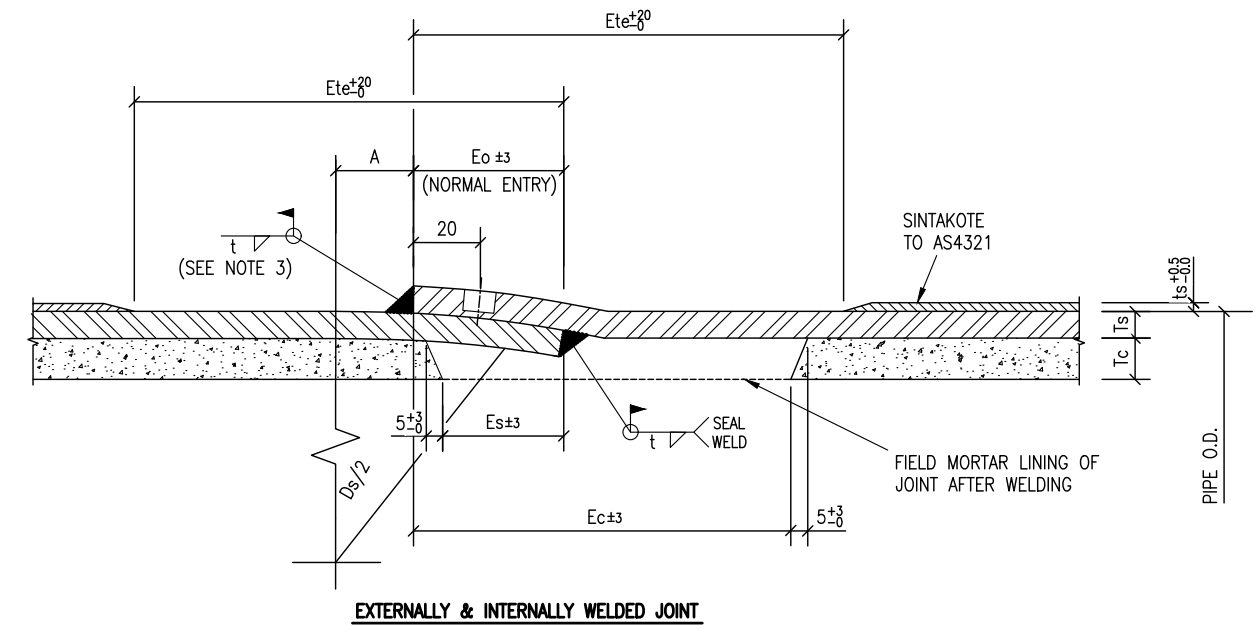
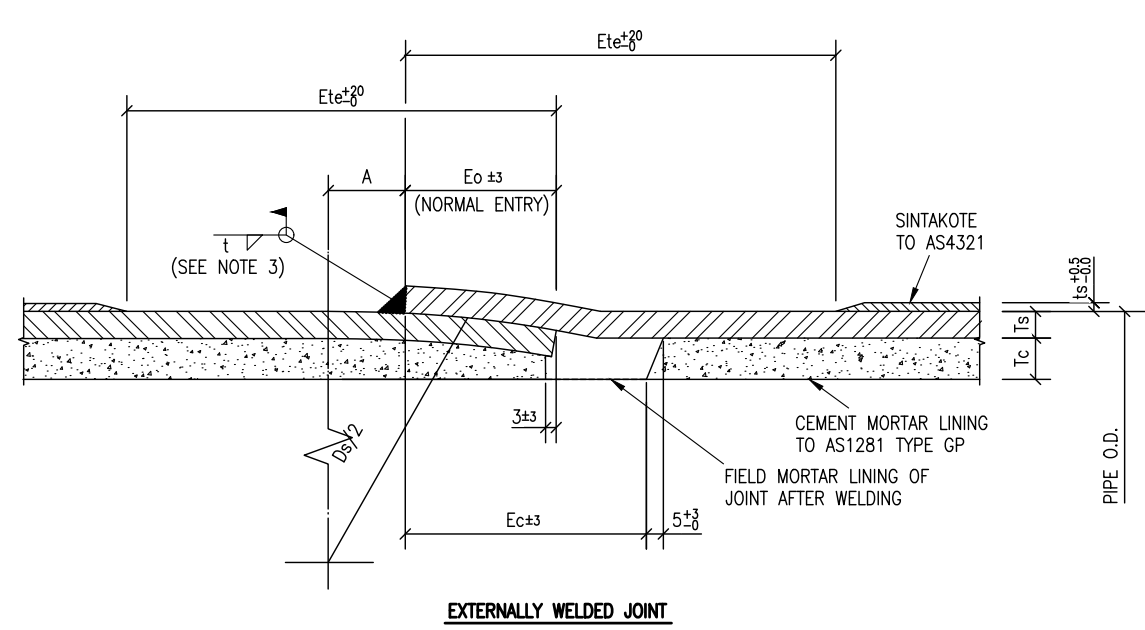
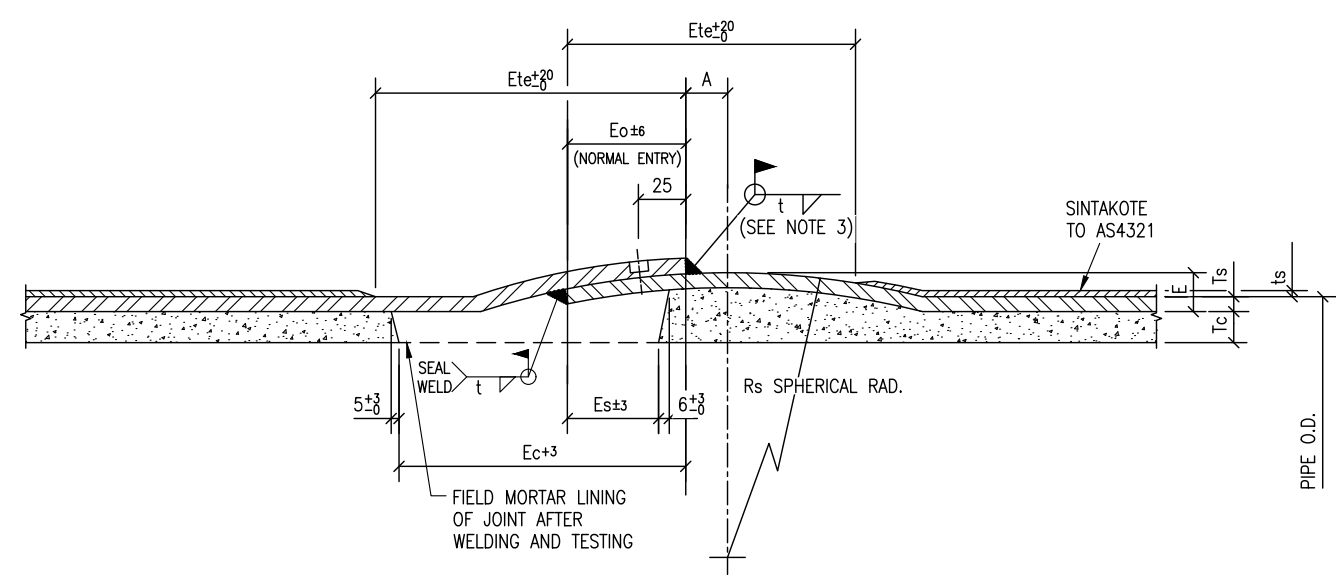


DRAWING INDEX: PIPELINES FOR WATER GREATER THAN 250mm DIAMETER

DRAWING NO.	REVISION	DRAWING TITLE
2001979.018	B	WATER RETICULATION – STEEL PIPE SPIGOT / BALL AND SOCKET JOINTS
2001979.019	E	WATER RETICULATION – STEEL PIPE WELDING AND TESTING DETAILS
2001979.021	A	WATER RETICULATION – STANDARD BOLT TIGHTENING SEQUENCE: 32 HOLE FLANGE TO 48 HOLE FLANGE
2001979.022	A	WATER RETICULATION – STANDARD BOLT TIGHTENING SEQUENCE: 8 HOLE FLANGE TO 28 HOLE FLANGE
2001979.029	G	WATER RETICULATION – STEEL PIPE TESTING: GENERAL ARRANGEMENT AND DETAILS FOR STOP ENDS TYPE 1 TO TYPE 4
2001979.031	C	WATER RETICULATION – STANDARD TAPPING PORT: TAPPING PORT FOR STEEL PIPE
2001979.032	A	WATER RETICULATION – STANDARD MANHOLE SOFFIT PLATE FOR FLOW STREAMLINING: DETAILS AND ELEVATION OF SOFFIT PLATE
2001979.060	D	WATER RETICULATION – STEEL PIPELINE FITTINGS: BEND SETOUT DIMENSIONS
2001979.075	D	WATER RETICULATION – ACCESS MANHOLE FOR PIPES $\geq$ 700 NOM. DIA.: WELD DOWN TYPE
2001979.092	E	WATER RETICULATION – PIPE TRENCHES: TYPICAL BEDDING, BACKFILL & REINSTATEMENT DETAILS
2001979.097	-	WATER RETICULATION – STEEL PIPELINE FITTINGS: TAPERS SETOUT DIMENSIONS
2001979.140	-	WATER RETICULATION – STANDARD PIPELINES: TEMPORARY ACCESS MANHOLE



SPIGOT AND SOCKET JOINT ILLUSTRATION
N.T.S.

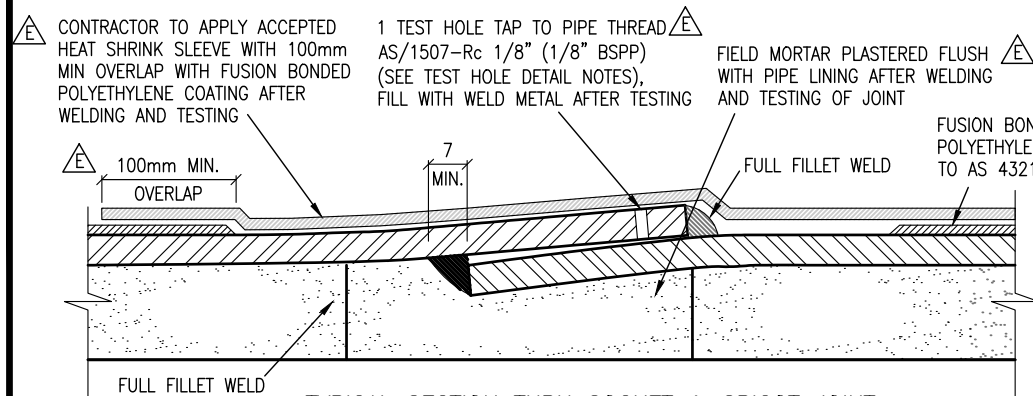


BALL AND SOCKET JOINT ILLUSTRATION
N.T.S.

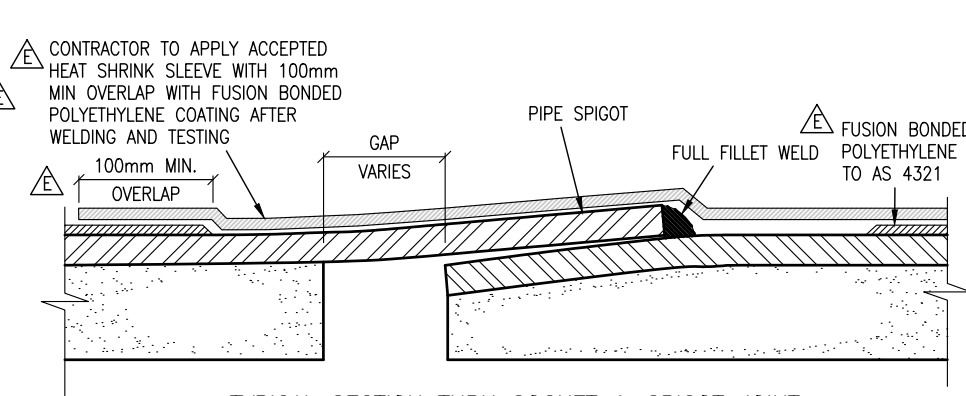
KEY					
Ts	=	thickness of pipe steel	Tc	=	thickness of concrete lining
Eo	=	length of straight line entry	Es	=	set back of concrete or paint lining at spigot end
Ete	=	minimum set back of external coating or for tape coating 150mm for spigots and 100mm for sockets	Ec	=	set back of concrete or paint lining at socket end

- NOTES:**
- FOR SSJ'S LARGER SIZES > 900, ACHIEVING 3" DEFLECTION CAN BE DIFFICULT WHEN CONSIDERING THE OVALITY OF THE PIPES. DESIGNS SHOULD NOT RELY ON DEFLECTION TO NAVIGATE AROUND BENDS – APPROPRIATE BENDS SHOULD BE DESIGNED.
 - REFER TO WATERLAND'S MATERIAL SUPPLY STANDARD (ESF-500-STD-601) FOR PIPE SIZES AND TOLERANCES.
 - REFER TO DWG. 2001979.019 FOR WELDING AND TESTING DETAILS.

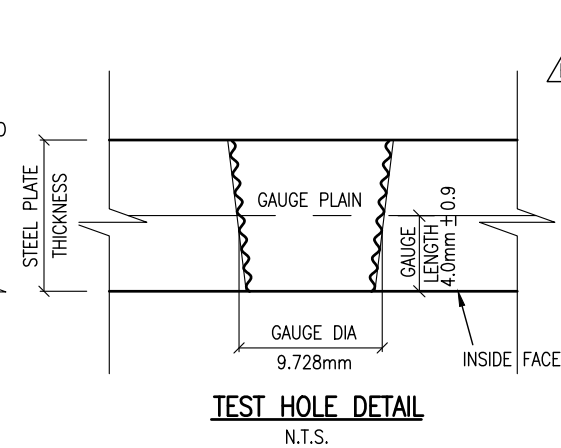
				DESIGNED DES. CHECKED DRAWN DWG. CHECKED WSL. PRINCIPAL ENG.		S. DANKS OPERATIONS: HEAD OF WATER T.SCHEIRLUNCK STRATEGY AND PLANNING: HEAD OF WATER		 COPYRIGHT - This drawing, the design concept, remain the exclusive property of Watercare Services Limited and may not be used without approval. Copyright reserved.	WATER RETICULATION STANDARD PIPELINES STEEL PIPE SPIGOT/BALL AND SOCKET JOINTS		CAD FILE 2001979.018B DATE 03-07-25 ORIGINAL SCALE A3 N.T.S. CONTRACT No.	
B	07-25	DETAILS AND NOTES AMENDED	L.F.	W.S.					REF No.			ISSUE
A	06/15	TABLE WITH FORMULA'S AMENDED	L.C.	J.D.					DWG No.	2001979 .018		B
ISSUE	DATE	AMENDMENT	BY	APPD.								



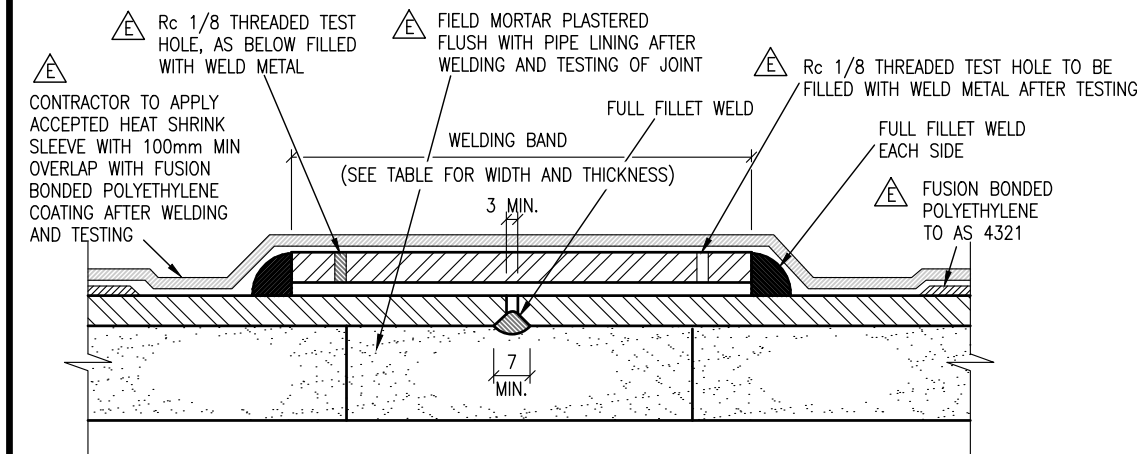
**TYPICAL SECTION THRU SOCKET & SPIGOT JOINT
FOR PIPES $\geq$ NOM. 700 DIA.**
N.T.S.



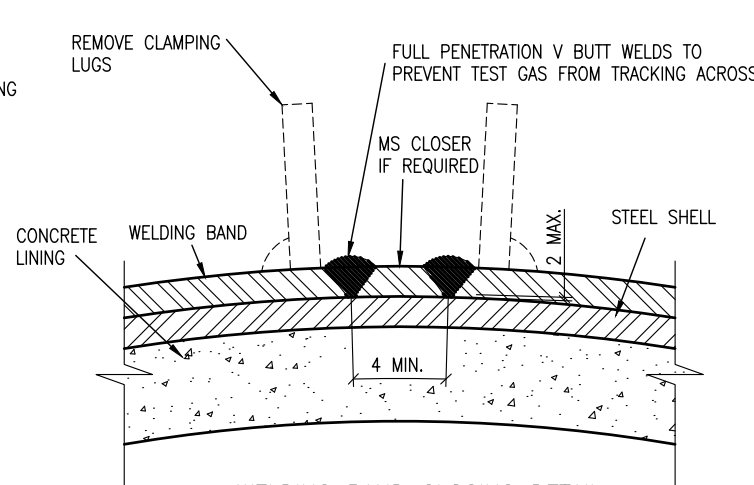
**TYPICAL SECTION THRU SOCKET & SPIGOT JOINT
FOR PIPES $\leq$ NOM. 630 DIA.**
N.T.S.



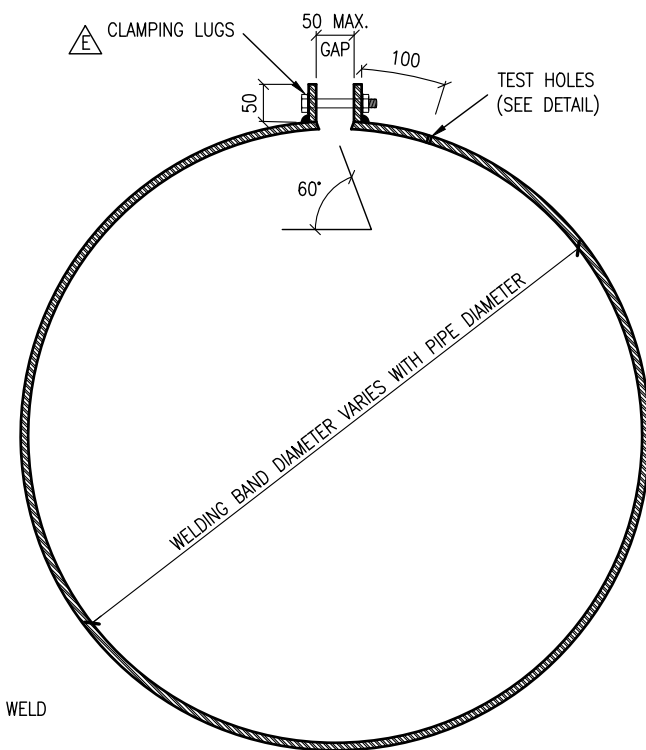
WELDING BAND DETAILS.	
NOM. PIPE SIZE (mm)	WELDING BAND SIZE (mm)
100 TO 400 DIA.	100x6 (Wxt)
450 TO 700 DIA.	150x6 (Wxt)
750 TO 900 DIA.	150x8 (Wxt)
1000 TO 1400 DIA.	150x10 (Wxt)
OVER 1400 DIA.	200x12 (Wxt)



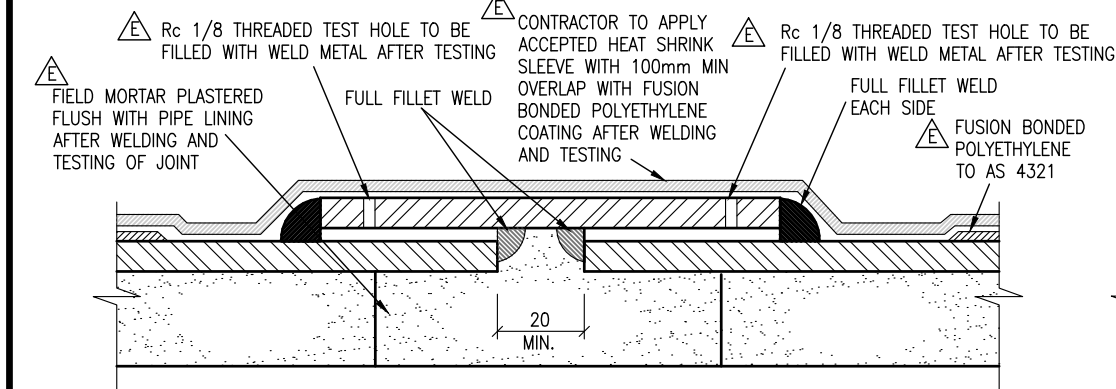
**TYPICAL SECTION THRU JOINT ON PIPES $\geq$ 700 DIAMETER
WITH WELDING BAND WHERE ENDS FIT NEATLY**
N.T.S.



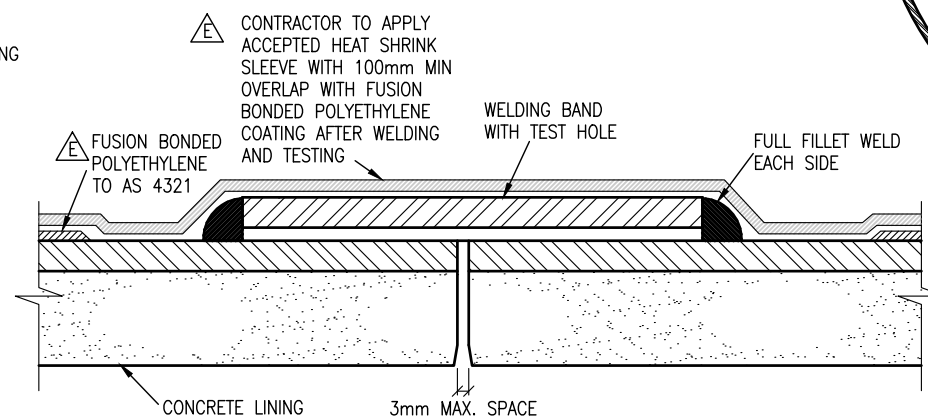
WELDING BAND CLOSING DETAIL
N.T.S.



WELDING BAND
N.T.S.



**TYPICAL SECTION THRU PIPE JOINT WITH WELDING BAND
ON PIPES $\geq$ NOM. 700 DIA.**
N.T.S.



**TYPICAL SECTION THRU PIPE JOINT ON PIPES $\leq$ NOM. 630 DIA.
WITH WELDING BAND WHERE ENDS FIT NEATLY**
N.T.S.



- NOTES:**
- ALL MILD STEEL MATERIALS SHALL BE MANUFACTURED TO AS 1594 OR AS/NZS 3678, MINIMUM STEEL GRADE 250 MPa.
 - PRIOR TO WELDING, EXTERNAL COATING SHALL BE SET BACK MIN. 100MM BOTH SIDES OF THE JOINT.
 - THE GRADE OF PLATE USED FOR THE WELD BAND SHALL NOT BE LESS THAN THE MAIN PIPE. WHERE THE MATERIAL GRADE OF THE PIPE IS UNKNOWN, THE WELD BAND SHALL BE OF GRADE 300.
 - ALL MATERIALS THAT MAY COME INTO CONTACT WITH WATER, INCLUDING REPAIR MORTAR SHALL BE AS/NZS 4020 CERTIFIED.
 - FOLLOWING FIELD WELDING AND TESTING, THE EXPOSED EXTERNAL METAL SHALL BE REINSTATED USING AN ACCEPTABLE REPAIR METHOD SUCH AS AN ACCEPTED HEAT SHRINK SLEEVE.
 - ACCEPTABLE REPAIR MORTAR FOR INTERNAL REINSTATEMENT INCLUDES:
 - STEELMAINS EZILINE
 - FOSROC RENDEROC HB70
 - MASTER EMACO S488CI
 - ALL WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH WORKSAFE REQUIREMENTS – THE CONTRACTOR SHALL ACQUIRE THE NECESSARY PERMITS REQUIRED TO SAFELY CARRY OUT WORKS.
 - REFER TO WATERCARE GENERAL MECHANICAL CONSTRUCTION STANDARD (ESF-600-STD-701) FOR WELD TESTING REQUIREMENTS.
 - WELD BAND THICKNESS SHALL NOT BE LESS THAN THE PIPE WALL THICKNESS.

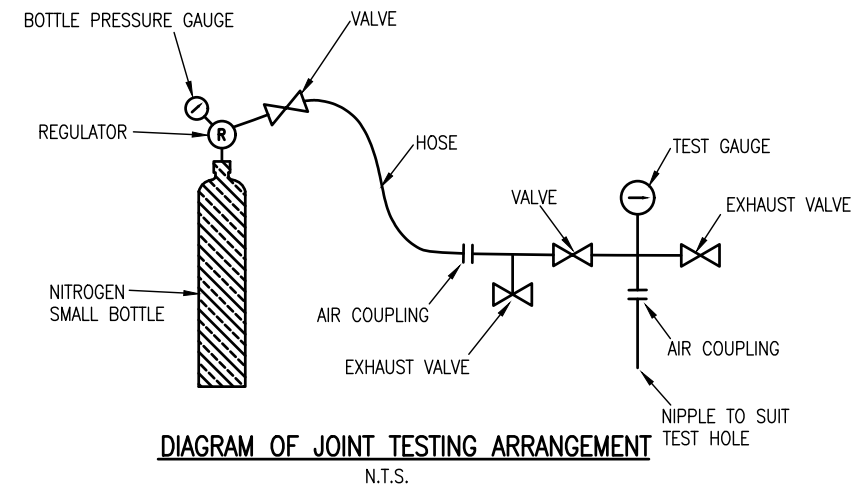
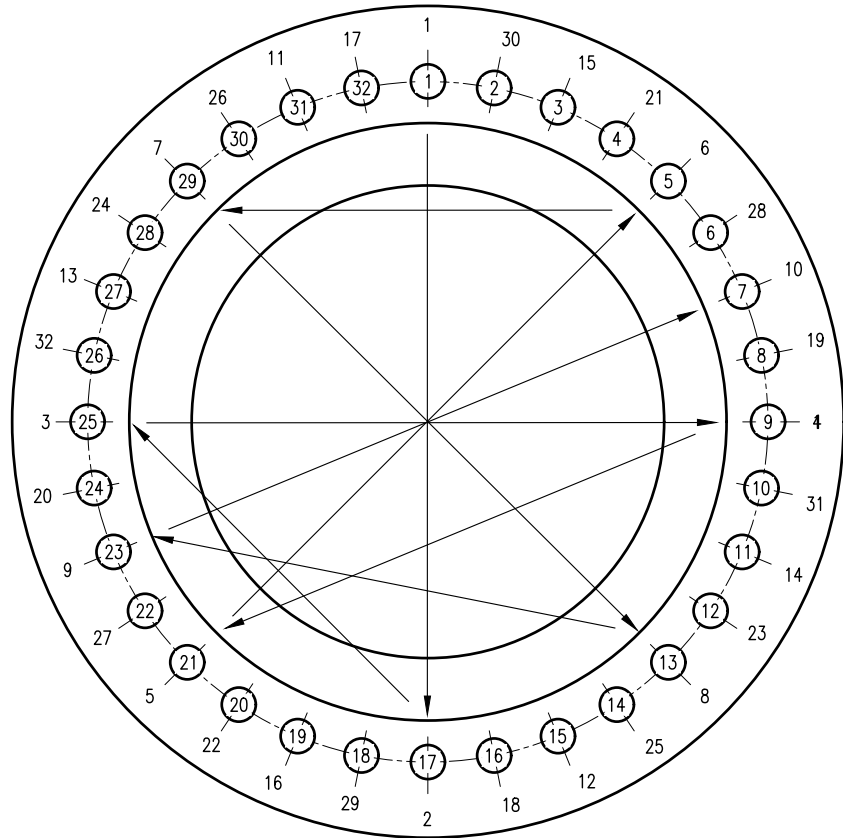
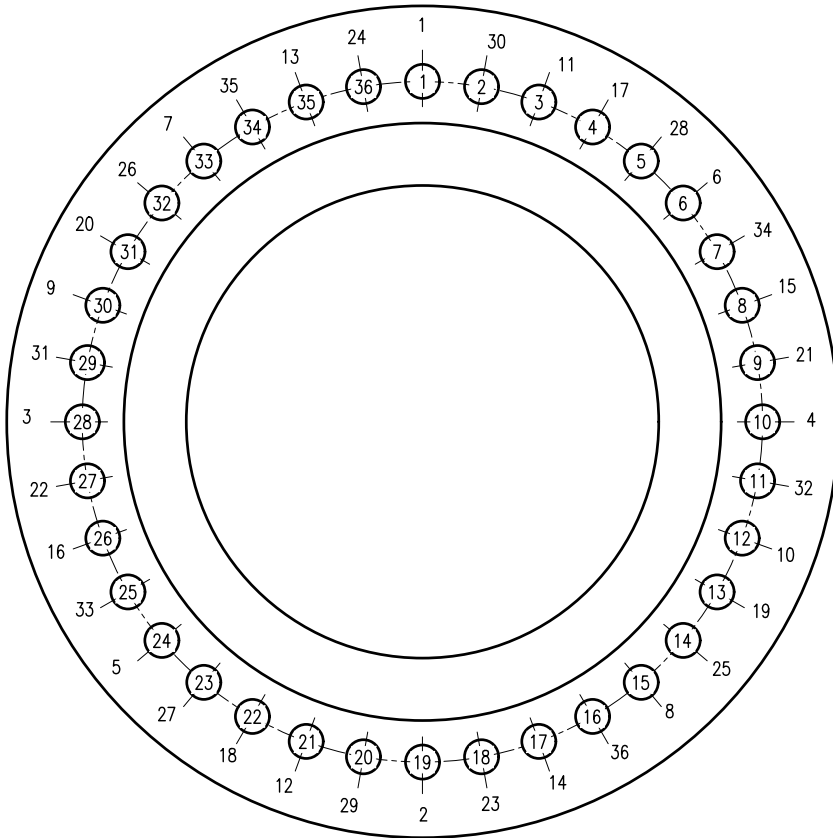


DIAGRAM OF JOINT TESTING ARRANGEMENT
N.T.S.

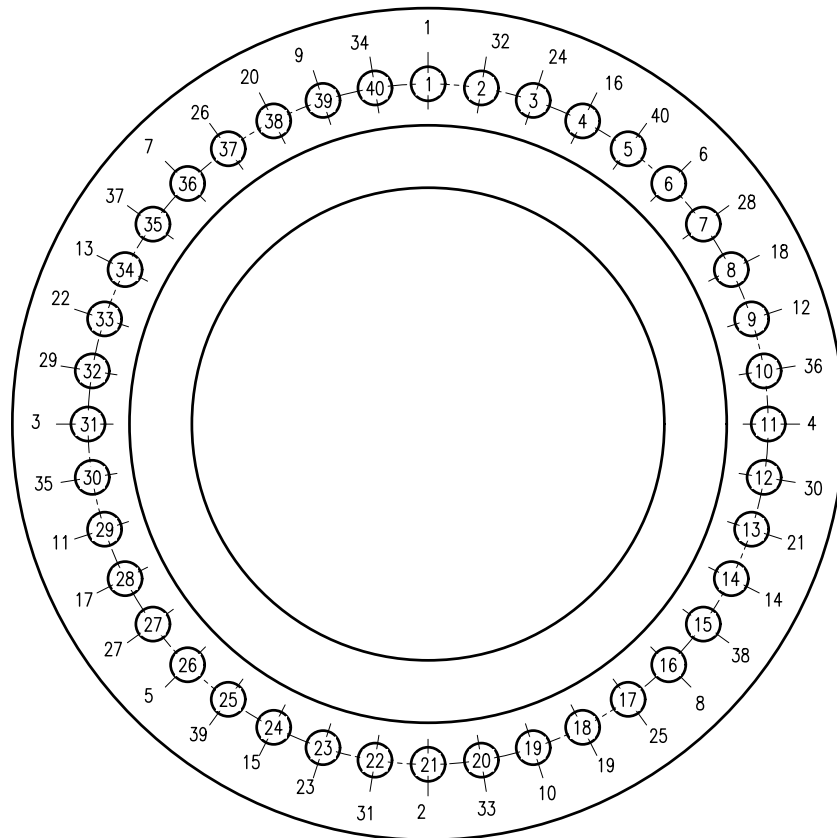
E	07-25	CORROSION PROTECTION ADDED. WELD BEND AMENDED	L.F.	W.S.	DESIGNED	T.C.	08-04	S. DANKS	Watercare COPYRIGHT - This drawing, the design concept, remain the exclusive property of Watercare Services Limited and may not be used without approval. Copyright reserved.	WATER RETICULATION STANDARD PIPELINES STEEL PIPE WELDING AND TESTING DETAILS	CAD FILE 2001979.019E	DATE 03-07-25
D	02-15	SECTION HEADINGS AMENDED	I.M.	B.P.	DES. CHECKED	P.B.	08-04	OPERATIONS: HEAD OF WATER			ORIGINAL SCALE A3	CONTRACT No.
C	03-13	WELDING DETAILS AMENDED	I.M.	B.P.	DWG. CHECKED	D.RAVENSCROFT	06-25	T.SCHEIRLUNCK			REF No.	ISSUE
B	8/04	JOINT DETAILS AMENDED	L.A.C.	T.A.C.	WSL PRINCIPAL ENG.	W.STRYDOM	06-25	STRATEGY AND PLANNING: HEAD OF WATER			DWG No. 2001979 .019	E
A	4/02	PIPE SIZES AND WELDING BAND AMENDED	I.M.M.	M.R.								
ISSUE	DATE	AMENDMENT	BY	APPD.								



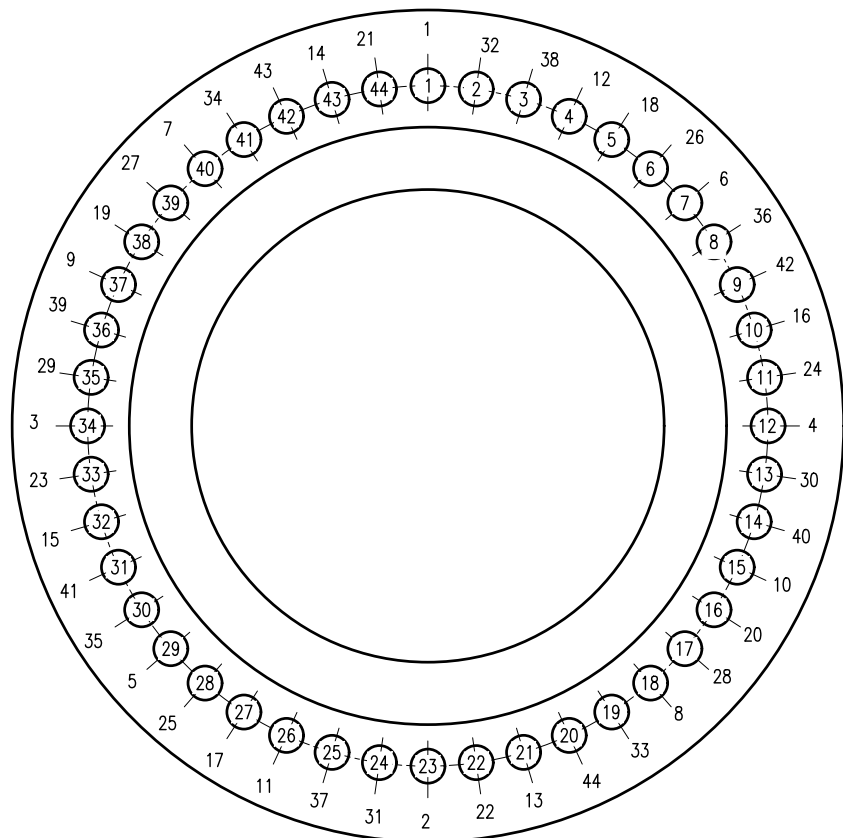
32 BOLT FLANGE
N.T.S.



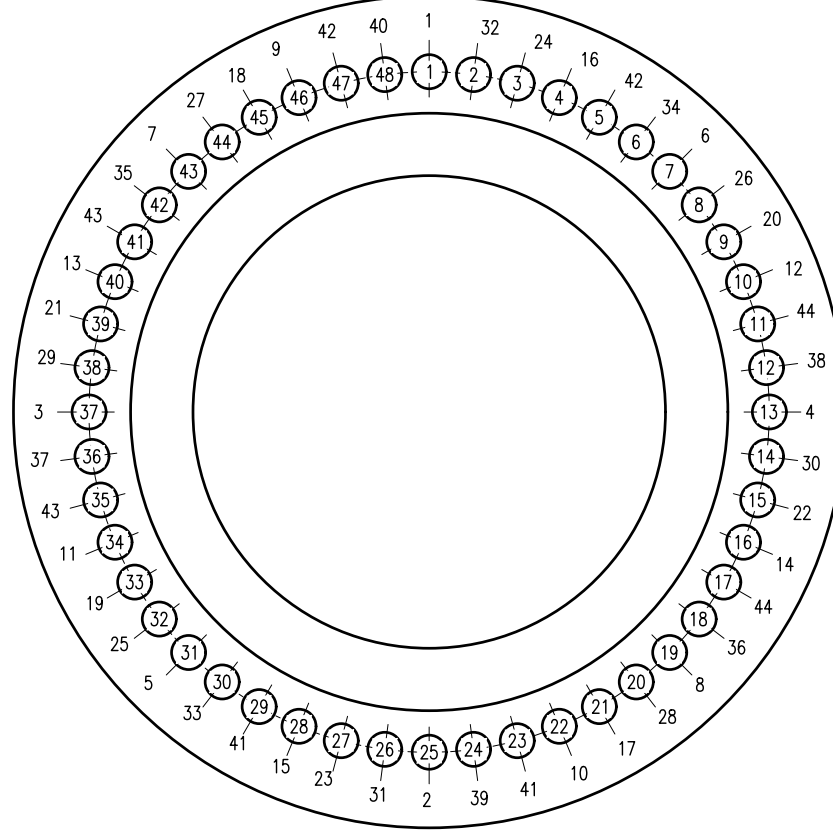
36 BOLT FLANGE
N.T.S.



40 BOLT FLANGE
N.T.S.



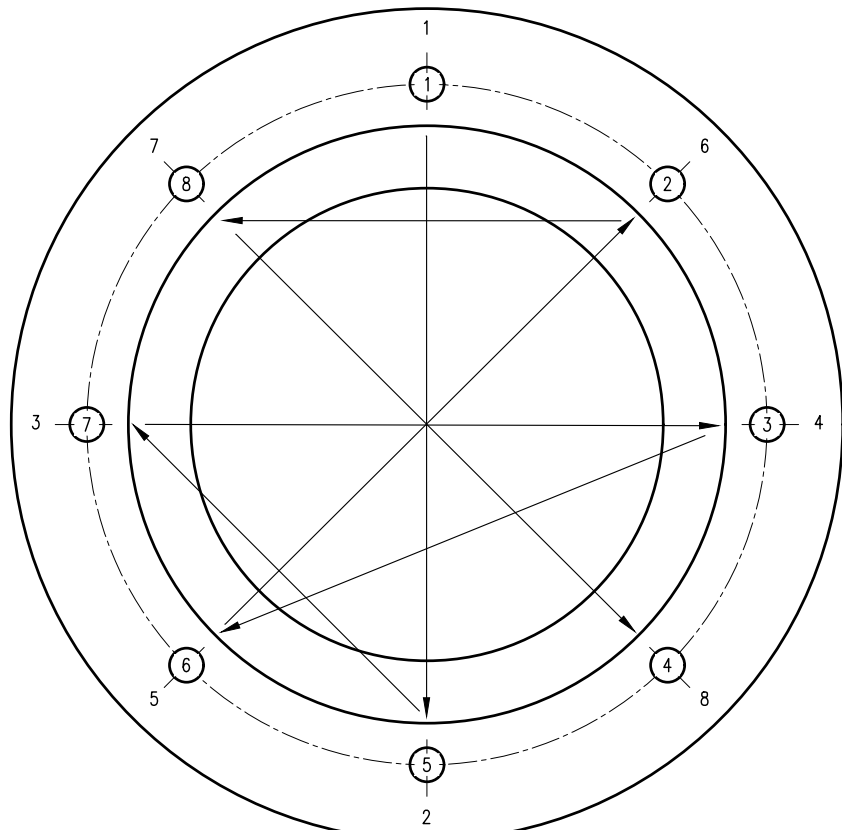
44 BOLT FLANGE
N.T.S.



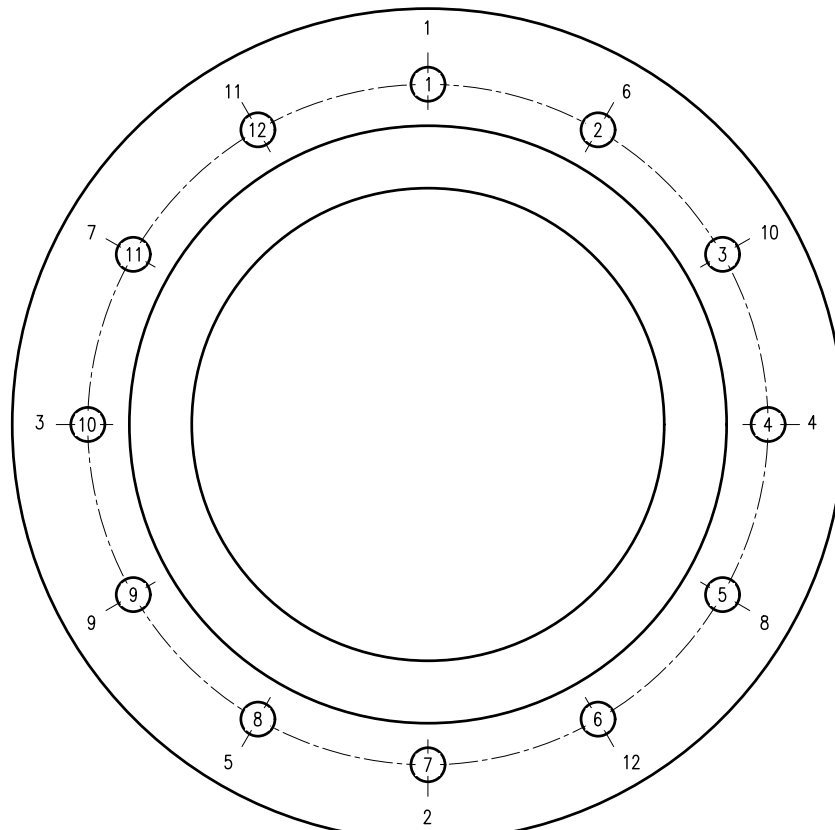
48 BOLT FLANGE
N.T.S.

- NOTES:**
1. OUTER NUMBERS INDICATE TIGHTENING SEQUENCE.
 2. REFER TO ESF-600-GDN-702: STEEL BOLTED FLANGE JOINT ASSEMBLIES FOR TORQUE AND ACCEPTABLE PROCEDURES.
 3. BOLT SIZE SHALL BE IN ACCORDANCE WITH THE RELEVANT FLANGE STANDARD.
 4. MEASURABLE LOAD-CONTROLLED EQUIPMENT SHALL BE USED WHEN TENSIONING BOLTS TO TARGET TORQUE SETTING.
 5. AN ACCEPTABLE TIGHTENING PATTERN SHALL BE USED, INCLUDING NUMBER OF PASSES AND INCREMENTS OF INCREASING TORQUE TO ALLOW EVEN SEATING OF GASKETS.

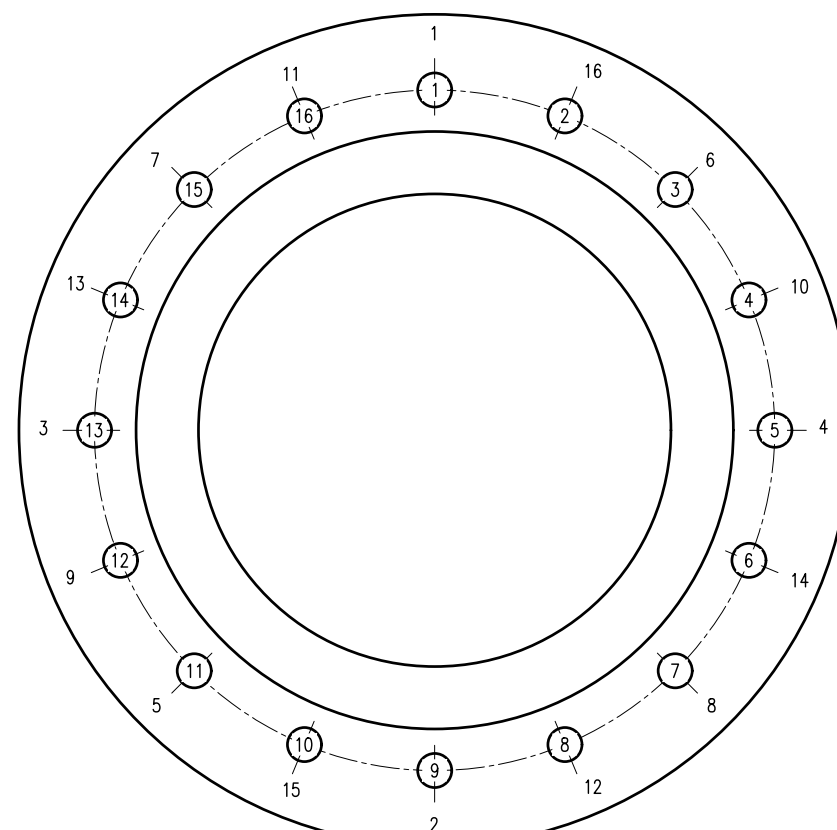
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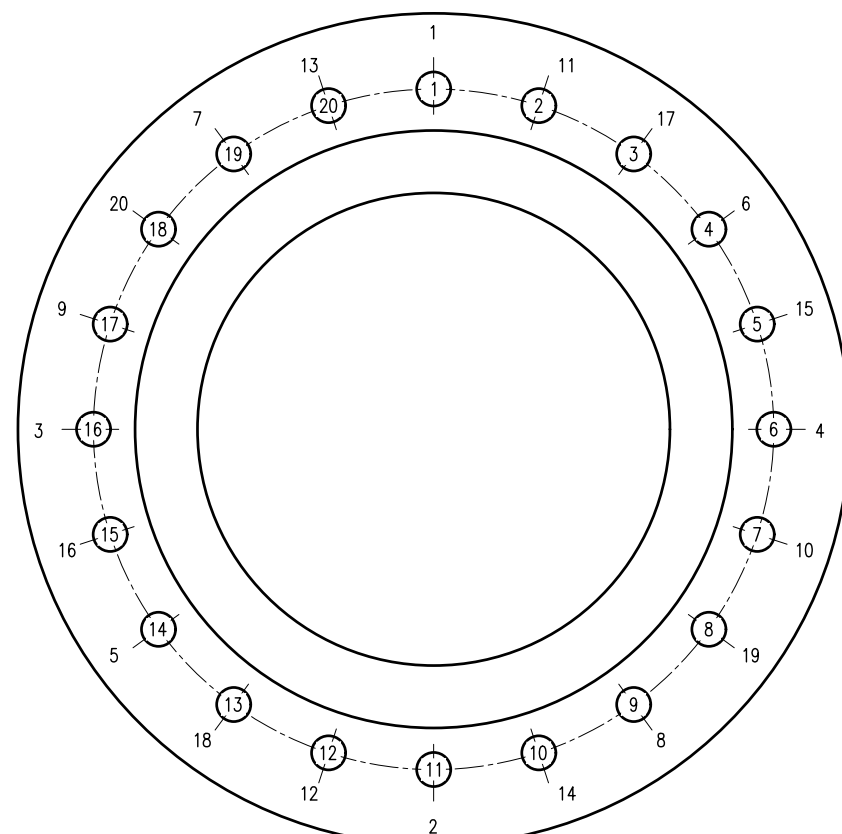
8 BOLT FLANGE
N.T.S.



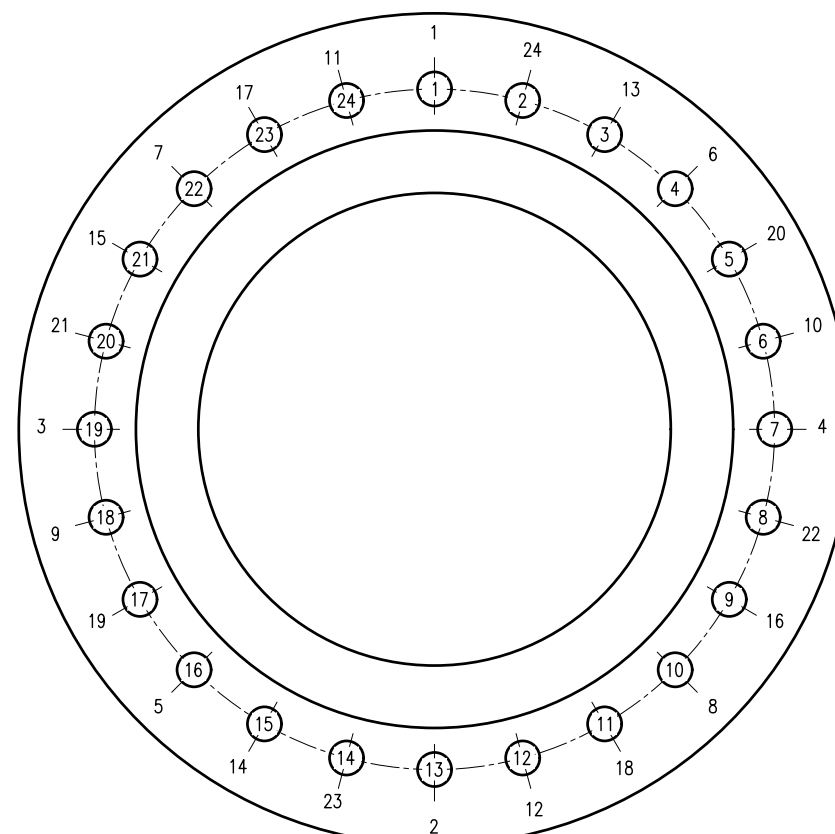
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N.T.S.



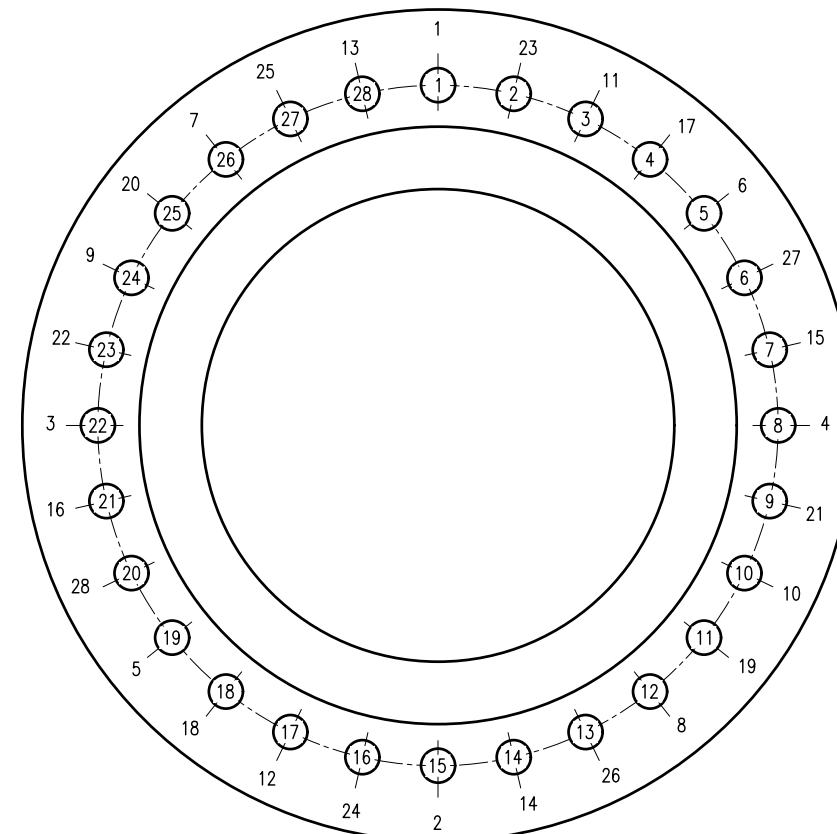
16 BOLT FLANGE
N.T.S.



20 BOLT FLANGE
N.T.S.



24 BOLT FLANGE
N.T.S.

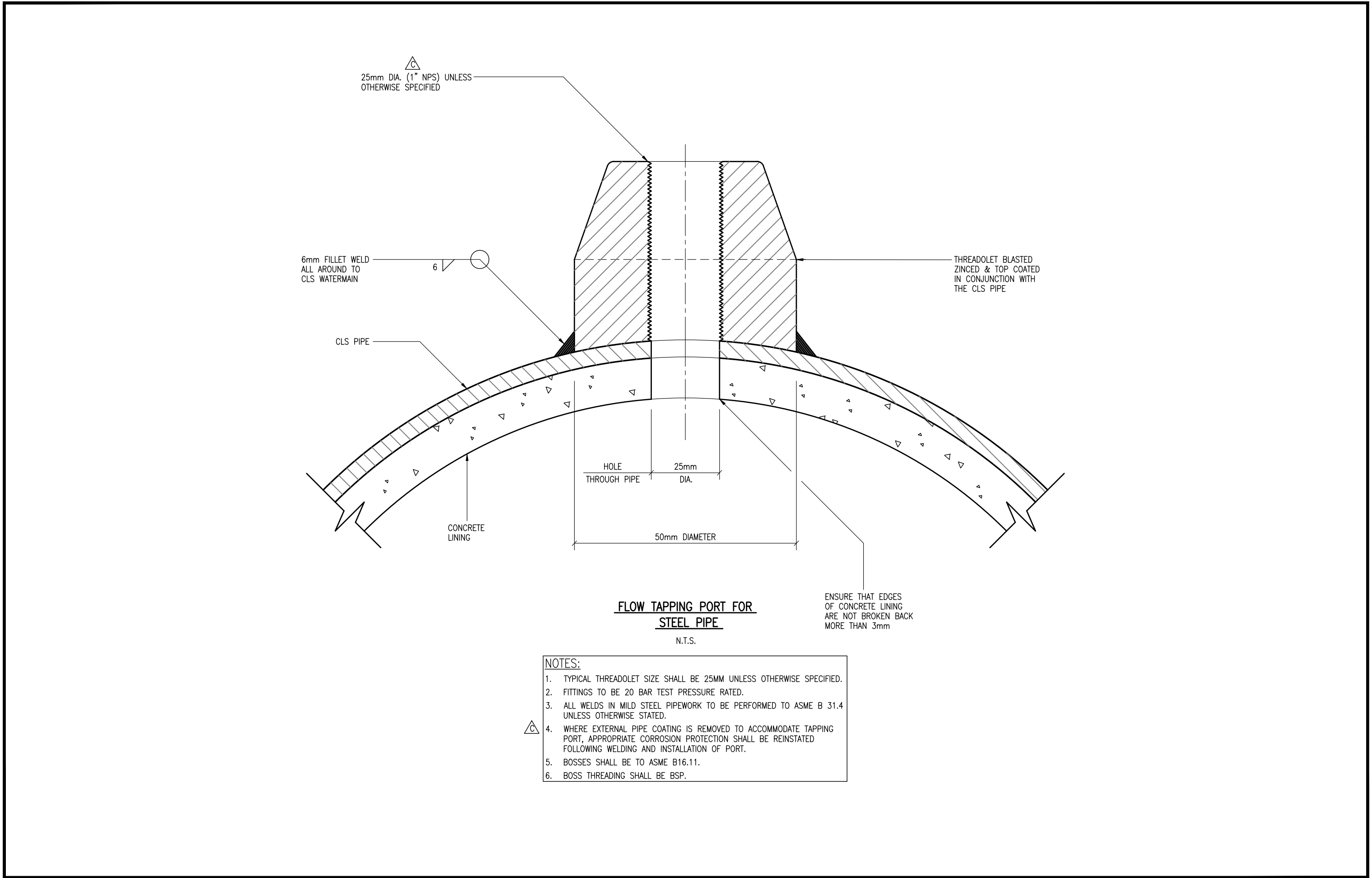


28 BOLT FLANGE
N.T.S.

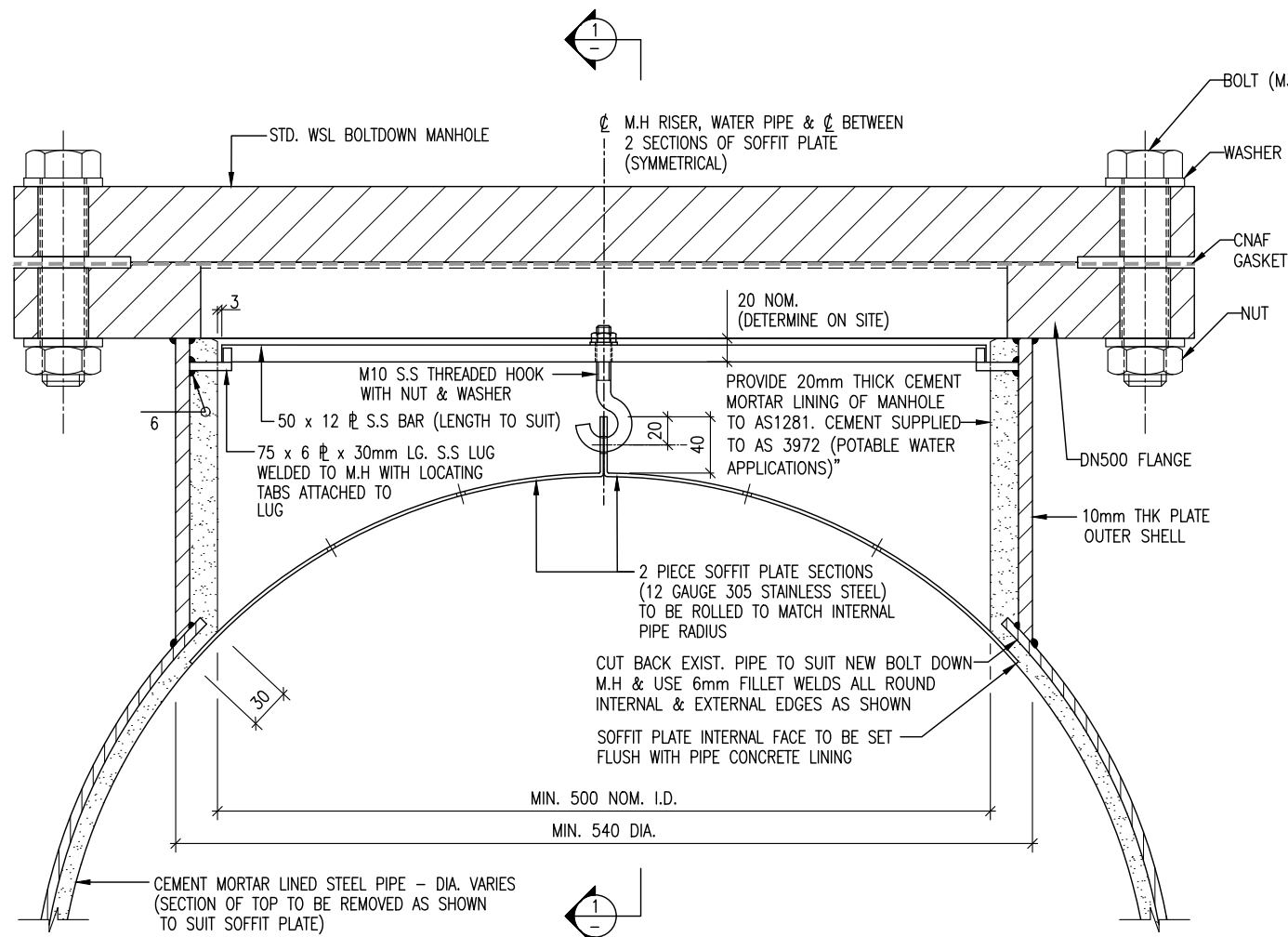
- NOTES:**
1. OUTER NUMBERS INDICATE TIGHTENING SEQUENCE.
 2. REFER TO ESF-600-GDN-702: STEEL BOLTED FLANGE JOINT ASSEMBLIES FOR TORQUE AND ACCEPTABLE PROCEDURES.
 3. BOLT SIZE SHALL BE IN ACCORDANCE WITH THE RELEVANT FLANGE STANDARD.
 4. MEASURABLE LOAD-CONTROLLED EQUIPMENT SHALL BE USED WHEN TENSIONING BOLTS TO TARGET TORQUE SETTING.
 5. AN ACCEPTABLE TIGHTENING PATTERN SHALL BE USED, INCLUDING NUMBER OF PASSES AND INCREMENTS OF INCREASING TORQUE TO ALLOW EVEN SEATING OF GASKETS.

						DESIGNED	S.CUNIS		 Watercare COPYRIGHT - This drawing, the design concept, remain the exclusive property of Watercare Services Limited and may not be used without approval. Copyright reserved.	WATER RETICULATION STANDARD BOLT TIGHTENING SEQUENCE 8 HOLE FLANGE TO 28 HOLE FLANGE	CAD FILE 2001979.022A		DATE 03-07-25	
					DES. CHECKED			ORIGINAL SCALE A3 N.T.S.			CONTRACT No.			
					DRAWN	P.ROURKE	10-98	REF No.			ISSUE			
					DWG. CHECKED	D.RAVENSCROFT	06-25	DWG No. 2001979 .022			A			
					WSL PRINCIPAL ENG.	W.STRYDOM	06-25							
A	07-25	UPDATED TO COMPLY WITH MODERN STANDARDS			L.F	W.S		T.SCHEIRLUNCK						
-	08-01	FOR CONSTRUCTION			P.R	S.C		STRATEGY AND PLANING: HEAD OF WATER						
ISSUE	DATE	AMENDMENT			BY	APPD.								

G	07-25	TYPES 2, 3 & 4 DESIGNS AMENDED	L.F.	W.S	DESIGNED	D.RAVENSCROFT	06-25	S. DANKS OPERATIONS: HEAD OF WATER T.SCHEIRLINCK STRATEGY AND PLANNING: HEAD OF WATER	 Watercare COPYRIGHT - This drawing, the design concept, remain the exclusive property of Watercare Services Limited and may not be used without approval. Copyright reserved.	WATER RETICULATION STEEL PIPE TESTING GENERAL ARRANGEMENT AND DETAILS OF STOP ENDS TYPE 1 TO TYPE 4	CAD FILE 2001979.029G		DATE 03-07-25	
F	10-18	NOTE 5 AMENDED	L.C.	J.D.	DES. CHECKED	M. BARNES	06-25				ORIGINAL SCALE A3 AS SHOWN		CONTRACT No.	
E	03-11	BRACING SIZE INCREASED FOR STOP ENDS 3 & 4	L.C.	T.C.	DRAWN	L.FRAZENBURG	06-25				REF No.		ISSUE	
D	02-11	MINOR AMENDMENTS	L.C.	T.C.	DWG. CHECKED	D.RAVENSCROFT	06-25							
C	07-09	WELDING DETAIL ADDED AND DETAILS AMENDED	I.M.	T.C.	WSL PRINCIPAL ENG.	W.STRYDOM	06-25							
B	12-07	GENERAL REVISION & NOTES ADDED	L.C.	T.C.										
ISSUE	DATE	AMENDMENT	BY	APPD.										

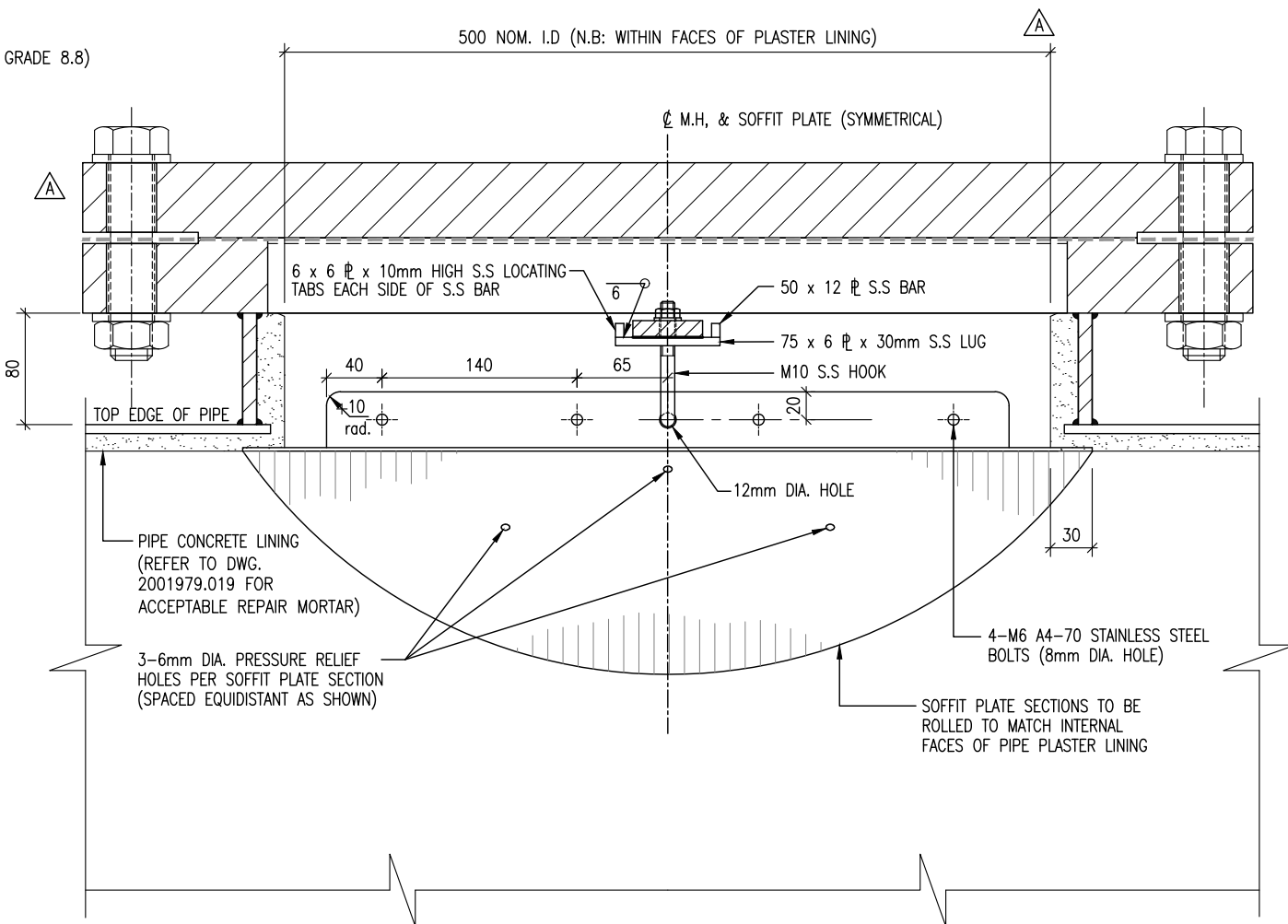


				DESIGNED	J.D.	08-17	S. DANKS		CAD FILE 2001979.031C		DATE 03-07-25	
C	07-25	NOTES UPDATED	L.F.	W.S.	DES. CHECKED	-			ORIGINAL SCALE A3		CONTRACT No.	
B	08-17	TAPPING THREADOLET DETAIL AMENDED	L.C.	J.D.	DRAWN	L.C.			N.T.S.			
A	07-14	CLS TAPPING PORT DETAILS UPDATED	I.M.	H.S.	DWG. CHECKED	D.RAVENSCROFT	06-25	OPERATIONS: HEAD OF WATER	REF No.		ISSUE	
-	06-96	WORKING DRAWING	L.C.	H.S.	WSL PRINCIPAL ENG.	W.STRYDOM	06-25	T.SCHEIRLUNCK	DWG No.		2001979 .031	
ISSUE	DATE	AMENDMENT	BY	APPD.				STRATEGY AND PLANING: HEAD OF WATER			C	



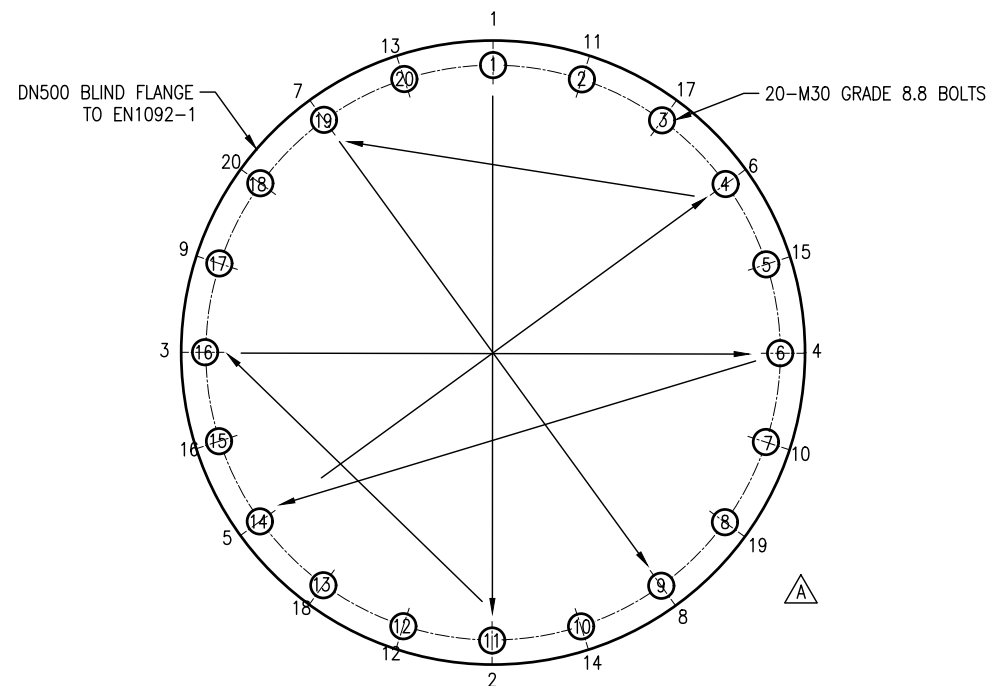
SECTIONAL ELEVATION

SCALE 1 : 5



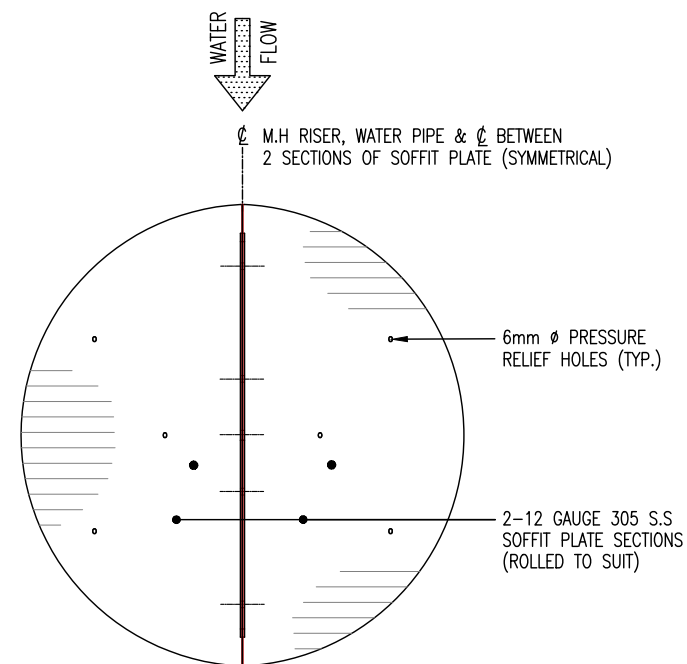
SECTION 1

SCALE 1:5



BOLT DOWN MANHOLE FLANGE - PLAN VIEW

SCALE 1 : 10



SOFFIT PLATE - PLAN VIEW

SCALE 1 : 10



NOTES:

- ALL S.S. SECTIONS & PLATE TO BE MIN. GRADE 305 STAINLESS STEEL.
- ALL WELDS TO BE 6mm (min.) FULL STRENGTH FILLET WELDS.
- ALL MORTAR PLASTER USED FOR CONCRETE LINING TO BE TO WSL STANDARDS & ANY EXISTING PLASTER DAMAGED DURING INSTALLATION TO BE REPAIRED TO ENGINEER'S SATISFACTION.
- PRESSURE RATING OF MANHOLE SHALL BE AT LEAST EQUAL TO PIPE PRESSURE RATING.
- FLANGES AND BOLTS SHALL COMPLY WITH EN1092.
- FOR FLANGE BOLT TIGHTENING AND MATERIALS REFER TO ESF-600-GDN-702.

				DESIGNED	H. STEWART											CAD FILE	2001979.032A	DATE	03-07-25
				DES. CHECKED												ORIGINAL SCALE A3 AS SHOWN		CONTRACT No.	
				DRAWN	M.S.	05-96											REF No.		ISSUE
				DWG. CHECKED	D.RAVENSCROFT	06-25											DWG No.		
				WSL PRINCIPAL ENG.	W.STRYDOM	06-25											2001979 .032		A
A	07-25	BOLT DOWN FLANGE & NOTES AMENDED		L.F.	W.S.														
-	08-01	FOR CONSTRUCTION		M.S.	H.S.														
ISSUE	DATE	AMENDMENT		BY	APPD.														

DESIGNED
DES. CHECKED
DRAWN
DWG. CHECKED
WSL PRINCIPAL ENG.

H. STEWART

M.S.

D.RAVENSCROFT

W.STRYDOM

S. DANKS

OPERATIONS: HEAD OF WATER

T.SCHEIRLUNCK

STRATEGY AND PLANING:
HEAD OF WATER

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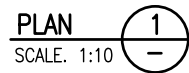
WATER RETICULATION
STANDARD MANHOLE SOFFIT PLATE FOR FLOW STREAMLINING
DETAILS AND ELEVATION ON SOFFIT PLATE



CLS PIPE BEND DIMENSIONS (BENDS MORE THAN 67.5° TO 90°)													
BEND DIA.		Δ=70°				Δ=80°				Δ=90°			
DN	O.D.	S1	S2	R	T	S1	S2	R	T	S1	S2	R	T
100	114	100	50	382	267	100	50	341	286	100	50	308	308
150	168	100	50	409	286	100	50	368	308	100	50	335	335
200	219	150	75	597	418	150	100	535	449	150	75	487	487
250	273	200	100	786	551	200	100	704	590	200	100	639	639
300	324	250	125	974	682	200	100	729	612	200	100	665	665
350	356	250	125	990	693	200	100	745	625	200	100	681	681
400	406	300	150	1178	825	300	150	1054	884	300	150	957	957
450	457	300	150	1203	842	300	150	1079	906	300	150	983	983
500	508	300	150	1229	860	300	150	1105	927	300	150	1008	1008
600	610	400	200	1604	1123	400	200	1439	1208	400	200	1310	1310
700	711	400	200	1655	1159	400	200	1490	1250	400	200	1361	1361
750	762	500	250	2005	1404	500	250	1799	1509	500	250	1638	1638
800	813	500	250	2031	1422	500	250	1824	1531	500	250	1663	1663
900	914	600	300	2406	1685	600	300	2158	1811	600	300	1965	1965
1000	1016	600	300	2457	1721	600	300	2209	1854	600	300	2016	2016
1200	1219	700	350	2883	2019	700	350	2594	2177	700	350	2369	2369
1400	1422	850	425	3472	2431	850	425	3121	2619	850	425	2848	2848
1600	1626	900	450	3737	2616	900	450	3365	2824	900	450	3075	3075
1800	1829	1000	500	4163	2915	1000	500	3750	3147	1000	500	3428	3428
1900	1981	1100	550	4564	3196	1100	550	4110	3448	1100	550	3756	3756
2000	2159	1200	600	4978	3485	1200	600	4482	3761	1200	600	4096	4096

1. CONTRACTOR TO CONFIRM PIPE ALIGNMENT AND DIMENSIONS (BENDS/ANGLES) PRIOR TO FABRICATION AND INSTALLATION.
2. SHOP DRAWINGS OF FABRICATED BENDS TO BE APPROVED BY THE ENGINEER PRIOR TO FABRICATION.
3. ALL CONNECTIONS TO EXISTING WATERMAINS SHALL BE UNDERTAKEN BY A WATERCARE ASSIGNED AND APPROVED CONTRACTOR.

					DESIGNED	W.STRYDOM	06-25	S. DANKS	 Watercare COPYRIGHT - This drawing, the design concept, remain the exclusive property of Watercare Services Limited and may not be used without approval. Copyright reserved.	WATER RETICULATION STEEL PIPELINE FITTINGS BEND SETOUT DIMENSIONS	CAD FILE	2001979.060D	DATE	03-07-25	
D	07-25	TAPERS REMOVED. BEND DIMENSIONS UPDATED		L.F	W.S						OPERATIONS: HEAD OF WATER	ORIGINAL SCALE	A3	CONTRACT No.	
C	09-14	WELDING SYMBOLS FOR SEALING RUNS		I.M.	B.P.	A.LIU	06-25					N.T.S.			
B	09-11	NOTE ADDED		L.C.	T.C.	D.RAVENSCROFT	06-25								
A	03-07	TAPER DETAILS MOVED FROM 2001979.058		I.M.	T.C.	WSL PRINCIPAL ENG.	06-25				T.SCHEIRLUNCK	REF No.		ISSUE	
ISSUE	DATE	AMENDMENT		BY	APPD.			STRATEGY AND PLANNING: HEAD OF WATER	DWG No.	2001979 .060		D			



* NOTE: USE CROTCH PLATE TO APPROVED DESIGN



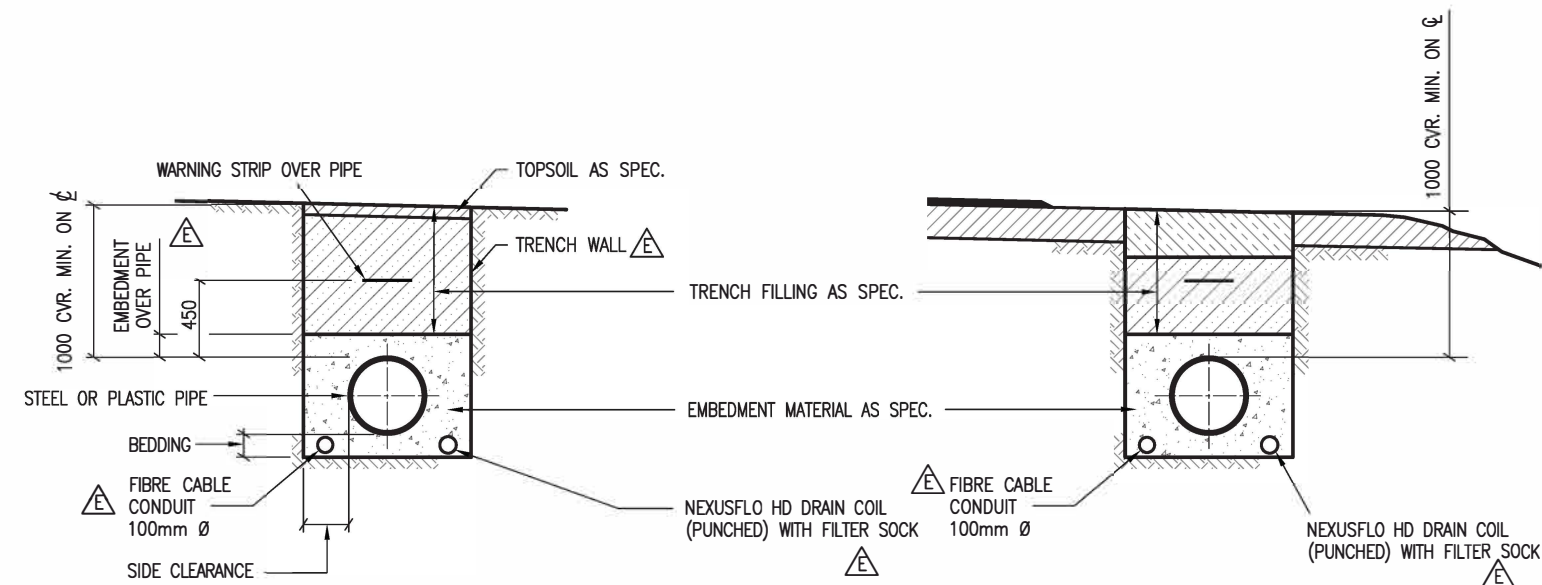
1. MILD STEEL USED SHALL BE IN ACCORDANCE WITH AS1594 OR AS/NZS 3678, MIN. GRADE 250 MPa.
2. ALL WELDING SHALL BE IN ACCORDANCE WITH THE FOLLOWING STANDARDS:
 - AS/NZS 2980:2018
 - AS/NZS ISO 9606:2017
3. INTERNAL LINING SHALL BE AS SHOWN ON DETAIL A. ACCEPTABLE REPAIR MORTAR INCLUDE:
 - STEELMAINS EZILINE ® MORTAR MIX
 - FOSROC RENDEROC HB70
 - MASTEREMACO S488CI
4. FOLLOWING INSTALLATION, THE MANHOLE SHALL BE EXTERNALLY PROTECTED IN ACCORDANCE TO WATERCARE'S SPECIFICATION.
5. UNDERSIDE OF MANHOLE COVER SHALL BE PROTECTED IN ACCORDANCE TO WATERCARE'S COATING SPECIFICATION FOR IMMERSSED STEELWORK IN POTABLE WATER. REFER TO WATERCARE'S MATERIAL SUPPLY STANDARD (ESF-500-STD-601)



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CAD FILE 2001979.075D		DATE 03-07-25	
ORIGINAL SCALE A3 AS SHOWN		CONTRACT No.	
REF No.			ISSUE
DWG No. 2001979 .075			D



TYPICAL TRENCH IN GRASSED AREAS
N.T.S.

**TYPICAL TRENCH AT ROAD EDGE
IN SHOULDER OR BERM**
N.T.S.

NOTES:

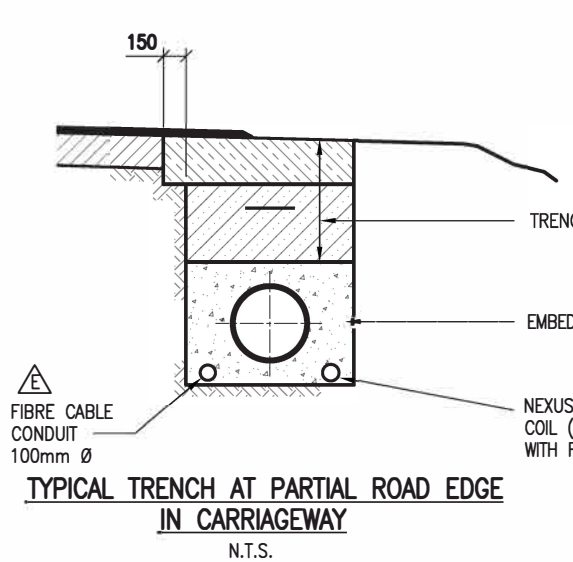
1. MINIMUM TRENCH AND EMBEDMENT DIMENSIONS:

PIPE OD (mm)	EMBEDMENT MATERIAL UNDER PIPE (mm)	SIDE CLEARANCE FROM TRENCH (mm) (SEE SPECIFICATION PARTICULAR CLAUSES)	EMBEDMENT MATERIAL OVER PIPE (mm)	NEXUSFLO HD DRAIN COIL SIZE (mm)
150 TO 273	100	150	150	110
324 TO 457	100	200	150	110
508 TO 914	150	300	150	110
1016 TO 1422	150	350	200	160
>1422	BY DESIGN	BY DESIGN	BY DESIGN	BY DESIGN

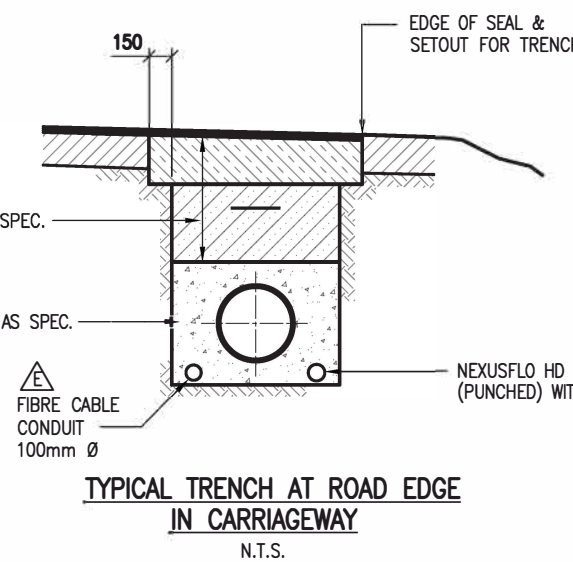
COMMON SIZE BACKHOE/EXCAVATOR BUCKET WIDTH ARE 300, 450, 600, 750, 900, 1100 AND 1200. AS A GUIDE THE FOLLOWING MINIMUM TRENCH WIDTHS SHALL BE CONSIDERED:

PIPE O.D.	TRENCH WIDTH
≤450	O.D. + 400mm
>450, ≤900	O.D. + 600mm
>900, ≤1500	O.D. + 700mm
>1500	O.D. + 0.5xO.D.

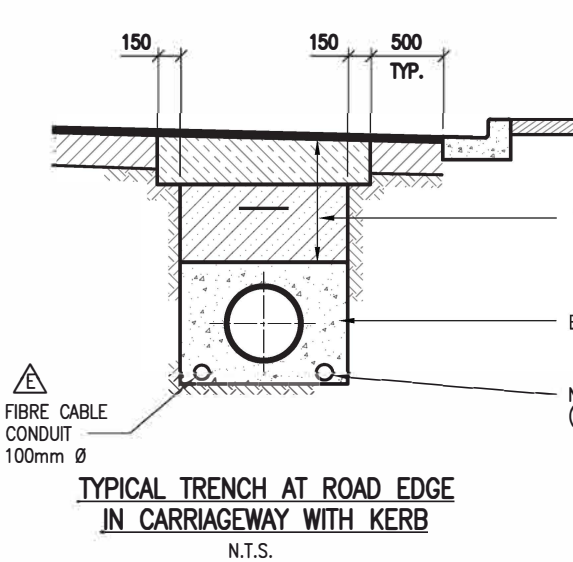
- WARNING PLASTIC STRIP, MIN. 100mm WIDE OVER PIPE, BLACK WORDING OR COLOURED BLUE WITH REPEATING WORDING "CAUTION - WATERMAIN BELOW" FOR WATERMAIN.
- WARNING STRIP OVER PLASTIC PIPES IS TO BE DETECTABLE METALLIC TYPE. TRACER WIRE IS ALSO REQUIRED FOR PLASTIC PIPES.
- WHERE TRENCH WIDENING IS REQUIRED FOR PIPE WELDING ACCESS, THE PROFILE OF SURFACE REINSTATEMENT SHALL BE EQUIVALENT TO ADJACENT TRENCH REINSTATEMENT.
- PAVEMENT AND ROAD SURFACE REINSTATEMENT SHALL BE IN ACCORDANCE WITH ROADING AUTHORITY'S SPECIFICATION.
- PIPE INSTALLATION DESIGN SHALL BE IN ACCORDANCE WITH AS/NZS 2566.2.
- HSE REGULATIONS REQUIRE THAT ANY EXCAVATION FACE MORE THAN 1.5M HIGH SHALL BE SHORED, SO FAR AS REASONABLY PRACTICABLE UNLESS AN ACCEPTABLE MITIGATION MEASURE IS CARRIED OUT (E.G. CUT FACE BACK TO A SAFE SLOPE).



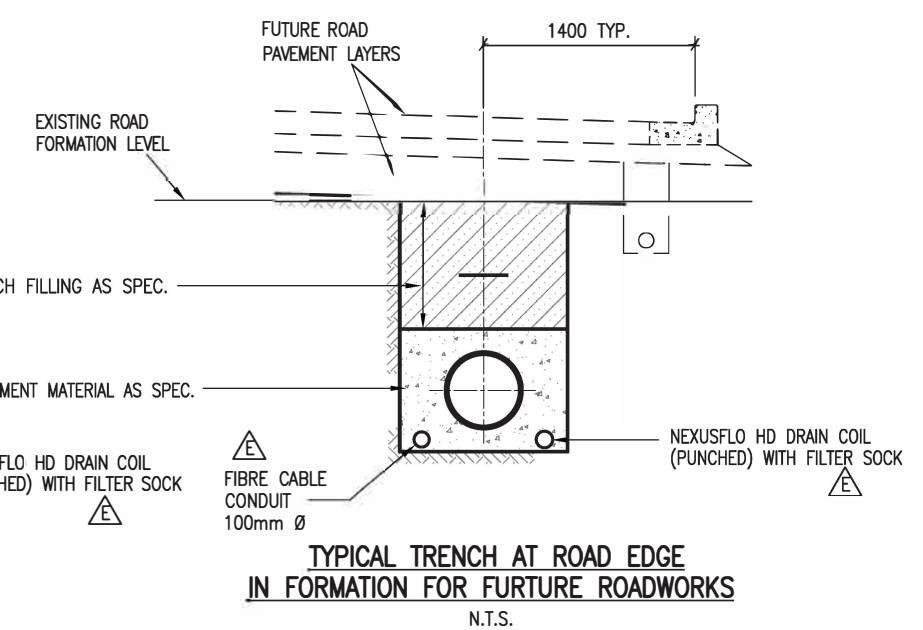
**TYPICAL TRENCH AT PARTIAL ROAD EDGE
IN CARRIAGEWAY**
N.T.S.



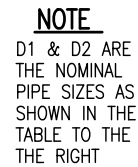
**TYPICAL TRENCH AT ROAD EDGE
IN CARRIAGEWAY**
N.T.S.



**TYPICAL TRENCH AT ROAD EDGE
IN CARRIAGEWAY WITH KERB**
N.T.S.



**TYPICAL TRENCH AT ROAD EDGE
IN FORMATION FOR FUTURE ROADWORKS**
N.T.S.

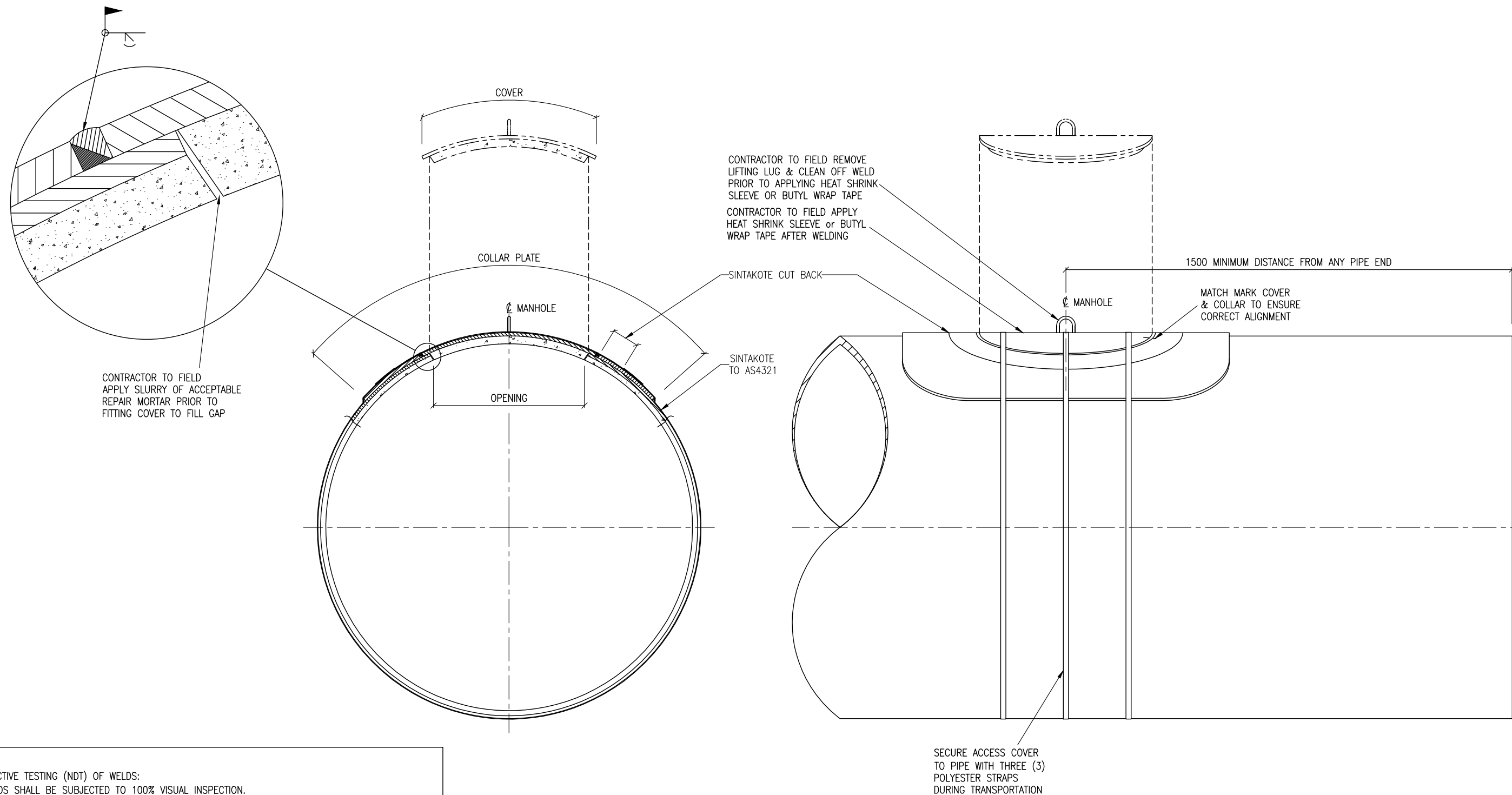


TAPER DIMENSIONS FOR STEEL PIPE			
NOMINAL DIAMETERS D1 & D2			
D1	D2	Lr	T
100	150	270	5
100	200	525	5
100	250	795	5
150	200	255	5
150	250	525	5
150	300	780	5
200	250	270	5
200	300	525	5
200	350	685	5
250	300	255	5
250	350	415	5
250	400	665	6
300	350	160	6
300	400	410	6
300	450	665	6
350	400	250	6
350	450	505	6
350	500	760	6
400	450	255	6
400	500	510	6
400	600	1020	6
450	500	255	6
450	600	765	6
450	700	1270	6
500	600	510	6
500	700	1015	6
500	750	1270	8
600	700	505	6
600	750	760	8
600	800	1015	8

TAPER DIMENSIONS FOR STEEL PIPE			
NOMINAL DIAMETERS D1 & D2			
D1	D2	Lr	T
700	750	255	8
700	800	510	8
700	900	1015	8
750	800	255	8
750	900	760	8
750	1000	1270	10
800	900	505	8
800	1000	1015	10
800	1200	2030	10
900	1000	510	10
900	1200	1525	10
900	1400	2540	10
1000	1200	1015	10
1000	1400	2030	10
1000	1600	3050	12
1200	1400	1015	10
1200	1600	2035	12
1200	1800	3050	12
1400	1600	1020	12
1400	1800	2035	12
1400	1900	2795	12
1600	1800	1015	12
1600	1900	1775	12
1600	2000	2665	16
1800	1900	760	12
1800	2000	1650	16
1900	2000	890	16

- NOTES:**
1. CONTRACTOR TO CONFIRM PIPE ALIGNMENT AND DIMENSIONS (TAPERS) PRIOR TO FABRICATION AND INSTALLATION.
 2. SHOP DRAWINGS OF FABRICATED TAPERS TO BE APPROVED BY THE ENGINEER PRIOR TO FABRICATION.
 3. ALL CONNECTIONS TO EXISTING WATERMAINS SHALL BE UNDERTAKEN BY A WATERCARE ASSIGNED AND APPROVED AND APPROVED CONTRACTOR.
 4. 'Lr' DENOTES MINIMUM REQUIRED REDUCER LENGTH.
 5. 'T' DENOTES STEEL THICKNESS.

					DESIGNED	W.STRYDOM	06-25	S. DANKS	 Watercare	WATER RETICULATION STEEL PIPELINE FITTINGS TAPERS SETOUT DIMENSIONS	CAD FILE 2001979.097		DATE 03-07-25	
					DES. CHECKED						ORIGINAL SCALE A3		CONTRACT No.	
					DRAWN	ALIU	06-25				OPERATIONS: HEAD OF WATER		N.T.S.	
					DWG. CHECKED	D.RAVENSCROFT	06-25				T.SCHEIRLINCK		REF No.	
					WSL PRINCIPAL ENG.	W.STRYDOM	06-25				STRATEGY AND PLANING: HEAD OF WATER		ISSUE	
-	07-25	FOR CONSTRUCTION			L.F	W.S					DWG No. 2001979 .097		-	
ISSUE	DATE	AMENDMENT			BY	APPD.								



NOTES:

NON-DESTRUCTIVE TESTING (NDT) OF WELDS:

1. ALL WELDS SHALL BE SUBJECTED TO 100% VISUAL INSPECTION.
2. ALL BUTT WELDS SHALL BE EXAMINED BY ULTRASONIC OR RADIOGRAPHY METHODS IN ACCORDANCE WITH AS/NZS1554.1 CATEGORY SP WITH ACCEPTANCE STANDARDS AS SPECIFIED IN AS/NZS1554.1.
3. ALL FILLET WELDS SHALL BE SUBJECTED TO 100% MAGNETIC PARTICLE INSPECTION (MPI).

GENERAL:

4. ALL WELDS SHALL BE IN ACCORDANCE WITH WATERCARE'S GENERAL MECHANICAL CONSTRUCTION STANDARD. (ESF-600-STD-701)
5. ALL WELDS SHALL BE PROPERLY FINISHED INCLUDING THE REMOVAL OF SHARP POINTS, WELD SPATTER, ARC STRIKES AND SLAG.
6. HEAT SHRINK SLEEVE / BUTYL WRAP TAPE SHALL OVERLAP SINTAKOTE BY AT LEAST 100mm.
7. THE LIFTING LUG SHALL BE REMOVED AND GROUND SMOOTH AND FLUSH WITH THE MANHOLE SURFACE.
8. THE MANHOLE LID SHALL BE FREE OF CORROSION AND SUITABLE SURFACE PREPARATION SHALL BE CARRIED OUT PRIOR TO THE APPLICATION OF THE HEAT SHRINK SLEEVE / BUTYL WRAP TAPE.

TEMPORARY ACCESS MANHOLE (SUPPLIED BY PIPE MANUFACTURER)

N.T.S.

						DESIGNED			S. DANKS OPERATIONS: HEAD OF WATER T.SCHEIRLINCK STRATEGY AND PLANING: HEAD OF WATER	 Watercare COPYRIGHT - This drawing, the design concept, remain the exclusive property of Watercare Services Limited and may not be used without approval. Copyright reserved.	WATER RETICULATION STANDARD PIPELINES TEMPORARY ACCESS MANHOLE	CAD FILE 2001979.140		DATE 03-07-25		
					DES. CHECKED			ORIGINAL SCALE A3 N.T.S.				CONTRACT No.				
					DRAWN	ALIU	06-25	REF No.				ISSUE				
					DWG. CHECKED	D.RAVENSCROFT	06-25									
					WSL PRINCIPAL ENG.	W.STRYDOM	06-25									
-	07-25	FOR CONSTRUCTION			L.F	W.S						DWG No. 2001979 .140		-		
ISSUE	DATE	AMENDMENT			BY	APPD.										