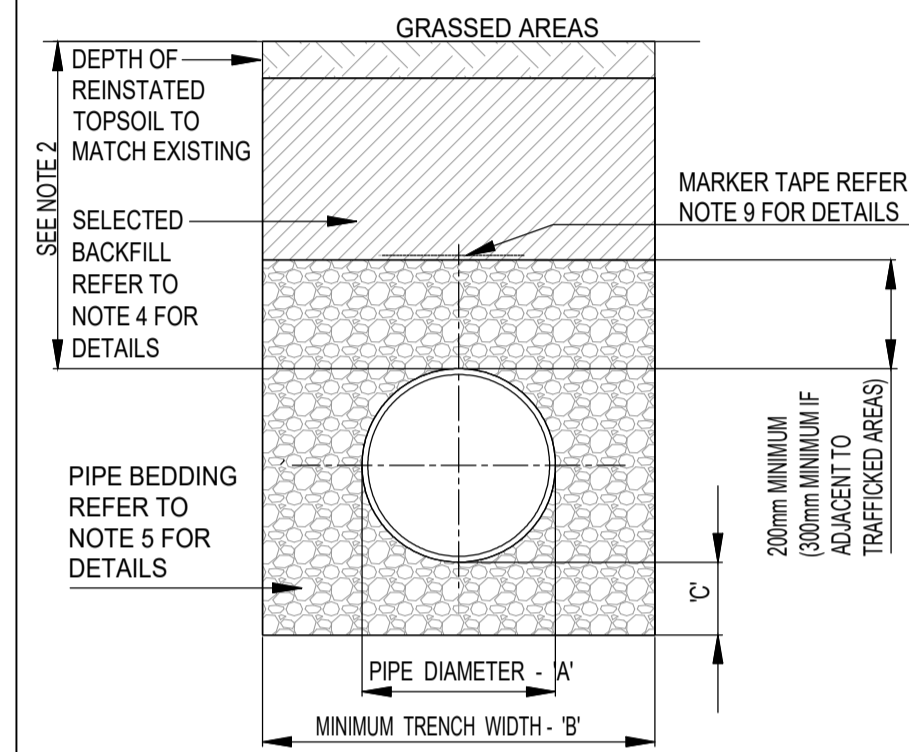


CROSS SECTION IN ROADWAYS



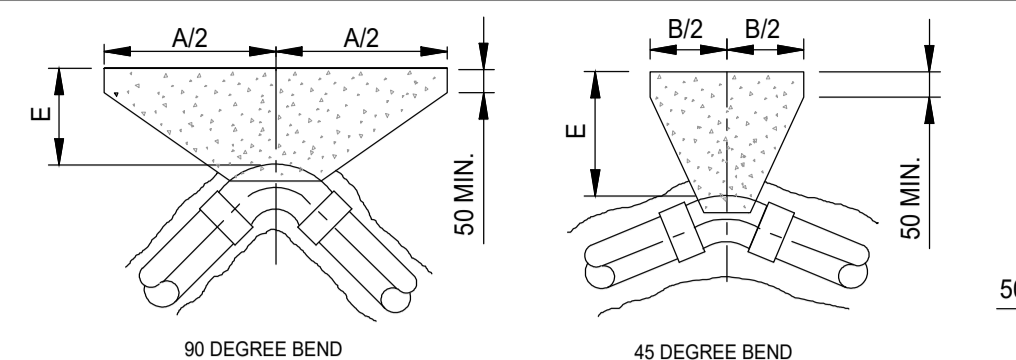
CROSS SECTION IN GRASSED AREAS

PIPE DIAMETER 'A' (mm)	TRENCH WIDTH 'B' (mm)
≤ 80 RISING MAIN	SEE NOTE 10.
100	500
150	600
200	600
250	750
300	750
350	750
400	900
450	900

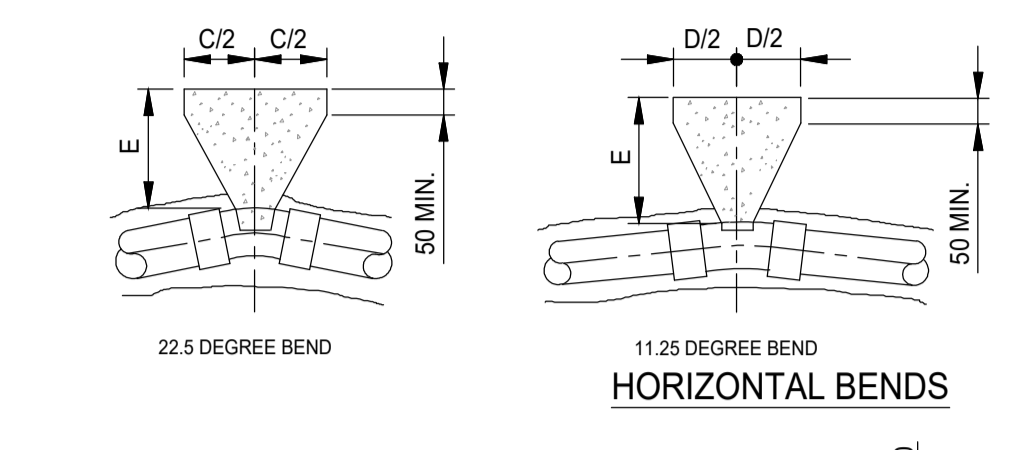
PIPE DIAMETER 'A' (mm)	DEPTH OF BEDDING 'C' (mm)
≤ 100	100
150 - 450	200

TRENCH BACK FILL AND BEDDING NOTES

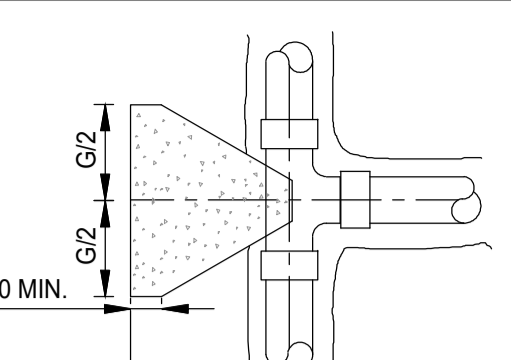
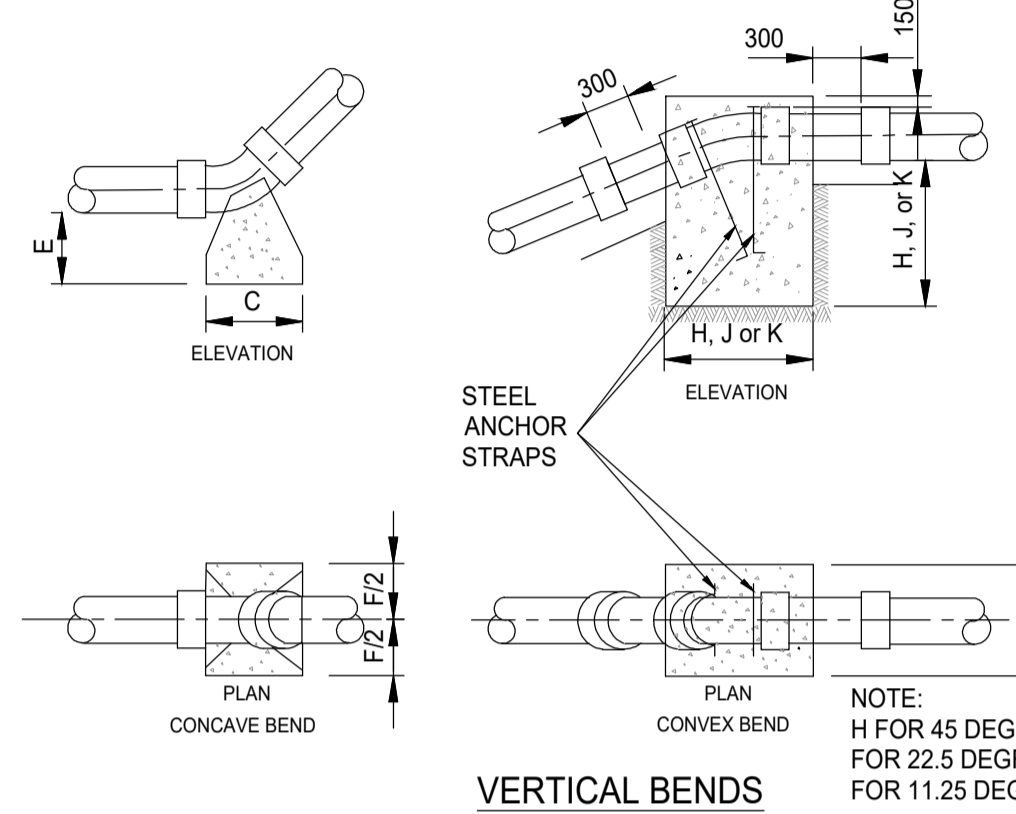
- ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
- THE MINIMUM DEPTH OF COVER FROM THE FINISHED SURFACE TO THE CROWN OF GRAVITY PIPES WITHOUT PROTECTION SHOULD BE AS FOLLOWS:
 - GARDENS AND PATHWAYS WITHOUT ANY POSSIBILITY OF VEHICULAR ACCESS - DEPTH NOT LESS THAN 0.5 M. (THIS WOULD NORMALLY RELATE TO DRAINS IN PRIVATE PROPERTY, SHALLOW PIPES OF THIS NATURE ARE UNDESIRABLE AND SHOULD BE INSTALLED IN ACCORDANCE WITH THE CURRENT BUILDING REGULATIONS).
 - DRIVEWAYS, PARKING AREAS AND YARDS WITH HEIGHT RESTRICTIONS TO PREVENT ENTRY BY VEHICLES WITH A GROSS VEHICLE WEIGHT IN EXCESS OF 7.5 TONNES - DEPTH NOT LESS THAN 0.75m.
 - DRIVEWAYS, PARKING AREAS AND NARROW STREETS WITHOUT FOOTWAYS (E.G. MEWS DEVELOPMENTS) WITH LIMITED ACCESS FOR VEHICLES WITH A GROSS VEHICLE WEIGHT IN EXCESS OF 7.5 TONNES - DEPTH NOT LESS THAN 0.9 M.
 - DEPTHS OF SEWERS IN GATED ESTATES SHALL BE SIMILAR TO THAT OUTLINED ABOVE.
 - AGRICULTURAL LAND AND PUBLIC OPEN SPACE - DEPTH NOT LESS THAN 0.9 M.
 - OTHER HIGHWAYS AND PARKING AREAS WITH UNRESTRICTED ACCESS TO VEHICLES WITH A GROSS VEHICLE WEIGHT IN EXCESS OF 7.5 TONNES - DEPTH NOT LESS THAN 1.2m
- CLAUSE 804 / 808 MATERIAL IN ACCORDANCE WITH THE NATIONAL ROADS AUTHORITY SPECIFICATION FOR ROAD WORKS IS TO BE USED AS BACKFILL MATERIAL WHERE THE SEWER MAIN IS LOCATED IN ROADS, FOOTPATHS OR WHEN THE NEAREST PART OF THE TRENCH IS WITHIN 1m OF THE PAVED EDGE OF THE ROADWAY. CLAUSE 804 / 808 IS TO BE COMPACTED AS PER CLAUSE 802 OF THE NATIONAL ROADS AUTHORITY SPECIFICATION FOR ROAD WORKS. CLAUSE 808 IS TO BE USED WITHIN 500mm OF CEMENT BOUND MATERIALS, CONCRETE PAVEMENTS, CONCRETE STRUCTURES OR CONCRETE PRODUCTS. OTHERWISE CLAUSE 804 MAY BE USED. ALTERNATIVE BACKFILL MATERIAL TO THAT DESCRIBED ABOVE (CLAUSE 804 OR CLAUSE 808) OF THE PIPE TRENCH WILL ONLY BE ALLOWED BY IRISH WATER WHERE THE ROADS AUTHORITY IN WHOSE FUNCTIONAL AREA THE DEVELOPMENT IS LOCATED, PROVIDES WRITTEN APPROVAL TO THE DEVELOPER TO THE USE SUCH ALTERNATIVE MATERIAL.
- SELECTED EXCAVATED MATERIAL MAY BE USED IN GREEN-FIELD AREAS ABOVE GRANULAR PIPE SURROUND MATERIAL SUBJECT TO REVIEW BY IRISH WATER.
- PIPE BEDDING SHALL COMPLY WITH WIS 4-08-02 AND IGI 4-08-01 GRANULAR MATERIAL SHALL BE 14mm TO 5mm GRADED AGGREGATE OR 10mm SINGLE SIZED AGGREGATE IS EN 1242. CONCRETE BED, HAUNCH & SURROUND, WHERE REQUIRED, SHALL BE TO STD-WW-08.
- IN SOFT GROUND CONDITIONS (CBR < 5) THE MATERIAL SHOULD BE EXCAVATED AND DISPOSED OF IN ACCORDANCE WITH THE WASTE MANAGEMENT ACT AND CLAUSE 804 / 808 MATERIAL IN ACCORDANCE WITH THE NATIONAL ROADS AUTHORITY SPECIFICATION FOR ROAD WORKS SHALL REPLACE THE EXCAVATED MATERIAL, WRAPPED IN GEOTEXTILE WRAPPING. ALTERNATIVELY, SPECIAL PIPE SUPPORT ARRANGEMENTS, INCLUDING PILING ETC. MAY BE REQUIRED WHERE THE DEPTH OF SOFT MATERIAL IS EXCESSIVE. SUCH ARRANGEMENTS SHALL BE SUBJECT TO ASSESSMENT BY IRISH WATER BEFORE ADVANCING WITH THE WORK.
- IN GREEN FIELD AREAS, TYPE B BACKFILL (SELECTED EXCAVATED MATERIAL) WILL BE ALLOWED ABOVE THE SIDE HAUNCH GRANULAR MATERIAL IN THE CASE OF RIGID PIPES. A GRANULAR SURROUND OF A MINIMUM DEPTH OF 150mm ABOVE THE CROWN OF THE PIPE IS REQUIRED FOR FLEXIBLE PIPES, AND TYPE B MATERIAL MAY BE USED AS BACKFILL ABOVE THIS. ALL RISING MAINS IN GREENFIELD AREAS SHALL HAVE A MINIMUM COVER OF 300mm OF GRANULAR MATERIAL ABOVE THE EXTERNAL CROWN OF THE PIPE.
- PIPES SHALL NOT BE SUPPORTED ON STONES, ROCKS OR ANY HARD OBJECTS AT ANY POINT ALONG THE TRENCH. ROCK SHALL BE EXCAVATED TO A DEPTH OF 150mm BELOW THE ACTUAL DEPTH OF THE TRENCH WITH THE VOID FILLED WITH CLAUSE 804 / 808 MATERIAL. IN ACCORDANCE WITH THE NATIONAL ROADS AUTHORITY SPECIFICATION FOR ROAD WORKS, THE GRANULAR MATERIAL SHALL BE LAID ABOVE THIS VOID BACKFILL MATERIAL.
- NON DEGRADABLE MARKER TAPE SHOULD BE INSTALLED AT TOP OF PIPE BEDDING LAYER. IN THE CASE OF NON METAL PIPE MATERIAL, THE MARKER TAPE SHOULD INCORPORATE A TRACE WIRE WHICH IS LINKED TO FITTINGS AND TERMINATED AT THE WASTE WATER PUMPING STATION AND THE DISCHARGE MANHOLE.
- TRENCH WIDTHS FOR PIPE SIZES ≤ 80mm MAY BE ≤ 500mm, SUBJECT TO CONSIDERATION BEING GIVEN TO THE TRENCH DEPTH, HEALTH & SAFETY & CONSTRUCTION ACCESS REQUIREMENTS.
- NEW ROAD CONSTRUCTION & SURFACE FINISH TO BE TO ROAD AUTHORITY REQUIREMENTS.
- EXISTING ROAD REINSTATEMENT TO COMPLY WITH CURRENT VERSION OF "GUIDELINES FOR MANAGING OPENINGS IN PUBLIC ROADS" BY THE DEPT. OF TRANSPORT, TOURISM & SPORT, OR TRANSPORT INFRASTRUCTURE IRELAND REQUIREMENTS.



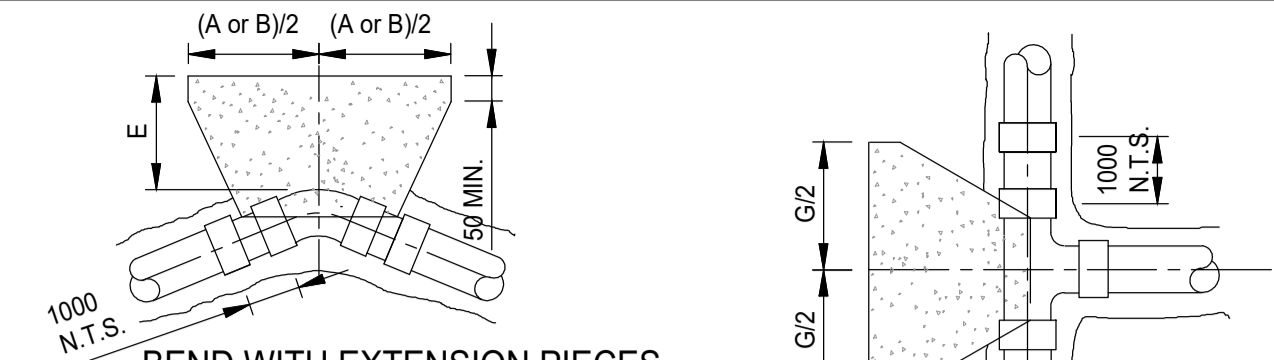
HORIZONTAL BENDS



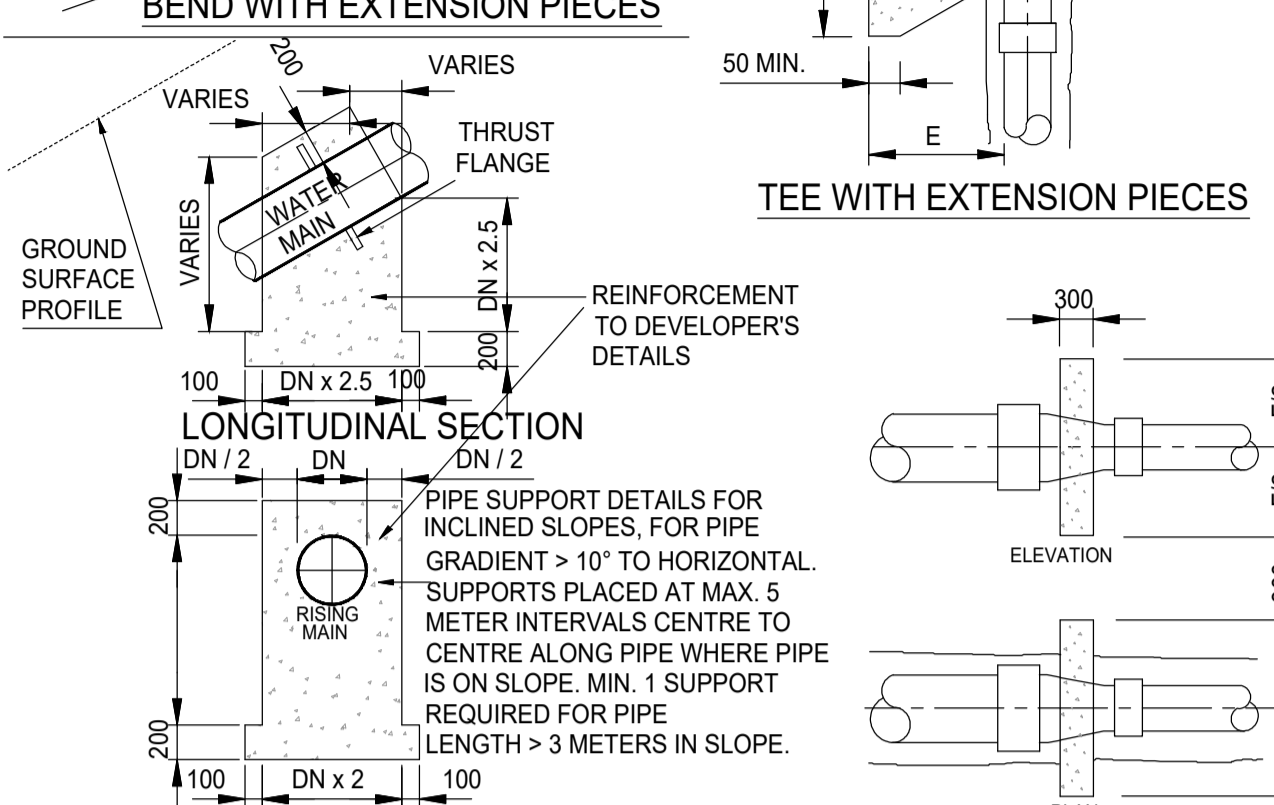
VERTICAL BENDS



SECTIONAL ELEVATION FOR BEND OR TEE

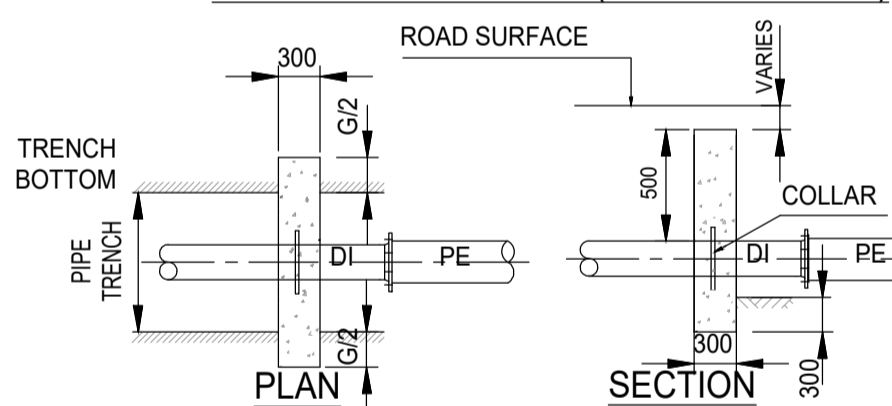
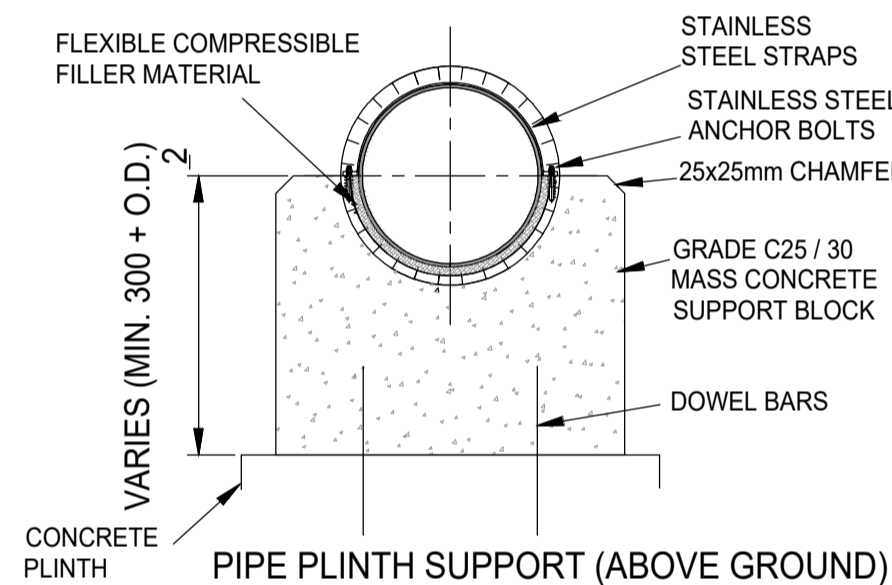


CROSS-SECTION PIPE SUPPORT DETAILS FOR INCLINED SLOPES



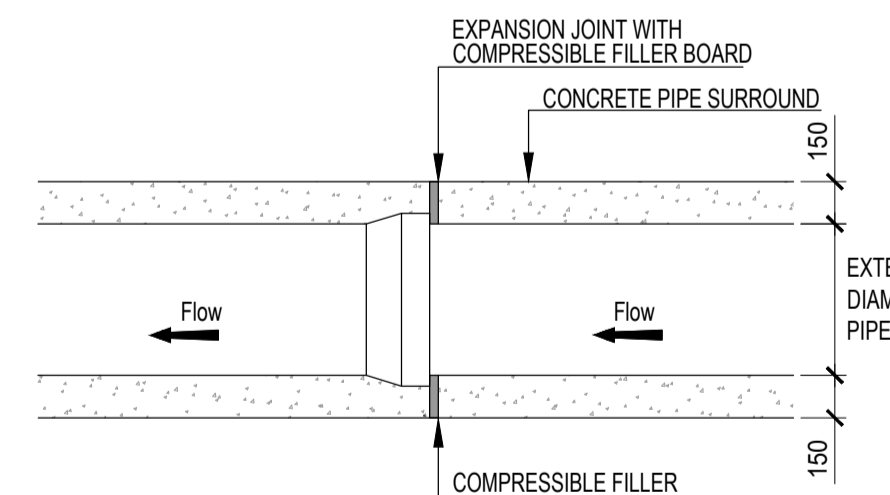
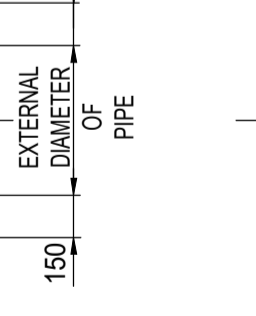
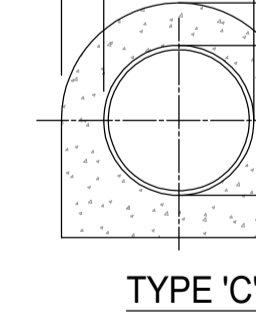
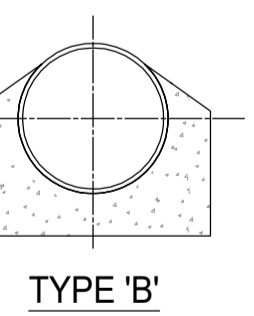
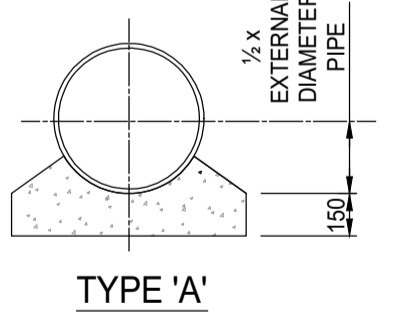
THRUST BLOCK AND RISING MAIN NOTES

- ALL DIMENSIONS IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
- CONCRETE THRUST BLOCKS (ANCHORAGE) SHALL BE POSITIONED SYMMETRICALLY WITH RESPECT TO THE CONNECTING PIPE & BENDS.
- TRENCH DIMENSIONS - REFER TO DRAWING NO'S. STD-WW-07.
- THRUST BLOCKS SHALL BEAR ON UNDISTURBED SOIL. IF FOR ANY REASON THEY CANNOT THEN THE DEVELOPER SHALL NOTIFY IRISH WATER IMMEDIATELY WITH A PROPOSED SOLUTION.
- THRUST BLOCK REINFORCEMENT REQUIRES SPECIFIC DESIGN.
- FOR TEST PRESSURES GREATER THAN 18 BAR, THRUST BLOCK DESIGN IS TO BE SUBMITTED TO IRISH WATER FOR REVIEW.
- THRUST BLOCKS ARE DESIGNED FOR AN AVERAGE BEARING PRESSURE OF 100 kN/m (TYPICAL FOR SOFT CLAY) FOR OTHER CONDITIONS. ACTUAL DIMENSIONS MAY BE ALTERED ON INSTRUCTIONS FROM IRISH WATER.
- CONCRETE IN THRUST BLOCKS SHALL BE GRADE C20/25 IN ACCORDANCE WITH IS EN 206.
- COMPRESSIBLE FILLER FOR CONCRETE PROTECTION TO BE IN ACCORDANCE WITH BS EN 622-1 AND BS EN 622-4. BITUMINOUS MATERIAL SHALL NOT BE PUT IN CONTACT WITH PLASTIC PIPES. THE THICKNESS OF COMPRESSIBLE FILLER FOR MAINS < 450mm IN DIAMETER IS TO BE 18mm.
- CONCRETE THRUST BLOCKS FOR POLYETHYLENE PIPE TO COMPLY WITH THE MANUFACTURER'S REQUIREMENTS.



IRISH WATER DETAIL STD-WW-07
TRENCH BACK FILL AND BEDDING IN ROADWAYS & GRASSED AREAS

SCALE: N.T.S.



SPIGOT AND SOCKET JOINT PLAN

CONCRETE PIPE BED AND HAUNCH NOTES

- ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
- CONCRETE PIPE BEDS AND HAUNCHES MAY BE REQUIRED TO ADDRESS MINIMUM COVER SITUATIONS AND SHALL BE SUBJECT TO SUBMISSION AND ASSESSMENT BY IRISH WATER BEFORE ADVANCING WITH THE WORK.
- CONCRETE PIPE BEDS AND HAUNCHES SHALL HAVE A MINIMUM THICKNESS OF 150mm WITH THE ABSOLUTE MINIMUM DEPTH OF COVER ABOVE THE EXTERNAL CROWN OF THE PIPE OF 750mm.
- CONCRETE TO BE IN ACCORDANCE WITH IS EN 206 AND TO BE CLASS C16/20.
- THE HAUNCHES AND SURROUNDS TO BE FORMED USING FORM WORK TO PROVIDE A ROUGH CAST FINISH.
- EXPANSION JOINTS IN THE CONCRETE SHALL BE PROVIDED AT ALL PIPE JOINTS TO ALLOW FOR PIPE FLEXIBILITY. COMPRESSIBLE FILLER BOARD TO BE IN ACCORDANCE WITH BS EN 622-1 AND BS EN 622-4 AND TO BE 18mm THICK.
- POLYETHYLENE PIPES SHALL BE WRAPPED IN PLASTIC SHEETING HAVING A COMPOSITION IN ACCORDANCE WITH BS 6076 BEFORE BEING CAST INTO CONCRETE.
- BITUMINOUS MATERIAL SHALL NOT BE PUT IN CONTACT WITH PE OR PVC PIPES.

IRISH WATER DETAIL STD-WW-08

CONCRETE BED, HAUNCH AND SURROUND TO WASTE WATER PIPES SECTIONS TYPE A, B, C & D

SCALE: N.T.S.

PIPE (Dia)mm	DIMENSIONS				CONCRETE m ² /m RUN OF SEWER				DISPOSAL m ² /m RUN OF SEWER				
	Do	b	t	w	BED ALL TYPES	HAUNCH & SURROUND TYPE A	HAUNCH & SURROUND TYPE B	HAUNCH & SURROUND TYPE C	HAUNCH & SURROUND TYPE D	TYPE A	TYPE B	TYPE C	TYPE D
100	150	100	100	350	0.016	0.160	0.058	0.185	0.069	0.111	0.230		
150	210	100	100	410	0.410	0.220	0.076	0.225	0.098	0.152	0.260		
225	300	120	150	600	0.720	0.380	0.156	0.289	0.175	0.293	0.360		
300	400	120	150	700	0.840	0.560	0.198	0.364	0.251	0.393	0.490		
375	480	150	150	780	0.117		0.120	0.260	0.427	0.420	0.540	0.608	
450	560	150	150	860	0.129		0.160	0.300	0.493	0.540	0.660	0.740	
525	650	150	150	950	0.143		0.180	0.340	0.571	0.660	0.810	0.903	
600	735	150	150	1035	0.155	NOT USED	0.190	0.380	0.647	0.770	0.950	1.071	
675	870	200	200	1150	0.230		0.300	0.550	0.774	1.000	1.200	1.369	
750	910	200	200	1310	0.262		0.340	0.660	0.814	1.250	1.530	1.464	
900	1080	200	200	1480	0.296		0.380	0.740	0.988	1.590	1.960	1.904	
1050	1260	250	250	1760	0.440		0.580	1.080	1.187	2.270	2.770	2.434	
1200	1425	250	250	1925	0.481		0.640	1.230	1.381	2.720	3.310	2.976	

< 12 BAR TEST PRESSURE

NOM. DIA. (mm)	DIMENSIONS										
	A	B	C	D	E	F	G	H	J	K	
100	600	330	160	80	200	350	390	700	600	400	
150	950	510	260	130	225	450	660	900	750	600	
200	1150	600	310	160	300	650	790	1050	900	700	
250	1350	750	380	200	300	800	970	1200	1000	750	
300	1580	850	450	220	320	950	1110	1300	1100	850	
350	2100	1150	570	290	450	1000	1450	1550	1200	900	
400	2550	1400	700	350	500	1050	1800	1700	1250	1000	
450	3000	1630	830	420	680	1100	2130	1800	1450	1150	
500	3590	1950	990	500	800	1200	2540	1950	1600	1250	
600	4100	2200	1120	570	850	1400	2880	2100	1700	1300	

12 BAR TO 15 BAR TEST PRESSURE

NOM. DIA. (mm)	DIMENSIONS										
	A	B	C	D	E	F	G	H	J	K	
100	700	380	190	100	200	350	510	750	600	400	
150	1135	620	320	160	225	450	760	950	750	600	
200	1400	750	380	190	300	650	980	1150	950	700	
250	1730	940	480	240	320	800	1210	1350	1050	850	
300	2090	1130	580	300	380	950	1480	1500	1200	950	
350	2600	1410	720	380	500	1050	1840	1700	1350	1050	
400	2980	1610	820	420	750	1200	2110	1850	1500	1150	
450	3400	1840	940	470	900	1300	2330	2000	1600	1250	
500	4090	2210	1130	570	1000	1400	2690	2200	1750	1350	
600	5010*	2710*	1380	700	1000	1500	3550*	2350	1900	1500	

15 BAR TO 18 BAR TEST PRESSURE

NOM. DIA. (mm)	DIMENSIONS										
	A	B	C	D	E	F	G	H	J	K	
100	750	400	205	100	220	400	530	800	650	400	
150	1250	700	350	180	250	500	890	1000	850	650	
200	1650	890	450	230	320	700	1170	1250	1000	800	
250	1980	1060	540	270	350	900	1370	1450	1150	900	
300	2300	1200	640	320	500	1100	1630	1650	1300	1050	
350	2930	1580	830	410	750	1200	2070	1850	1500	1150	
400	3510	1900	970	190*	1000	1300	2490	2000	1600	1250	
450	3810	2270	1160	580	1000	1350	2970	2150	1700	1350	
500	4340*	2380	1210	610	1000	1400	3700	2250	1750	1400	
600	6370*	3450*	1760	890	1000	1500	4500*	2400	2050	1650	

TABLE OF DIMENSIONS FOR STEEPLY INCLINED PIPELINES

GRADIENT	SPACING
1 IN 2 & STEEPER	5.5m
BELOW 1 IN 2 TO 1 IN 4	11.0m
1 IN 4 TO 1 IN 5	16.6m
1 IN 5 TO 1 IN 6	22.0m

IRISH WATER DETAIL STD-WW-14
THRUST BLOCKS FOR RISING MAINS

SCALE: N.T.S.

GENERAL NOTES:-

- THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS & ENGINEERS DRAWINGS & SPECIFICATIONS.
- DO NOT SCALE. USE FIGURED DIMENSIONS ONLY.
- THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS & ELEVATIONS WITH ARCHITECTURAL DRAWINGS PRIOR TO START OF CONSTRUCTION. ALL DISCREPANCIES TO BE NOTIFIED, IN WRITING TO ENGINEERS & ARCHITECTS FOR RESOLUTION.
- ALL DIMENSIONS ON DRAWINGS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.
- FOR DETAILS AND SETTING OUT OF RWP, SVP, WVP & ALL OPENINGS SEE THE RELEVANT ARCHITECTS DRAWINGS.
- FOR RADON BARRIER, D.P.C. & INSULATION DETAILS REFER TO ARCHITECTS DRAWINGS.

NOTE: DETAILS PROVIDED ARE IN ACCORDANCE WITH IRISH WATER DOCUMENT "WASTEWATER INFRASTRUCTURE STANDARD DETAILS, CONNECTIONS AND DEVELOPER SERVICES". CONSTRUCTION REQUIREMENTS FOR SELF LAY DEVELOPMENTS DECEMBER 2017 (REVISION 03) DOCUMENT NUMBER IW-CDS-5030-01

NOTE: THIS DOCUMENT IS LIABLE TO CHANGE. IT IS THE CONTRACTORS RESPONSIBILITY TO ENSURE THAT THE DETAILS USED ON SITE ARE IN ACCORDANCE WITH THE MOST RECENT REVISION OF THE IRISH WATER STANDARDS.

Issue Register

No.	Date	Description	Drawn	Checked	Approved
PL1	12/03/21	PLANNING ISSUE	RDS	EJQ	MJP

PLANNING

Client: KILKENNY COUNTY COUNCIL
Project: FIRE STATION, URLINGFORD, CO. KILKENNY
Drawing Title: PROPOSED SEWER & RISING MAIN BEDDING DETAILS
Project No: 191009
Scale: A1 - VARIES
Drawing No: 191009/C/031
Rev: PL1
Drawn: RDS
Checked: EJQ
Date: 08/02/21



Martin Peters Associates Consulting Engineers
O'Malley Road, Ashbury, Wexford
T: +353 51 772211
E: info@mpa.ie
W: www.mpa.ie