. IF A LOW POINT ON THE MAIN CANNOT BE LOCATED AT AN ACCESSIBLE LOCATION, OR THE LOW POINT IS UNAVOIDABLY DEEP, OR THERE IS INADEQUATE SPACE FOR A SCOUR ASSEMBLY, THEN SEW DISPENSATION IS REQUIRED TO CREATE A LOW POINT WITHOUT A SCOUR DRAIN
B	MINIMISE SCOUR VOLUME/TIME BY PARTITIONING PIPE SECTIONS IF SHUT OFF SECTION VOLUME IS LARGE OR EXPECTED SCOUR TIME IS LONG	ESTIMATE SCOUR TIME AFTER SELECTING SCOUR ARRANGEMENTS IN ACCORDANCE WITH TABLES 6 AND 10.
C	BE ACCESSIBLE FOR THE VEHICLES AND EQUIPMENT THAT WILL DRAIN/CLEAN THE SCOUR	PROVIDE VEHICLE ACCESS TO SCOURS IN ACCORDANCE WITH AM2761 VEHICLE ACCESS STANDARD
D	ENSURE NO SEWAGE ESCAPES TO THE ENVIRONMENT	FULLY CONTAIN SEWAGE TO THE SEWERAGE OR EDUCION SYSTEM
E	BE ABLE TO SCOUR TWO SHUT OFF SECTIONS FROM A SINGLE SCOUR WHERE TWO NEIGHBORING SHUT OFF SECTIONS SHARE A COMMON LOW POINT	CONNECT SCOURS TO PRESSURE MAINS IN ACCORDANCE WITH TABLE 6

THESE PRINCIPLES ARE NOT LISTED IN PRIORITY ORDER.  
\* A SHUT OFF SECTION IS A PRESSURE MAIN BOUNDED BY DIVIDE VALVES AND/OR AN SPS AND/ OR PRESSURE MAIN DISCHARGE

**TABLE 4: SHEET INDEX FOR THIS STANDARD**

1	GENERAL REQUIREMENTS. OFFTAKE SELECTION
2	SCOUR OFFTAKES - FLANGED FITTING ARRANGEMENTS
3	SCOUR OFFTAKES - WELDED PE FITTING ARRANGEMENTS
4	SCOUR DISCHARGE SELECTION
5	SCOUR DISCHARGE - GRAVITY SEWER OR COLLECTION PIT
6	SCOUR DISCHARGE - EDUCION DIRECT CONNECTION

**SCOUR TIME COMPARATIVE ESTIMATION:**

SCOUR TIME IS A COMPARATIVE ESTIMATE WHICH SHOULD BE USED TO ESTABLISH WHETHER A SHUT OFF SECTION SHOULD BE FURTHER SPLIT UP OR THE ALIGNMENT CHANGED. IT SHOULD ALSO BE USED TO ESTABLISH THE SCOUR OFFTAKE SIZE. SCOUR TIME IS DEPENDANT ON THE FOLLOWING:

- SHUT OFF SECTION VOLUME (ie: DIAMETER AND DISTANCE BETWEEN DIVIDE VALVES).
- TOTAL HEIGHT OF SHUT OFF SECTION AND ITS GRADE NEXT TO SCOUR POINT (ie: TALL SECTIONS DRAIN QUICKLY AT START, FLAT GRADES CAN DRAIN SLOWLY WHEN PIPE NEARLY EMPTY).
- NEED FOR AND TIME TO SET UP TEMPORARY ARRANGEMENTS (eg: TEMPORARY PUMP AND HOSE TO GRAVITY SEWER).
- EDUCION TRUCK TURN AROUND TIME (IF EDUCION), WHICH DEPENDS ON:
  - EXTRACTION TIME, WHICH IS:
    - GREATER WHEN EXTRACTING FROM DEEPER PITS, and
    - GREATER WHEN VACUUM EXTRACTING, and
    - LESS WHEN PUMPING TO A TRUCK, and
    - LESS WHEN MULTIPLE TRUCKS CAN OPERATE CONCURRENTLY.
  - VOLUME OF THE TANKER (ie: AVAILABLE ACCESS FOR LARGE TANKER TRUCKS).
  - TRANSIT TIME TO AND FROM POINT OF DISPOSAL (ie: TRAFFIC ROUTE CIRCUIT AND TRAFFIC CONDITIONS). TRANSIT TIME SHOULD ASSUME THE BUSIEST TIME OF YEAR, eg: PEAK SEASON WHEN IN TOURIST AREAS, PEAK HOUR IN CITY AREAS, SCHOOL PRECINCTS, etc. BUT NOT ASSUME RARE SITUATIONS, eg: POWER OUTAGES.
  - RATE OF DISPOSAL (ie: CAPACITY OF RECEIVING SEWER).

**TABLE 5: LOCATION PREFERENCES**

LISTED IN ORDER	
1	SEW OWNED LAND, ADJACENT TO AN ACCESS TRACK
2	PUBLIC OPEN SPACE
3	ROAD RESERVE NATURE STRIP

**OFFTAKE SELECTION AND SIZING**

SCOUR OFFTAKE SELECTION DEPENDS ON: 1) PRESSURE MAIN SIZE 2) TOPOGRAPHY (LOW POINT OR MID SLOPE) 3) THE TYPE OF DISCHARGE

**TABLE 6: SCOUR OFFTAKE OPTIONS**

(NOTE: SOME SCOUR DISCHARGE LINES DRAWN GREY AS THEY INDICATIVE ONLY AND NOT CENTRAL TO THE INTENT OF THIS TABLE)

OPTION	A	B	C	D	E
<b>OPTION DESCRIPTION</b>	DN100 MAIN RISING ON BOTH SIDES OF SCOUR (LESS EXPENSIVE SMALL DIAMETER VALVES ON PRESSURE MAIN)	≥DN150 MAIN RISING ON BOTH SIDES OF SCOUR (MORE EXPENSIVE LARGER DIAMETER VALVE ON PRESSURE MAIN)	PIPE SECTION ONLY RISES OR FALLS AND SCOUR DISCHARGES TO SEWER OR COLLECTION PIT. SPLIT INTO TWO SHUT OFFS AS PER TABLE 1 ITEM B	≥DN150 PIPE SECTION ONLY RISES OR FALLS AND SCOUR DISCHARGES TO EDUCION DIRECT CONNECTION. SPLIT INTO TWO SHUT OFFS AS PER TABLE 1 ITEM B	DN100 PIPE SECTION ONLY RISES OR FALLS AND SCOUR DISCHARGES TO EDUCION DIRECT CONNECTION. SPLIT INTO TWO SHUT OFFS AS PER TABLE 1 ITEM B
<b>ELEVATION SCHEMATIC</b>					
<b>PLAN VIEW SCHEMATIC</b>					
<b>REFERENCE</b>	FIGURES 1 & 4	FIGURES 3 & 6	FIGURES 2 & 5	FIGURES 3 & 6	FIGURES 1 & 4

**TABLE 7: SCOUR OFFTAKE REQUIREMENTS**

PRESSURE MAIN CHARACTERISTICS			RESULTING SCOUR OFFTAKE REQUIREMENTS	
PRESSURE MAIN SIZE	PE MAIN & PE ENDED VALVES <sup>c</sup>	SCOUR TIME ESTIMATE <sup>b</sup>	SCOUR SIZE AND TYPE	REFERENCE
≥DN90PE	NOT RELEVANT	NOT RELEVANT	REFER PRESSURE SEWER STANDARDS	
DN100 (DN125PE <sup>a</sup> )	NO	NOT RELEVANT	FLANGED DN100	FIGURE 1
DN125PE	YES	NOT RELEVANT	DN125PE + PE ENDED VALVES	FIGURE 4
≥DN150 (DN180PE <sup>a</sup> )	NO	REASONABLE SCOUR TIME	FLANGED DN100	FIGURE 2 / 3
≥DN180PE	YES	REASONABLE SCOUR TIME	DN125PE + PE ENDED VALVES	FIGURE 5 / 6
≥DN150 (DN180PE <sup>a</sup> )	NO	LONGER SCOUR TIME	FLANGED DN150	FIGURE 2 / 3
≥DN180PE	YES	LONGER SCOUR TIME	DN180PE + PE ENDED VALVES	FIGURE 5 / 6

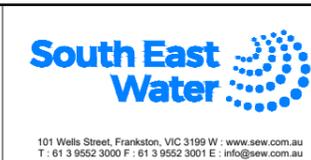
**TABLE 7 NOTES:**

- <sup>a</sup> SIZE IN BRACKETS IS IF THE PRESSURE MAIN IS A PE MAIN AND THERE IS INSUFFICIENT SPACE FOR PE ENDED VALVES SO THAT FLANGED SCOUR FITTINGS ARE REQUIRED.
- <sup>b</sup> REFER COMPARATIVE SCOUR TIME ESTIMATION NOTES ABOVE.
- <sup>c</sup> ON PE MAINS, PE ENDED VALVES ARE PREFERRED. THESE ARE LONGER THAN FL-FL VALVES. WHERE SPACE AT THE DESIGNATED SCOUR LOCATION IS LIMITED, PE ENDED VALVES MAY NOT BE PRACTICAL.

REV	DESCRIPTION	JOB No	DRAFTER	DES REVIEW	PM APPD	DATE
B	PUBLISHED FIRST VERSION					APR 23
A	ISSUED FOR DISCUSSION					JUL 22

DESIGNER R. JAGGER MAR 23	DRAFTER R. JAGGER MAR 23	SEW PROJECT MANAGER C. PAXMAN MAR 23
DESIGN REVIEW M. LOWE MAR 23	DRAFT CHECK S. PIQUET MAR 23	ASSET/ENG. MANAGER J. TULLY APR 23
APPROVED C. PAXMAN APR 23		

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**SOUTH EAST WATER**  
**AM2973 - SEWER SCOUR STANDARD**  
**GENERAL REQUIREMENTS**  
**AND OFFTAKE SELECTION**

DATUM: NA	
MELWAY REF: NA	
SCALE: AS SHOWN	SHEET SIZE: A1
SEW DRAWING NUMBER	
<b>AM2973 - SHEET 1</b>	
SEW JOB No:	REV

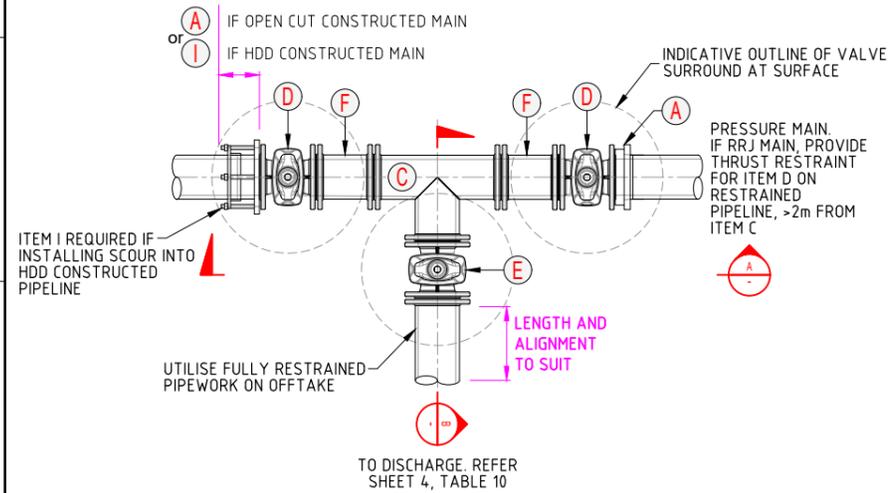
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**TABLE 8: DIEL SCOUR ITEMS SCHEDULE** (FIGURES 1 & 2)

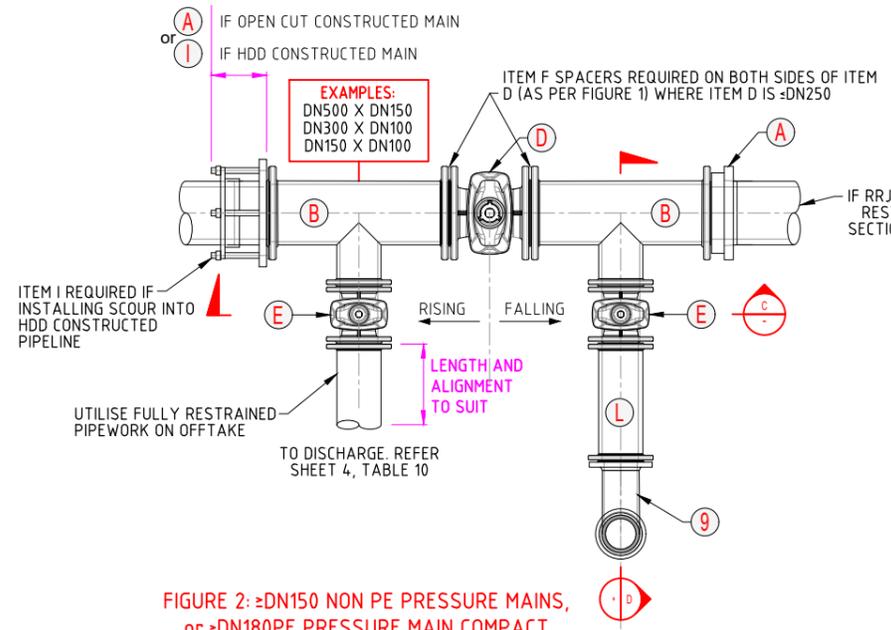
ITEM	ITEM DESCRIPTION / DETAILS
A	STUB FLANGE & BACKING RING (IF PE PRESSURE MAIN), or STANDARD FLANGED FITTING (IF NON-PE PRESSURE MAIN)
B	UNEQUAL FL SCOUR TEE
C	EQUAL FL TEE
D	FL-FL DIVIDE GATE VALVE

ITEM	ITEM DESCRIPTION / DETAILS
E	FL-FL OFFTAKE GATE VALVE
F	FL-FL SPACER, 225 LONG
G	FL-FL 90° BEND
H	FL-SP PIPE
I	RESTRAINED FLANGE ADAPTOR
J	VALVE SUPPORT
K	EMBEDMENT

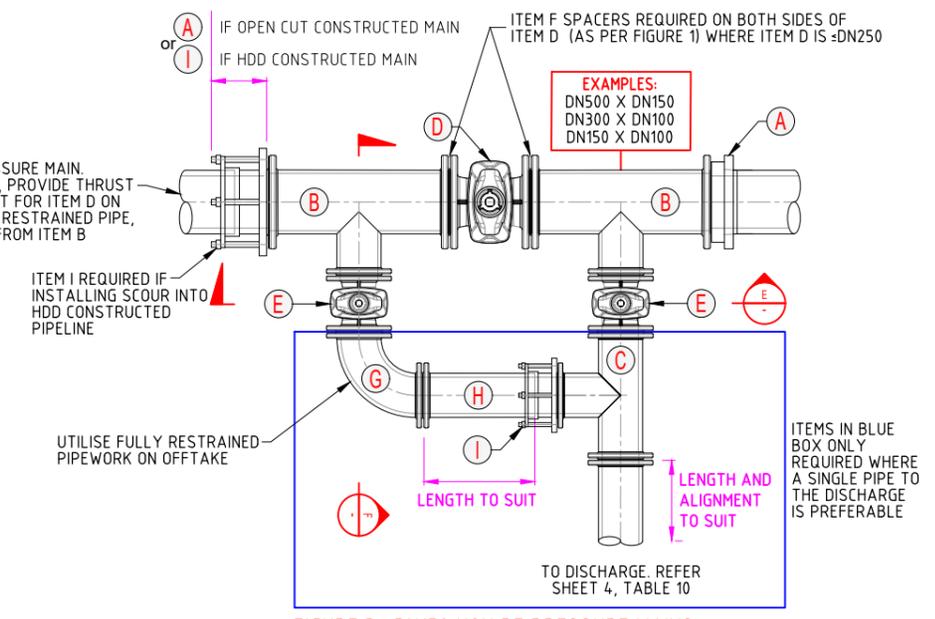
ITEM	ITEM DESCRIPTION / DETAILS
L	FL-FL SPACER
M	VALVE SURFACE ARRANGEMENT
N	CEMENT STABILISED EMBEDMENT
O	COVER AND FRAME
P	BACKFILL
Q	PLASTIC CAP



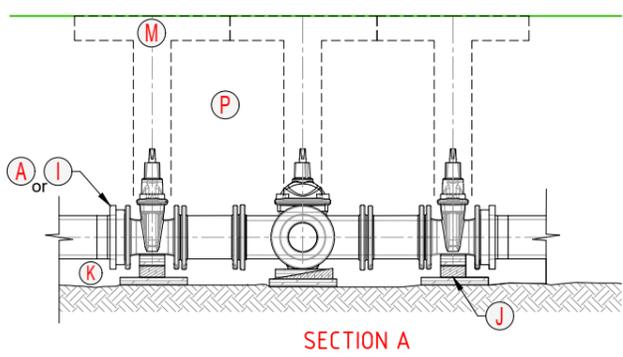
**FIGURE 1: DN100 NON PE PRESSURE MAINS, or DN125 PE PRESSURE MAIN COMPACT ARRANGEMENT (SHEET 1, TABLE 6, OPTIONS A AND E)**



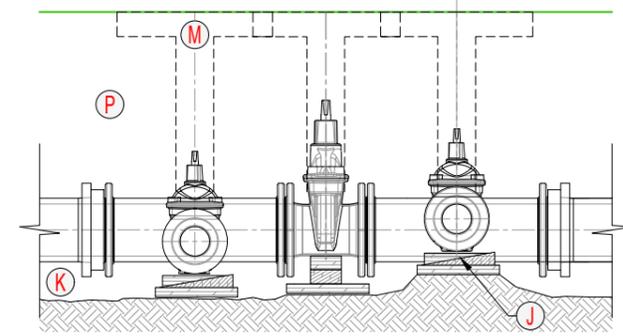
**FIGURE 2: >DN150 NON PE PRESSURE MAINS, or >DN180 PE PRESSURE MAIN COMPACT ARRANGEMENT (SHEET 1, TABLE 6, OPTION C)**



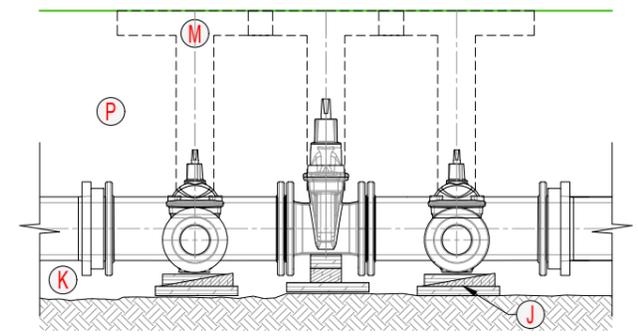
**FIGURE 3: >DN150 NON PE PRESSURE MAINS, or >DN180 PE PRESSURE MAIN COMPACT ARRANGEMENT (SHEET 1, TABLE 6, OPTION B/D)**



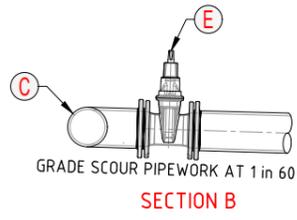
**SECTION A**



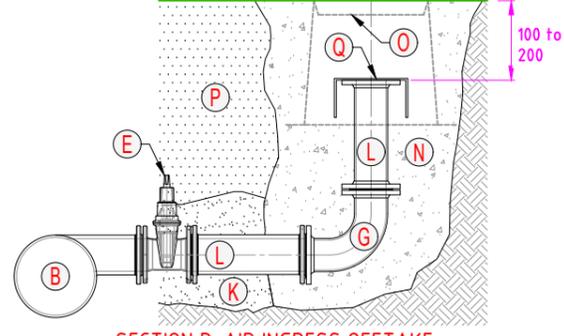
**SECTION C**  
NOTE: SECTION C IS THE SAME AS SECTION E, EXCEPT THE AIR INLET OFFTAKE IS SET AT THE OBVERT (NOT INVERT)



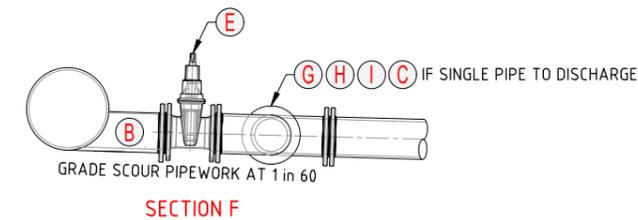
**SECTION E**  
NOTE: SECTION C IS THE SAME AS SECTION E, EXCEPT THE AIR INLET OFFTAKE IS SET AT THE OBVERT (NOT INVERT)



**SECTION B**



**SECTION D: AIR INGRESS OFFTAKE**



**SECTION F**

REV	DESCRIPTION	JOB No	DRAFTER	DES REVIEW	PM APP'D	DATE
B	PUBLISHED FIRST VERSION					APR 23
A	ISSUED FOR DISCUSSION					JUL 22

DESIGNER R. JAGGER MAR 23	DRAFTER R. JAGGER MAR 23	SEW PROJECT MANAGER C. PAXMAN
DESIGN REVIEW M. LOWE MAR 23	DRAFT CHECK S. PIQUET MAR 23	ASSET/ENG. MANAGER J. TULLY APR 23
APPROVED C. PAXMAN	APR 23	

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**SOUTH EAST WATER**  
AM2973 - SEWER SCOUR STANDARD  
SCOUR OFFTAKES  
FLANGED FITTING ARRANGEMENTS

DATUM: NA	SHEET SIZE: A1
MELWAY REF: NA	
SCALE: AS SHOWN	SEW DRAWING NUMBER
	<b>AM2973 - SHEET 2</b>
SEW JOB No:	REV

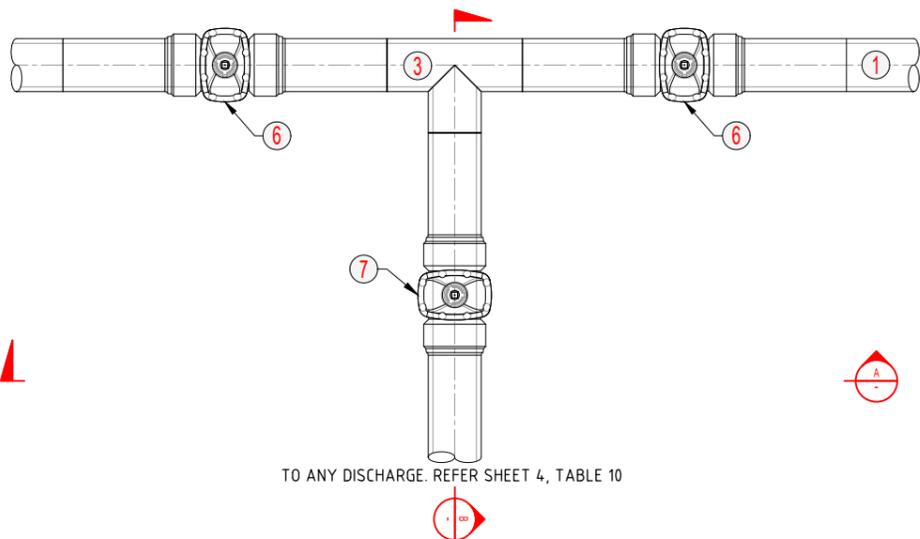
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**TABLE 9: PE SCOUR ITEMS SCHEDULE**

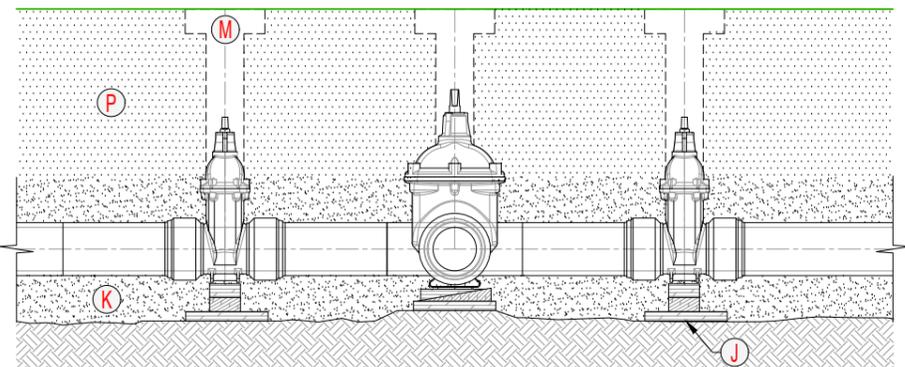
ITEM	ITEM DESCRIPTION / DETAILS
1	PE PIPE
2	STUB FLANGE & BACKING RING
3	EQUAL TEE, SHORT SPIGOT
4	REDUCING SCOUR TEE, SHORT SPIGOT
5	FL-FL DIVIDE GATE VALVE
6	DIVIDE GATE VALVE WITH PE PIPE ENDS
7	OFFTAKE GATE VALVE WITH PE PIPE ENDS
8	PE ECCENTRIC TAPER
9	PE BEND, 90°
10	RESTRAINED MECHANICAL COUPLING

**NOTES Regarding Table 9:**

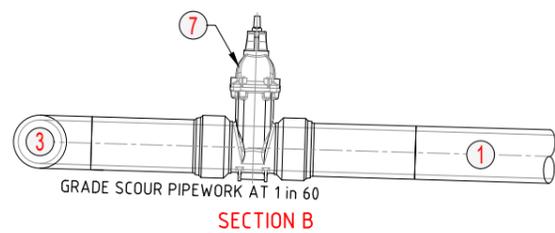
- A. ALL ITEMS SHALL BE APPROVED BY SEW FOR PRESSURISED SEWER APPLICATION.
- B. ALL PE WELDS SHALL BE BUTT WELDED UNLESS STATED OTHERWISE, INTERNALLY DE-BEADED.
- C. ALL PE FITTINGS TO BE OF THE SAME OR HIGHER PRESSURE CLASS THAN THE PIPELINE.



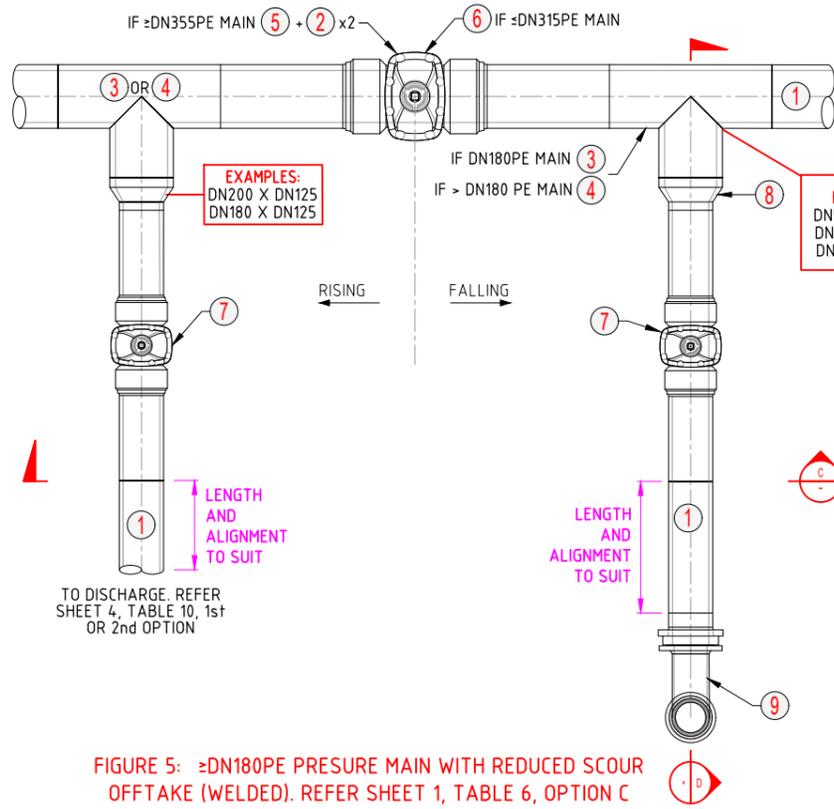
**FIGURE 4: DN125PE PRESSURE MAIN EQUAL SIZED SCOUR OFFTAKE (WELDED) REFER SHEET 1, TABLE 6, OPTIONS A AND E**



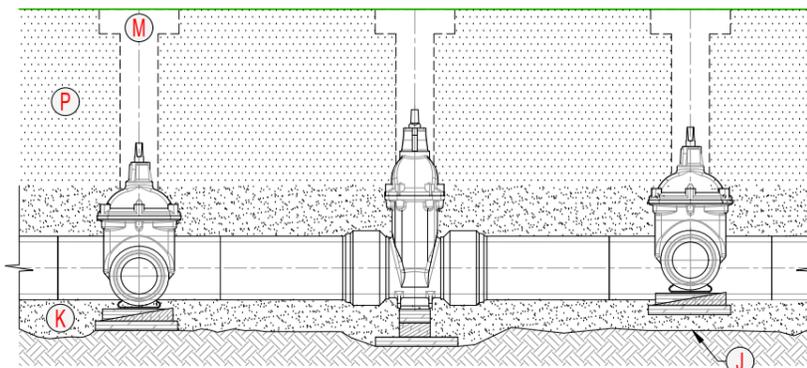
**SECTION A**  
REFER SHEET 2 FOR LETTERED ITEM DESCRIPTIONS



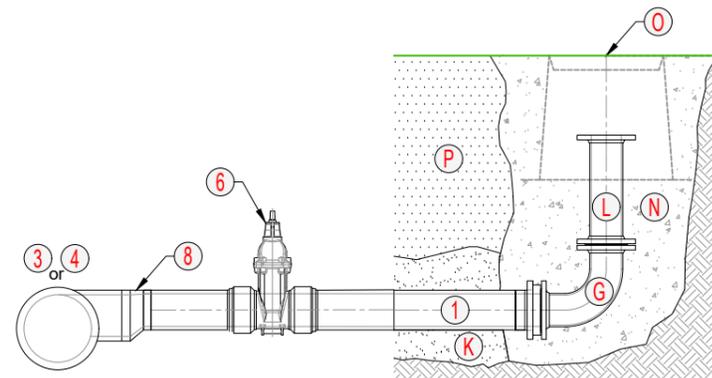
**SECTION B**



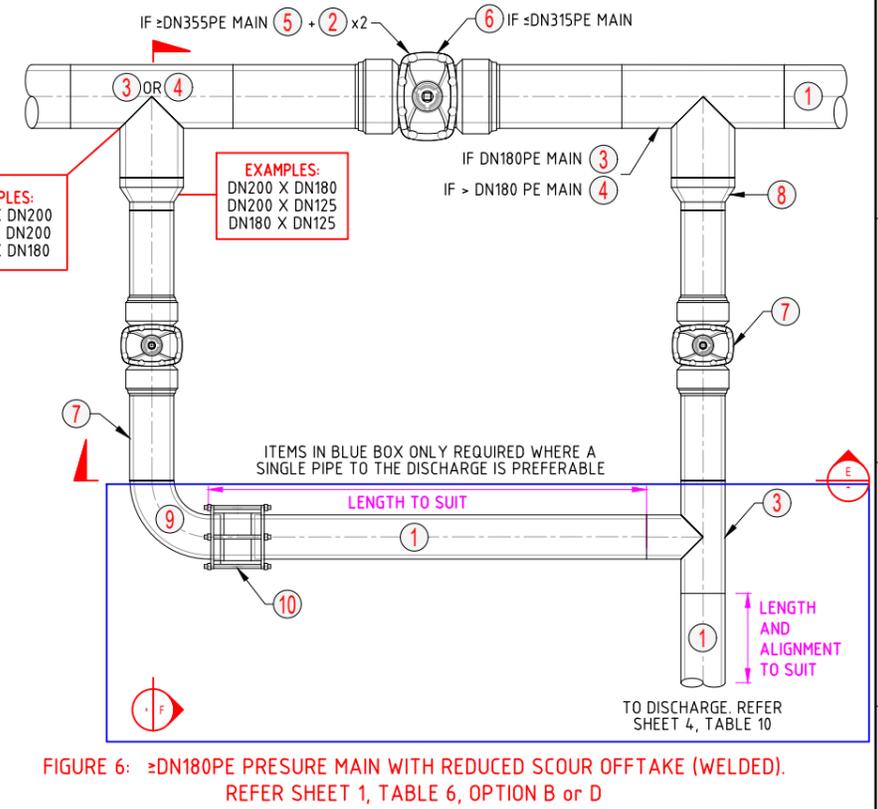
**FIGURE 5: ≥DN180PE PRESSURE MAIN WITH REDUCED SCOUR OFFTAKE (WELDED). REFER SHEET 1, TABLE 6, OPTION C**



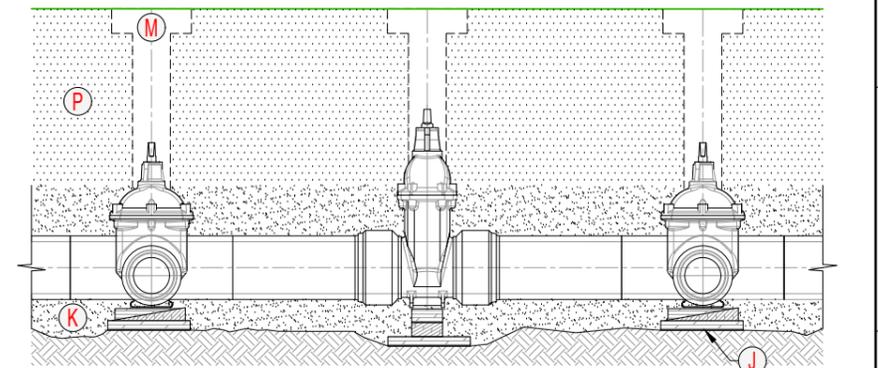
**SECTION C**  
NOTE: SECTION C IS THE SAME AS SECTION E, EXCEPT THE AIR INLET OFFTAKE IS SET AT THE OBVERT (NOT INVERT)



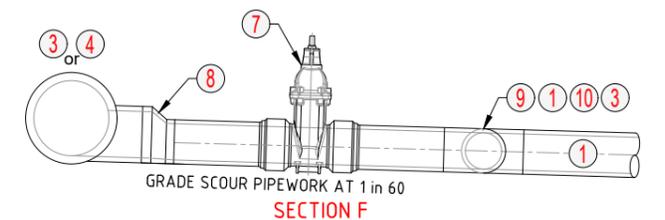
**SECTION D**  
REFER SHEET 2 FOR LETTERED ITEM DESCRIPTIONS



**FIGURE 6: ≥DN180PE PRESSURE MAIN WITH REDUCED SCOUR OFFTAKE (WELDED). REFER SHEET 1, TABLE 6, OPTION B or D**



**SECTION E**  
REFER SHEET 2 FOR LETTERED ITEM DESCRIPTIONS



**SECTION F**

DESIGNER R. JAGGER MAR 23	DRAFTER R. JAGGER MAR 23	SEW PROJECT MANAGER C. PAXMAN MAR 23
DESIGN REVIEW M. LOWE MAR 23	DRAFT CHECK S. PIQUET MAR 23	ASSET/ENG. MANAGER J. TULLY APR 23
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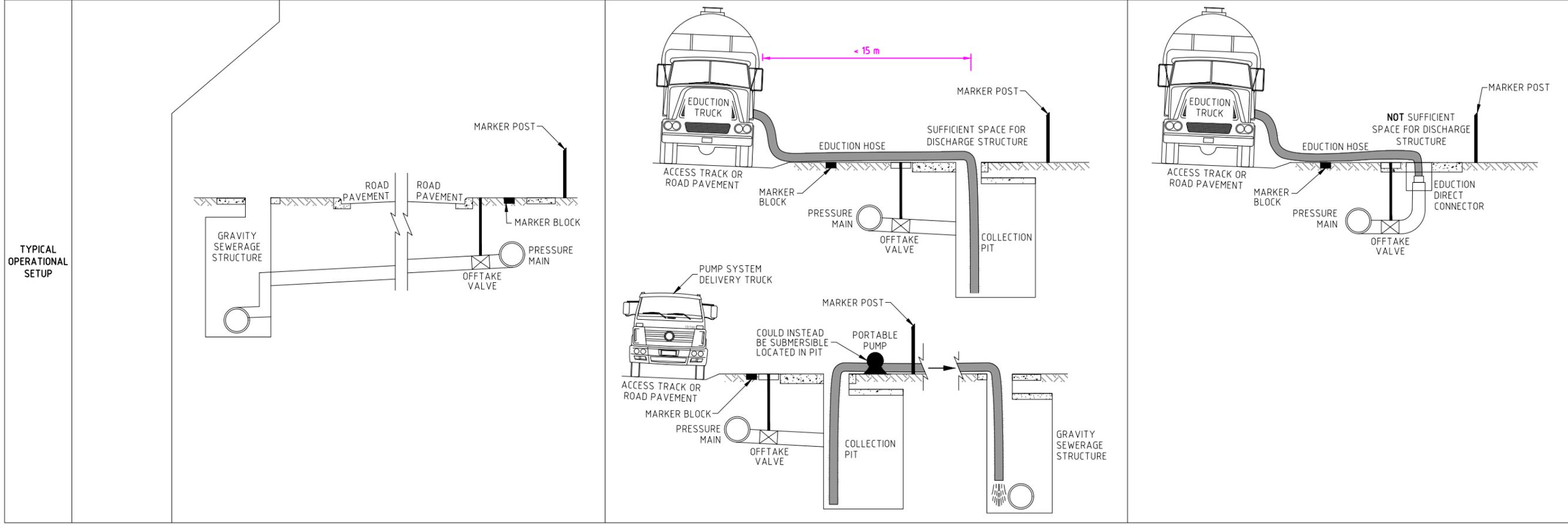
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**SOUTH EAST WATER**  
**AM2973 - SEWER SCOUR STANDARD**  
**SCOUR OFFTAKE**  
**WELDED PE FITTING ARRANGEMENTS**

DATUM: NA	SHEET SIZE: A1
MELWAY REF: NA	
SCALE: AS SHOWN	SEW DRAWING NUMBER
	<b>AM2973- SHEET 3</b>
SEW JOB No:	REV

**TABLE 10: SCOUR DISCHARGE OPTIONS (IN PREFERENCE ORDER. ADOPT A HIGHER ORDER PREFERENCE WHERE PRACTICAL TO DO SO)**

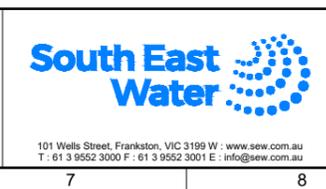
OPTION	MANDATORY	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>
OPTION DESCRIPTION	SPS WET WELL OR INLET MH	GRAVITY DISCHARGE TO GRAVITY SEWER	COLLECTION PIT	EDUCTOR DIRECT CONNECTION
SCHEMATIC				
REASONS TO SELECT OPTION	TYPICALLY THIS IS ALWAYS UNDERTAKEN	1) THIS OPTION USUALLY PROVIDES RAPID SCOUR DRAINAGE AS THE SCOUR CAN RUN CONTINUOUSLY AND CAN BE RAPIDLY INITIATED. 2) SUITABLE IF RECEIVING GRAVITY SYSTEM: 2a) HAS CAPACITY TO ACCEPT SCOUR VOLUME AT A REASONABLE RATE OF DISCHARGE (ie: GRAVITY SEWER $\phi$ $\geq$ PRESSURE MAIN $\phi$ ), & 2b) IS LOW ENOUGH BELOW THE PRESSURE MAIN'S INVERT LEVEL.	1) PIT IS PRACTICAL TO CONSTRUCT WITH STORAGE (ie: $\geq$ 20% OF SHUT OFF VOLUME). 2) PORTABLE PUMP OUT IS PRACTICAL, ie: 2a) LIGHT RIGID TRUCK ACCESS TO PIT (ACCESS FLATTER THAN 1 in 10 GRADE), and 2b) PIT DEPTH $<$ 8m, and 2c) PUMP OUT PRACTICAL, WHICH IS WHEN MODERATE DISTANCE TO GRAVITY SEWER STRUCTURE, ie: IF SHUT OFF VOLUME $<$ 40 kL & DISTANCE IS $<$ 80m, or IF SHUT OFF VOLUME $>$ 40 kL & DISTANCE IS $<$ 150m, and NOT CROSSING A SIGNIFICANT FEATURE (ie: ROAD, RAIL LINE etc). PORTABLE PUMP TO SEWER IS PREFERRED TO EDUCATION AS IT IS CONTINUOUS AND PORTABLE PUMPS ARE OFTEN FASTER THAN THE TRUCK'S OWN PUMP. PORTABLE PUMPS TAKE LONGER TO IMPLEMENT THAN THE 1 <sup>st</sup> OPTION. 3) EDUCATION IS PRACTICAL, ie: 3a) MEDIUM RIGID TRUCK ACCESS TO SCOUR (ALL WEATHER ACCESS TRACK TO SCOUR DISCHARGE PROVIDED), and 3b) PIT DEPTH $<$ 6m, and 3c) EDUCATION TURN AROUND TIME REASONABLE (ie: REFER SHEET 1 RE SCOUR ESTIMATION TIME).	1) OTHER OPTIONS NOT PRACTICAL. 2) MEDIUM RIGID TRUCK ACCESS TO SCOUR (ALL WEATHER ACCESS TRACK)
OPERATION REFERENCE	OPEN SCOUR OFFTAKE VALVE(S) SPS STANDARDS	OPEN SCOUR OFFTAKE VALVE(S) SHEET 5	OPEN SCOUR, PLACE PUMP(S) AND/OR HOSES AND RUN PUMP OR EDUCATOR SHEET 5	CONNECT CAMLOCK(S) TO EDUCATOR, OPEN SCOUR VALVE(S) AND RUN EDUCATOR SHEET 6



DESIGNER	R. JAGGER	MAR 23	DRAFTER	R. JAGGER	MAR 23	SEW PROJECT MANAGER	C. PAXMAN
DESIGN REVIEW	M. LOWE	MAR 23	DRAFT CHECK	S. PIQUET	MAR 23	ASSET/ENG. MANAGER	J. TULLY
APPROVED	C. PAXMAN	APR 23					

DESIGNER	R. JAGGER	MAR 23	DRAFTER	R. JAGGER	MAR 23	SEW PROJECT MANAGER	C. PAXMAN
DESIGN REVIEW	M. LOWE	MAR 23	DRAFT CHECK	S. PIQUET	MAR 23	ASSET/ENG. MANAGER	J. TULLY
APPROVED	C. PAXMAN	APR 23					

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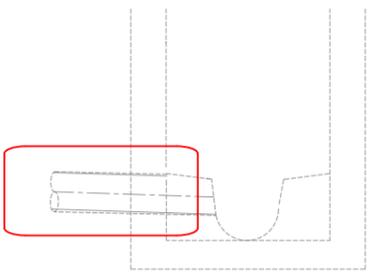
**SOUTH EAST WATER**  
AM2973 - SEWER SCOUR STANDARD  
SCOUR DISCHARGE SELECTION

DATUM:	NA
MELWAY REF:	NA
SCALE:	AS SHOWN
SHEET SIZE:	A1
SEW DRAWING NUMBER	AM2973 - SHEET 4
SEW JOB No:	

CAD FILE NAME

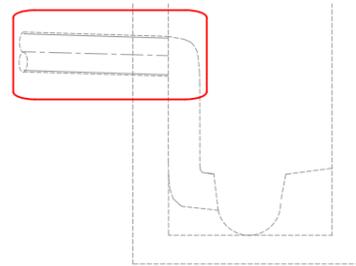
**GRAVITY SEWER DISCHARGE**

FOR CONNECTION OF SCOUR OFFTAKE TO A GRAVITY SEWERAGE STRUCTURE, REFER MRWA-S-317, TABLES 317-D TO 317-E. CONSIDER THE SCOUR OFFTAKE AS A PRESSURE MAIN.



**BASE CONNECTION TO SEWER MAINTENANCE STRUCTURE**

FOR CONNECTION OF SCOUR OFFTAKE TO A GRAVITY SEWERAGE STRUCTURE, REFER MRWA-S-317, TABLES 317-D TO 317-E. CONSIDER THE SCOUR OFFTAKE AS A PRESSURE MAIN.



**SHAFT CONNECTION TO SEWER MAINTENANCE STRUCTURE**

**COLLECTION PIT DISCHARGE**

**COLLECTION PIT REQUIREMENTS:**

COLLECTION PITS MAY BE ONE OF:

- CIRCULAR STRUCTURES BASED ON MADE TO ORDER MH STANDARDS (REFER NOTES a to i BELOW), OR
- RECTANGULAR STRUCTURES DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH AS 3735 CONCRETE STRUCTURES FOR RETAINING LIQUIDS.

CIRCULAR COLLECTION PITS SHALL BE MADE TO ORDER AND DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THE SEW GRAVITY SEWERAGE STANDARDS LISTED IN TABLE 14, WITH THE FOLLOWING EXCEPTIONS AND SPECIFIC REQUIREMENTS:

- PROVIDE ALL THE INFORMATION DESIGNATED IN SCHEDULE 6 OF MRWA-S-100.
- RATHER THAN CHANNELS IN THE BASE (AS DESCRIBED IN MRWA-S-310), COLLECTION PITS SHALL HAVE A SUMP AS DESCRIBED IN FIGURE 8 OR 9.
- CONCRETE COLLECTION PITS DO NOT REQUIRE CORROSION PROTECTION.
- ALL COLLECTION PITS BASED ON CONCRETE MAINTENANCE HOLES SHALL BE STEEL REINFORCED IN ACCORDANCE WITH MRWA-S-307, TABLE 307-A.
- ALL COLLECTION PITS BASED ON MADE TO ORDER MHS (ie: GRP / CONCRETE) SHALL BE DESIGNED IN ACCORDANCE WITH TABLE 308-A, WITH ITEMS A TO N NEEDING TO BE INCLUDED. ITEMS O TO Z RELATE TO PIPEWORK ITEMS WHICH ARE IRRELEVANT FOR A COLLECTION PIT.
- SCOUR INFLOW PIPES CONNECTING TO MH SHAFTS SHALL CONNECT AS PER FIGURES 310-D (IF DWV) OR FIGURE 310-F (IF PE), NOT AS PER MRWA-S-311, ie: FLOWS SHALL FREE DROP FROM THE SCOUR INFLOW INTO THE COLLECTION PIT.
- COLLECTION PIT COVERS OVER THE SUMP SHALL BE 750 DIAMETER ROUND OR 750 X 750 SQUARE COVERS.
- PROVIDE A REMOVABLE FALL PROTECTION GRATING (100 X 100 SPACING BETWEEN BARS) UNDER ALL COVERS.
- CONCRETE MH COLLECTION PIT SUMPS SHALL BE CONSTRUCTED USING THE INTERNAL FORMWORK OF STANDARD CONICAL TOPS, INVERTED TO CREATE A SUMP WHICH IS 600 IN DIAMETER AT THE BOTTOM OF THE CONE.
- NO LANDINGS ARE REQUIRED AND A LADDER IS ONLY REQUIRED WHEN A VALVE IS LOCATED IN THE PIT.

**DETERMINING COLLECTION PIT LOCATION AND CIRCULAR GEOMETRY:**

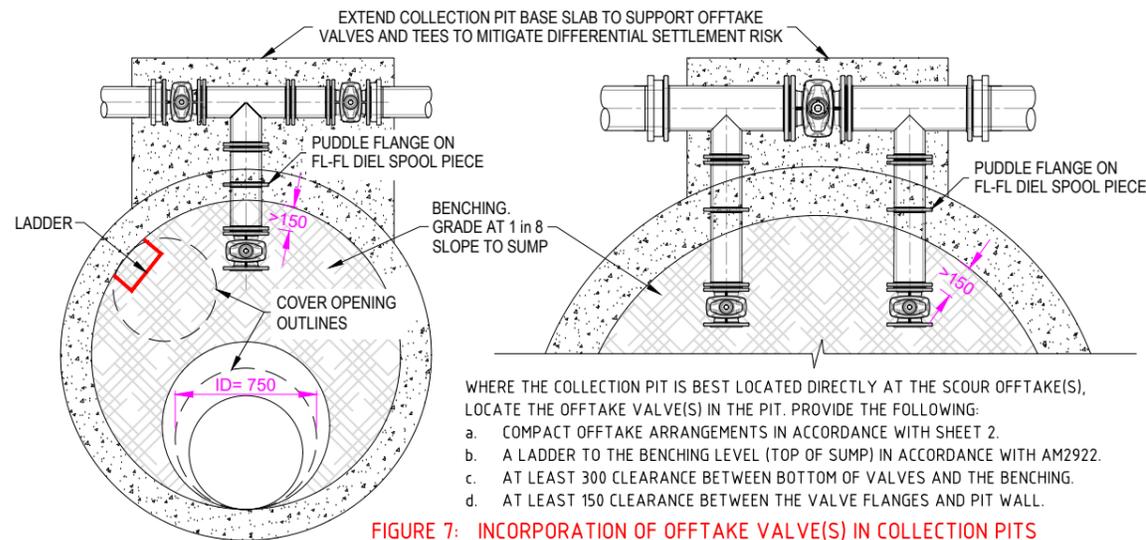
COLLECTION PIT LOCATION, DEPTH AND DIAMETER SHALL BE DETERMINED USING THE FOLLOWING PROCESS:

- DETERMINE THE PREFERRED COLLECTION PIT LOCATION IN CONSIDERATION OF:
  - MINIMISING DEPTH BETWEEN ANY TRUCK STANDING LEVEL AND THE BOTTOM OF COLLECTION PIT LEVEL. THIS IS REQUIRED TO ENSURE REASONABLE EDUCION AND SURFACE MOUNTED PUMP EFFECTIVENESS.
  - THE ABILITY FOR TWO MEDIUM RIGID TRUCKS TO TRANSIT TO AND FROM THE SCOUR INDEPENDENTLY WITHOUT INTERFERING WITH EACH OTHER, IN ALL WEATHER CONDITIONS.
  - KEEPING THE DISTANCE BETWEEN THE SCOUR OFFTAKES AND COLLECTION PIT TO A MODERATE DISTANCE.
- DETERMINE THE DIAMETER AND DEPTH OF COLLECTION PITS IN CONSIDERATION OF:
  - THE STORAGE VOLUME REQUIRED.
 

STORAGE IS REQUIRED TO ENABLE THE MAIN TO CONTINUE BEING SCOURED EVEN WHEN AN EDUCION TRUCK IS IN TRANSIT. STORAGE VOLUME IS THE VOLUME OF THE COLLECTION PIT BELOW THE MAXIMUM PIT STORAGE LEVEL. STORAGE SHALL BE AT LEAST: A) 2m<sup>3</sup> OR 10% (WHICHEVER IS GREATER) OF SHUT OFF SECTION VOLUME WHERE EDUCION TURNAROUND TIME IS SHORT OR MULTIPLE TRUCK USE IS AVAILABLE, or B) 4m<sup>3</sup> OR 20% OF THE SHUT OFF SECTION VOLUME WHERE EDUCION TURN AROUND TIME IS LONG AND MULTIPLE TRUCK USE IS PROBLEMATIC.
  - THE AVAILABLE FOOTPRINT FOR THE COLLECTION PIT.
 

SPACE CONSTRAINED COLLECTION PITS MAY NEED TO BE SMALLER IN DIAMETER AND DEEPER. WHERE THERE IS NO LIMITATION ON COLLECTION PIT FOOTPRINT, SELECT THE MAXIMUM REASONABLE DIAMETER (ie: BASED ON LARGEST FORMWORK AVAILABLE) TO MINIMISE STORAGE DEPTH AND THEREFORE MINIMISE THE NEGATIVE SUCTION PRESSURE WHICH LIMITS THE EFFECTIVENESS OF EDUCION AND ABOVE GROUND PUMPING.
  - DETERMINE THE DEPTH OF STORAGE REQUIRED AT THE SELECTED DIAMETER TO OBTAIN THE STORAGE VOLUME REQUIRED.
 

WHERE DEPTH IS CONSTRAINED (DUE TO POOR GROUND / CLASH OR SERVICES AT DEPTH), CONSIDER RELOCATING THE COLLECTION PIT TO ENABLE COLLECTION PIT DIAMETER OR DEPTH TO BE INCREASED.
  - PIT DEPTHS <6m ARE PREFERRED. MAXIMUM PIT DEPTH IS 8m.

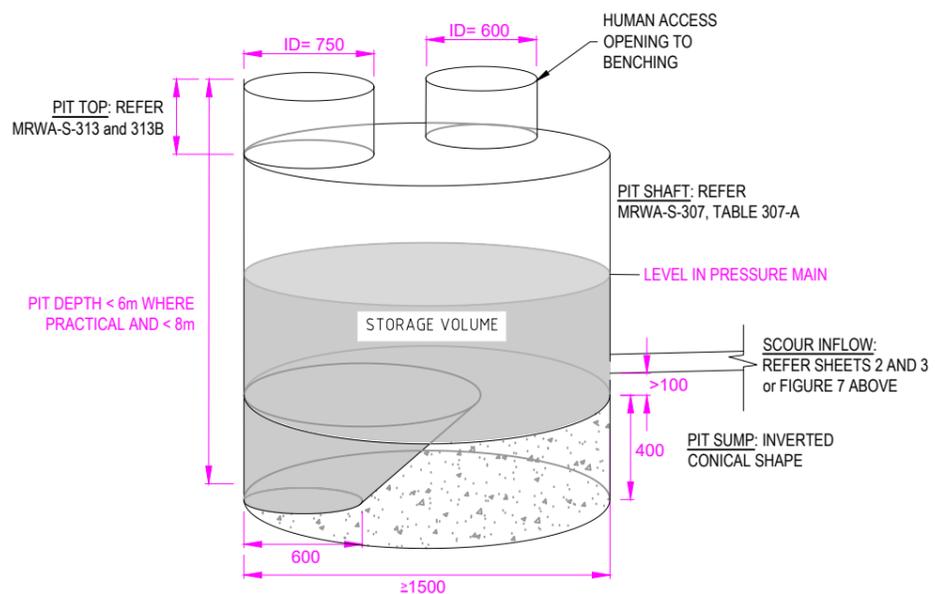


**FIGURE 7: INCORPORATION OF OFFTAKE VALVE(S) IN COLLECTION PITS**

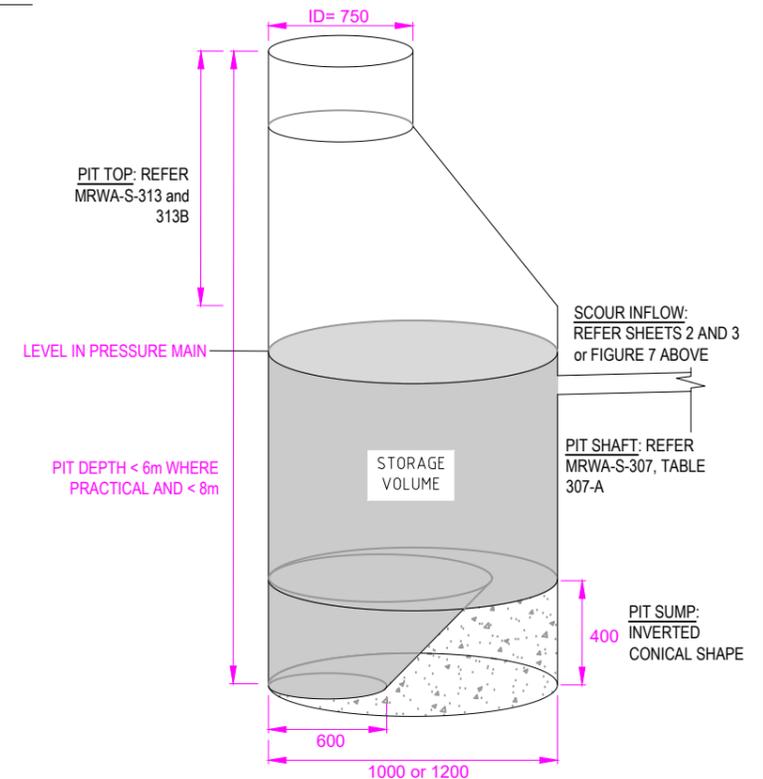
WHERE THE COLLECTION PIT IS BEST LOCATED DIRECTLY AT THE SCOUR OFFTAKE(S), LOCATE THE OFFTAKE VALVE(S) IN THE PIT. PROVIDE THE FOLLOWING:

- COMPACT OFFTAKE ARRANGEMENTS IN ACCORDANCE WITH SHEET 2.
- A LADDER TO THE BENCHING LEVEL (TOP OF SUMP) IN ACCORDANCE WITH AM2922.
- AT LEAST 300 CLEARANCE BETWEEN BOTTOM OF VALVES AND THE BENCHING.
- AT LEAST 150 CLEARANCE BETWEEN THE VALVE FLANGES AND PIT WALL.

STANDARD	RELEVANT CONTENT
1 MRWA-S-100	SCHEDULE 6 - MAINTENANCE HOLES
2 MRWA-S-101D	MAINTENANCE HOLE DESIGN EXAMPLES
3 MRWA-S-307	TABLE 307-A AND 307B, CONCRETE MH DETAILS
4 MRWA-S-308	SHAFT AND O&M REQUIREMENTS
5 MRWA-S-309	MAINTENANCE HOLE GENERAL CONSTRUCTION, CONCRETE
6 MRWA-S-310	PIPE CONNECTIONS CONCRETE
7 MRWA-S-313	MADE TO ORDER TOP CONVERSION AND COVER SELECTION
8 MRWA-S-313B	TOP CONSTRUCTION, CONCRETE



**FIGURE 8: EXAMPLE 1- FLAT TOP COLLECTION PIT**  
USE IF EITHER: (i) NO VALVE(S) IN PIT AND A ≥DN1500 STRUCTURE IS REQUIRED, or (ii) VALVE(S) ARE LOCATED IN THE PIT



**FIGURE 9: EXAMPLE 2- DN1000 or DN1200 CONCRETE CONICAL TOP COLLECTION PIT**  
NOT SUITABLE WHERE TWO COVERS ARE REQUIRED ie: VALVE(S) LOCATED IN THE PIT AS PER FIGURE 7

REV	DESCRIPTION	JOB No	DRAFTER	DES REVIEW	PM APPD	DATE
B	PUBLISHED FIRST VERSION					APR 23
A	ISSUED FOR DISCUSSION					JUL 22

DESIGNER	DRAFTER	SEW PROJECT MANAGER
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MAR 23	MAR 23	MAR 23
DESIGN REVIEW	DRAFT CHECK	ASSET/ENG. MANAGER
M. LOWE	S. PIQUET	J. TULLY
MAR 23	MAR 23	APR 23
APPROVED		
C. PAXMAN		
	APR 23	

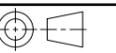
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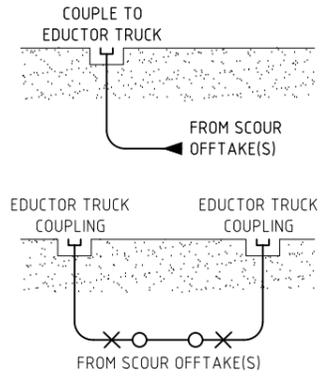
**SOUTH EAST WATER**  
**AM2973 - SEWER SCOUR STANDARD**  
**SCOUR DISCHARGE**  
**TO GRAVITY SEWER OR COLLECTION PIT**

DATUM:	NA
MELWAY REF:	NA
SCALE:	AS SHOWN
SEW DRAWING NUMBER	
<b>AM2973 - SHEET 5</b>	
SEW JOB No:	



SHEET SIZE: A1

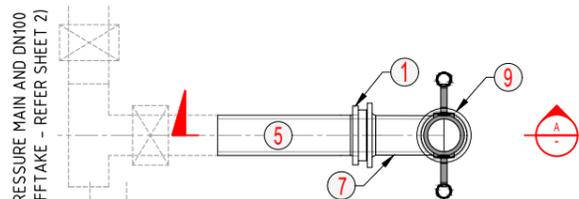
REV



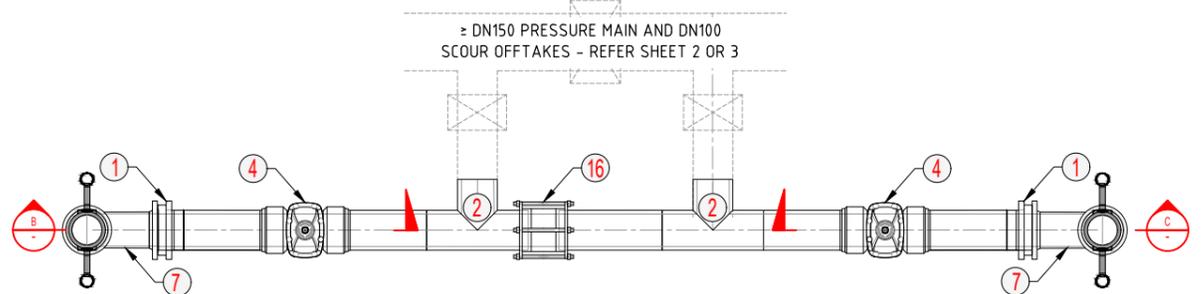
**FIGURE 10: SCHEMATICS OF EDUCTOR DIRECT CONNECTION OPTIONS**

SCOUR OFFTAKE ARRANGEMENT	SCOUR OFFTAKE FIGURE	NUMBER TANKER CONNECTION(S) REQUIRED	DISCHARGE SHEET 6 FIGURE
1 X ≥DN90PE	REFER PSS STANDARDS		
1 X DN100	FIGURES 1 OR 4	1	FIGURE 11
2 X DN100	FIGURES 3 OR 6	2	FIGURE 12
2 X DN150	FIGURES 3 OR 6	2	FIGURE 13

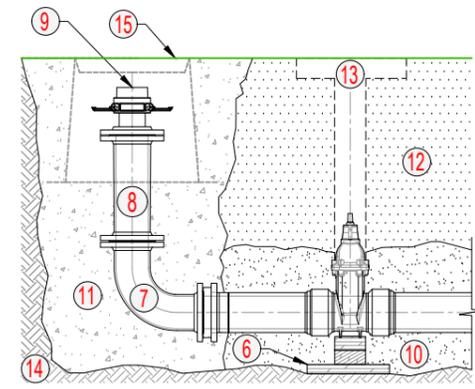
ITEM	ITEM DESCRIPTION / DETAILS
1	STUB FLANGE & BACKING RING OR FLANGE FASTENING & CORROSION PROTECTION AS PER MRWA-W-306A AND 306B
2	EQUAL TEE SHORT SPIGOT WITH ITEM 1 IF SCOUR OFFTAKE IS DIEL
3	CONCENTRIC REDUCER PE100
4	GATE VALVE WITH PE PIPE ENDS DN125PE. CLOCKWISE CLOSING
5	OFFTAKE PIPE PE100 OR FLANGED DIEL
6	VALVE SUPPORT REFER MRWA-W-206
7	DUCTILE IRON BEND FL-FL FBE COATED DN100
8	DUCTILE IRON RISER FL-FL FBE COATED DN100. LENGTH TO SUIT
9	FLANGE + CAMLOCK DN100 FLANGE + DN80 FEMALE SS316 CAMLOCK AND DUSTCAP
10	EMBEDMENT REFER MRWA-W-203
11	CEMENT STABILISED EMBEDMENT 1% STABILISED. REQUIRED TO SUPPORT VERTICAL PIPEWORK AND COVER. FOUND CEMENT STABILISED EMBEDMENT ON NATIVE SOIL
12	BACKFILL REFER MRWA-W-201
13	VALVE SURFACE ARRANGEMENT REFER MRWA-W-302, EXCEPT VALVE SPINDLE CAP SHALL BE RED COLOURED AND MARKINGS SHALL BE "SEWER" (NOT WATER)
14	NATIVE SOIL > 50 kPa BEARING CAPACITY
15	COVER AND FRAME MAINTENANCE SHAFT TOP HAT. REFER MRWA-S-305, FIGURE 305-C
16	RESTRAINED MECHANICAL COUPLING (IF REQUIRED) APPROVED PE COUPLING



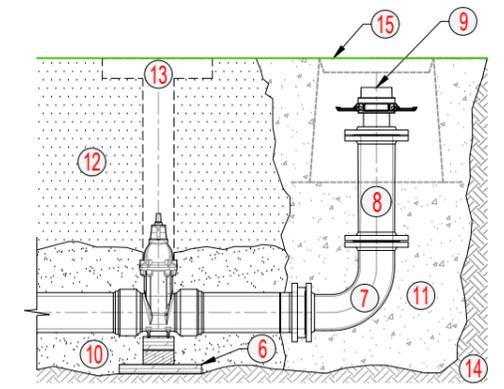
**FIGURE 11: DN100 MAIN, DN100 OFFTAKE EDUCTOR DIRECT CONNECTION (PLAN)**



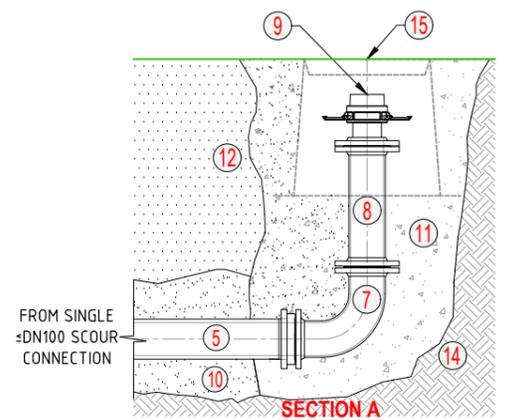
**FIGURE 12: ≥DN150 MAIN, DN100 OFFTAKE(S) EDUCTOR DIRECT CONNECTION (PLAN)**  
PE TAILED VALVES PREFERRED AS THEY PROVIDE EFFECTIVE SPACING BETWEEN FITTINGS



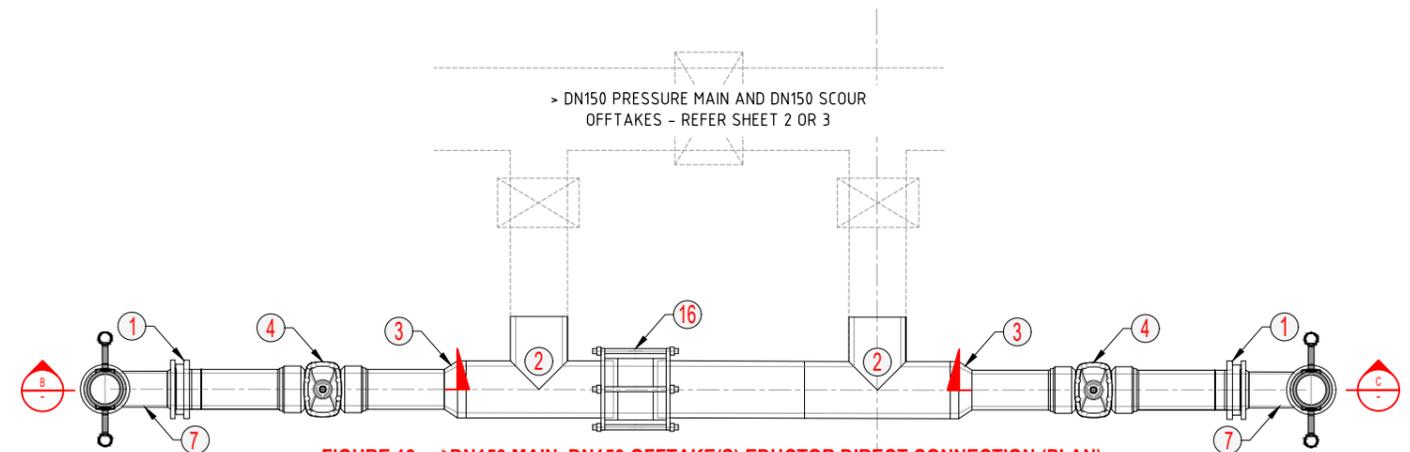
**SECTION B**  
SECTION B IS A MIRROR IMAGE OF SECTION C



**SECTION C**  
SECTION C IS A MIRROR IMAGE OF SECTION B



**SECTION A**



**FIGURE 13: ≥DN150 MAIN, DN150 OFFTAKE(S) EDUCTOR DIRECT CONNECTION (PLAN)**  
PE TAILED VALVES PREFERRED AS THEY PROVIDE EFFECTIVE SPACING BETWEEN FITTINGS

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DESIGNER R. JAGGER MAR 23	DRAFTER R. JAGGER MAR 23	SEW PROJECT MANAGER C. PAXMAN
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**SOUTH EAST WATER**  
**AM2973 - SEWER SCOUR STANDARD**  
**SCOUR DISCHARGE**  
**TO EDUCTOR DIRECT CONNECTION**

DATUM: NA	
MELWAY REF: NA	
SCALE: AS SHOWN	SHEET SIZE: A1
SEW DRAWING NUMBER	
<b>AM2973 - SHEET 6</b>	
SEW JOB No:	REV