

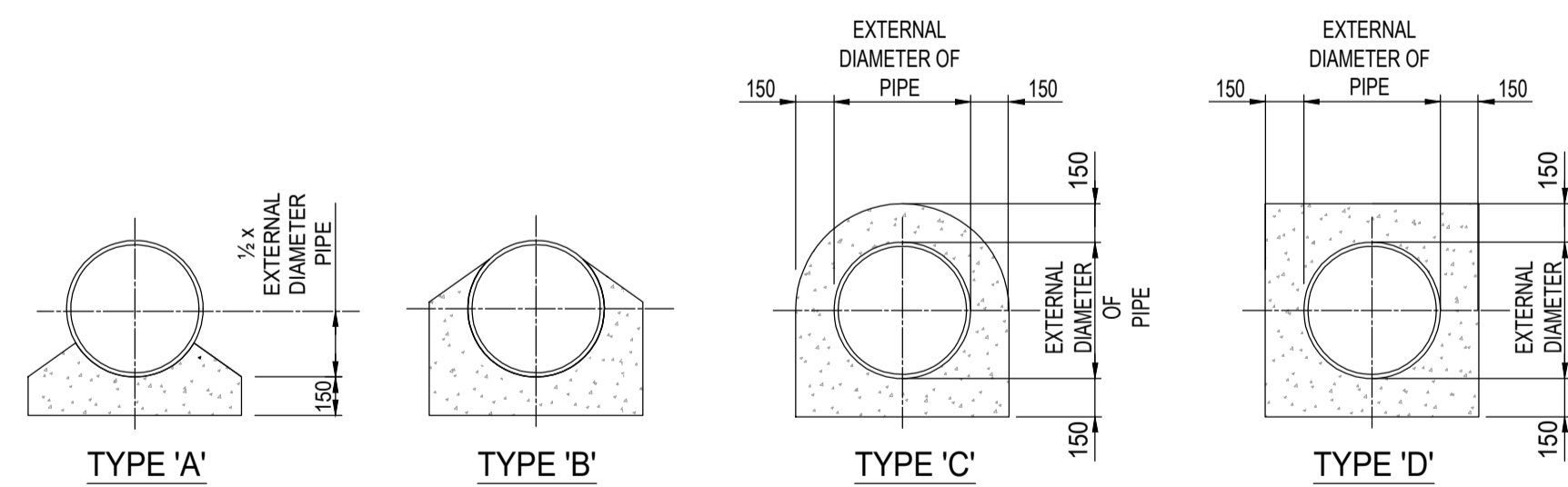
| PIPE DIAMETER 'A' (mm) | TRENCH WIDTH 'B' (mm) |
|------------------------|-----------------------|
| ≤ 80 RISING MAIN | SEE NOTE 10. |
| 100 | 500 |
| 150 | 600 |
| 200 | 600 |
| 250 | 750 |
| 300 | 750 |
| 350 | 750 |
| 400 | 900 |
| 450 | 900 |

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 0.5M. (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 IGN 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 GEO-TEXTILE 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 ≤ 500mm 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.

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

SCALE: NTS

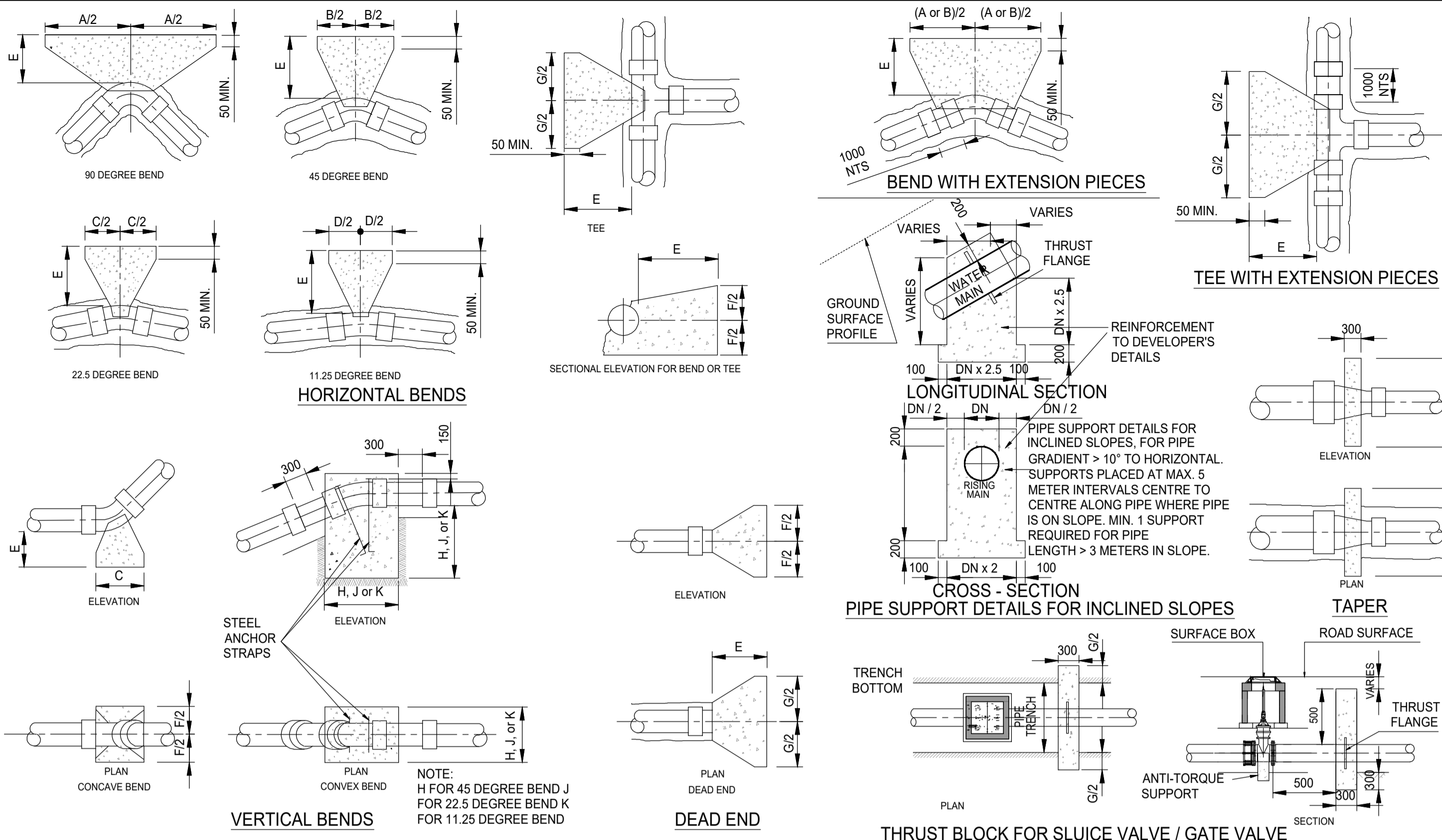


| PIPE (Dia)mm | DIMENSIONS | | | | CONCRETE m ³ /m RUN OF SEWER | | | | DISPOSAL m ³ /m RUN OF SEWER | | | | |
|--------------|------------|-----|-----|------|---|--------------------------|--------------------------|--------------------------|---|--------|--------|--------|--------|
| | Do | b | t | 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 | NOT USED | 0.058 | 0.185 | 0.069 | 0.111 | 0.230 | |
| 150 | 210 | 100 | 100 | 410 | 0.410 | 0.220 | NOT USED | 0.076 | 0.225 | 0.098 | 0.152 | 0.260 | |
| 225 | 300 | 120 | 150 | 600 | 0.720 | 0.380 | NOT USED | 0.156 | 0.289 | 0.175 | 0.293 | 0.360 | |
| 300 | 400 | 120 | 150 | 700 | 0.840 | 0.560 | NOT USED | 0.198 | 0.364 | 0.251 | 0.393 | 0.490 | |
| 375 | 480 | 150 | 150 | 860 | 0.117 | | 0.120 | 0.260 | 0.427 | 0.420 | 0.540 | 0.608 | |
| 450 | 560 | 150 | 150 | 980 | 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 | | 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 | |

IRISH WATER DETAIL STD-WW-08

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

SCALE: NTS



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. 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/m² (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.

< 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 | 360 | 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 | 1960 | 1060 | 540 | 270 | 350 | 900 | 1370 | 1450 | 1150 | 900 |
| 300 | 2300 | 1200 | 640 | 320 | 500 | 1100 | 1630 | 1650 | 1300 | 1050 |
| 350 | 2630 | 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 PIPE LINES

| 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 |

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-0303-01

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.

ALL SETTING OUT DIMENSIONS TO BE CHECKED AGAINST ARCHITECTS DRAWINGS. ARCHITECTS DRAWINGS TO TAKE PRECEDENCE.

Issue Register

| No. | Date | Description | Drawn | Checked | Approved |
|-----|------------|---|-------|---------|----------|
| PL3 | 28/03/2021 | PLANNING ISSUE - STAGE 2 SHD PLANNING SUBMISSION | DCH | MJP | MJP |
| PL2 | 12/03/2021 | PLANNING ISSUE - STAGE 2 SHD PLANNING SUBMISSION | DCH | MJP | MJP |
| PL1 | 11/08/2020 | PLANNING ISSUE - STAGE 1 - PRE APPLICATION CONSULTATION | MT | DCH | MJP |

PLANNING

Client: DENIS TREACY CONSTRUCTION LTD

Project: RESIDENTIAL DEVELOPMENT, MARGARET'S FIELDS, CALLAN ROAD, KILKENNY

Drawing Title: PROPOSED SEWER & RISING MAIN BEDDING DETAILS

Project No: 201004 Scale: N.T.S.

Drawing No: 201004/C/031 Rev: PL3

Drawn: MT Checked: DCH Date: 16/07/20

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

SCALE: NTS