



INFRASTRUCTURE STANDARD DETAIL DRAWINGS

R1831-1099
Residential and Neighbourhood Centre
Development (Phase 1) at Former
Magee Barracks

May 2019

GARLAND
Concepts Realised

INFRASTRUCTURE STANDARD DETAILS INDEX

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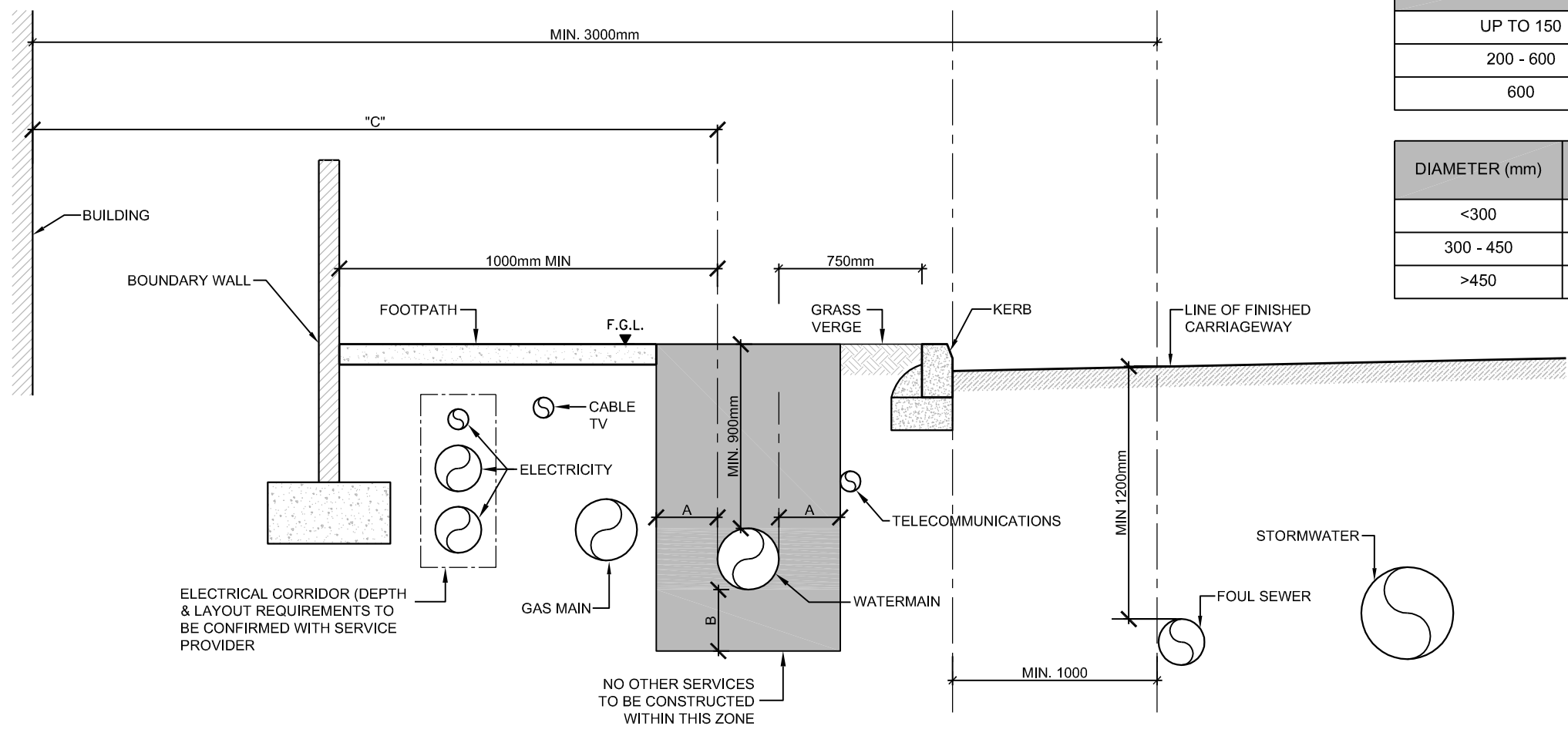
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STATUS	DESCRIPTION	REVISION	DWG. BY	DES. BY	CHK. BY	APP BY.	DATE
A1	Issued for Construction	C01	JPH	SR	SR	BL	12/01/17
A1	Detail GAR-ISD-104 Revised	C02	SK	TM	TM	CJ	07/03/17

DIAMETER (mm)	"C" (mm)
UP TO 150	3000
200 - 600	5000
600	8000

DIAMETER (mm)	"A" (mm)	"B" (mm)
<300	300	300
300 - 450	500	500
>450	3000	500

DETAIL NOTES
1. ALL DIMENSIONS IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.



TYPICAL SERVICE LAYOUT INDICATING SEPERATION DISTANCES (WW-05/W-11)
SCALE N.T.S

- THE SEPARATION DISTANCES OUTLINED ARE MINIMUM REQUIREMENTS.
- SPECIFIC SEPARATION CLEARANCE DISTANCES IN EXCESS OF THESE MINIMA SHALL BE PROVIDED FOR SERVICES SUCH AS GAS, ELECTRICITY, FIBRE-OPTIC OR OIL FILLED CABLES AS THE CASE MAY BE. THE PARTICULAR UTILITY PROVIDERS SHALL BE CONSULTED TO DETERMINE THESE MINIMUM SEPARATION DISTANCES AND EVIDENCE OF THIS CONSULTATION, WITH THE SPECIFIED SEPARATION DISTANCES, SHALL BE PROVIDED TO IRISH WATER AT DESIGN STAGE.
- NOTIFICATION IN WRITING IS REQUIRED SHOULD WORKS BE WITHIN THE FOLLOWING DISTANCES FROM AN EXISTING WATER MAIN OR WASTEWATER RISING MAIN:-
 - HORIZONTAL 1m AT EITHER SIDE OF AN EXISTING MAIN LESS THAN 200mm IN DIAMETER.
 - 2m AT EITHER SIDE OF AN EXISTING MAIN OF 200mm TO 350mm IN DIAMETER.
 - 5m AT EITHER SIDE OF AN EXISTING MAIN OF 350mm OR GREATER IN DIAMETER.
 - WHERE DUCTS OR PIPES ARE TO BE LAID CLOSE TO AN EXISTING WATERMAIN OR SEWER IN THE OWNERSHIP OF IRISH WATER, NOTIFICATION IN WRITING SHALL BE PROVIDED A MINIMUM OF 10 DAYS AHEAD OF ADVANCEMENT OF THE WORK.
 - NOTIFICATION IN WRITING IS REQUIRED SHOULD WORKS BE WITHIN 1.5m DISTANCE OF A WASTEWATER SEWER.
 - REQUIREMENTS SHALL ALSO APPLY TO TRIAL HOLES OR SLIT TRENCHES TO LOCATE THE MAIN OR GAIN GROUND INFO DATA.
 - LARGER DIAMETERS >350mm DISTRIBUTION AND TRUNK MAINS, IRISH WATER MUST BE NOTIFIED AT LEAST 1 MONTH IN ADVANCE.
 - DEVELOPERS SHALL ALSO COMPLY WITH ANY NOTIFICATION REQUIREMENTS OF OTHER UTILITY PROVIDERS (ESB, GAS MAIN, TELECOMMUNICATION ETC).
- DETAILED PROPOSALS, INCLUDING WORK METHOD STATEMENTS, INSURANCE CONFIRMATION AND DETAILS OF WORK COMPLETED OF A SIMILAR NATURE MUST BE SUBMITTED TO IRISH WATER FOR ITS CONSIDERATION BEFORE APPROVAL WILL ISSUE. ALL SUCH WORKS IN THE VICINITY OF ARTERIAL WATER MAINS AND SEWERS (MAINS GREATER THAN 400mm) SHALL BE SUBJECT TO WRITTEN AGREEMENT WITH IRISH WATER BEFORE CONSTRUCTION COMMENCES ON SITE. THIS AGREEMENT SHALL ALSO INCLUDE ANY NECESSARY PROTECTION FOR WATER MAINS.
- ANY DAMAGE SHALL BE NOTIFIED IMMEDIATELY TO IRISH WATER. THE PERSON WHO CAUSES THE DAMAGE TO A SEWER MAIN OR FITTING WILL BE DEEMED TO HAVE COMMITTED AN OFFENCE UNDER SECTION 45 OF THE WATER SERVICES ACT 2007.
- UNDER NO CIRCUMSTANCES WILL IRISH WATER ACCEPT SEWER MAIN INSTALLATIONS UNDER STRUCTURES, EXISTING OR PROPOSED, OR IN CLOSE PROXIMITY TO ANY EXISTING STRUCTURES OR FEATURES THAT WILL INHIBIT ACCESS FOR POST INSTALLATION MAINTENANCE AND ACCESS.
- THE MINIMUM CLEAR DISTANCE WILL BE INCREASED IF THE SEWER IS GREATER THAN 3m DEEP OR IF THE DIAMETER IS GREATER THAN 375mm. THE MINIMUM CLEAR DISTANCE IN THESE SITUATIONS SHALL BE > DEPTH TO INVERT OR 10 TIMES THE SEWER DIAMETER, WHICH EVER IS GREATER.
- THE EXTERNAL FACES OF MANHOLE SHALL BE AT LEAST 0.5m FROM KERB LINE.
- WHERE DESIGN DEVIATES FROM TYPICAL DETAILS, THE LAYOUT IS SUBJECT TO APPROVAL OF IRISH WATER.
- ALL DIMENSIONS ARE RELATED TO FINISHED ROAD LEVEL

TYPICAL SECTION THROUGH WASTEWATER CONNECTION PIPEWORK
SCALE N.T.S

- THE SEPARATION DISTANCES OUTLINED ARE MINIMUM REQUIREMENTS.
- SPECIFIC SEPARATION CLEARANCE DISTANCES IN EXCESS OF THESE MINIMA SHALL BE PROVIDED FOR SERVICES SUCH AS GAS, ELECTRICITY, FIBRE-OPTIC OR OIL FILLED CABLES AS THE CASE MAY BE. THE PARTICULAR UTILITY PROVIDERS SHALL BE CONSULTED TO DETERMINE THESE MINIMUM SEPARATION DISTANCES AND EVIDENCE OF THIS CONSULTATION, WITH THE SPECIFIED SEPARATION DISTANCES, SHALL BE PROVIDED TO IRISH WATER AT DESIGN STAGE.
- WATERMAIN (PROPOSED)
 - HORIZONTAL, 300mm TO DISTRIBUTION MAINS LESS THAN 300mm DIAMETER.
 - 500mm TO TRUNK MAINS BETWEEN 300mm AND 450mm DIAMETER.
 - 3m TO ARTERIAL WATER MAINS OF GREATER THAN 450mm
 - VERTICAL, 300mm TO DISTRIBUTION MAINS OF LESS THAN 300mm DIAMETER.
 - 500mm TO TRUNK/ ARTERIAL MAINS OF DIAMETER GREATER THAN 300mm
 - ANY PROPOSED PIPE CROSSING SHOULD BE LOCATED MID-WAY BETWEEN THE WATER JOINTS WITH MINIMUM CLEAR DISTANCE OF 300mm AND UP TO 500mm. ALL CROSSINGS SHOULD BE AT LEAST 500mm AWAY FROM FITTINGS OR JOINTS.
- WATERMAIN (EXISTING) SEPERTION DISTANCES
 - HORIZONTAL, 500mm AT EITHER SIDE OF MAINS UP TO AND INCLUDING 200mm IN DIAMETER.
 - 1m AT EITHER SIDE OF MAINS OF 225mm TO 250mm DIAMETER.
 - 2m AT EITHER SIDE OF THE MAINS OF 300mm TO 375mm IN DIAMETER.
 - 5m AT EITHER SIDE OF MAINS OF 400mm AND 450mm IN DIAMETER.
 - SPECIFIC IRISH WATER ADVISED DISTANCES FOR MAINS IN EXCESS OF 475mm DIAMETER.
- NOTIFICATION IN WRITING IS REQUIRED SHOULD WORKS BE WITHIN THE FOLLOWING DISTANCES FROM AN EXISTING WATER MAIN OR WASTEWATER RISING MAIN:-
 - HORIZONTAL 1m AT EITHER SIDE OF AN EXISTING MAIN LESS THAN 200mm IN DIAMETER.
 - 2m AT EITHER SIDE OF AN EXISTING MAIN OF 200mm TO 350mm IN DIAMETER.
 - 5m AT EITHER SIDE OF AN EXISTING MAIN OF 350mm OR GREATER IN DIAMETER.
 - WHERE DUCTS OR PIPES ARE TO BE LAID CLOSE TO AN EXISTING WATERMAIN OR SEWER IN THE OWNERSHIP OF IRISH WATER, NOTIFICATION IN WRITING SHALL BE PROVIDED A MINIMUM OF 10 DAYS AHEAD OF ADVANCEMENT OF THE WORK.
 - NOTIFICATION IN WRITING IS REQUIRED SHOULD WORKS BE WITHIN 1.5m DISTANCE OF A WASTEWATER SEWER.
 - REQUIREMENTS SHALL ALSO APPLY TO TRIAL HOLES OR SLIT TRENCHES TO LOCATE THE MAIN OR GAIN GROUND INFO DATA.
 - LARGER DIAMETERS >350mm DISTRIBUTION AND TRUNK MAINS, IRISH WATER MUST BE NOTIFIED AT LEAST 1 MONTH IN ADVANCE.
 - DEVELOPERS SHALL ALSO COMPLY WITH ANY NOTIFICATION REQUIREMENTS OF OTHER UTILITY PROVIDERS (ESB, GAS MAIN, TELECOMMUNICATION ETC).
- DETAILED PROPOSALS, INCLUDING WORK METHOD STATEMENTS, INSURANCE CONFIRMATION AND DETAILS OF WORK COMPLETED OF A SIMILAR NATURE MUST BE SUBMITTED TO IRISH WATER FOR ITS CONSIDERATION BEFORE APPROVAL WILL ISSUE. ALL SUCH WORKS IN THE VICINITY OF ARTERIAL WATER MAINS AND SEWERS (MAINS GREATER THAN 400mm) SHALL BE SUBJECT TO WRITTEN AGREEMENT WITH IRISH WATER BEFORE CONSTRUCTION COMMENCES ON SITE. THIS AGREEMENT SHALL ALSO INCLUDE ANY NECESSARY PROTECTION FOR WATER MAINS
- ANY DAMAGE SHALL BE NOTIFIED IMMEDIATELY TO IRISH WATER. THE PERSON WHO CAUSES THE DAMAGE TO A SEWER MAIN OR FITTING WILL BE DEEMED TO HAVE COMMITTED AN OFFENCE UNDER SECTION 45 OF THE WATER SERVICES ACT 2007.
- WATERMAINS OF ANY SIZE SHALL NOT BE WITHIN 1m OF THE BOUNDARY TO A PREMISES.
- UNDER NO CIRCUMSTANCES WILL IRISH WATER ACCEPT SEWER MAIN INSTALLATIONS UNDER STRUCTURES, EXISTING OR PROPOSED, OR IN CLOSE PROXIMITY TO ANY EXISTING STRUCTURES OR FEATURES THAT WILL INHIBIT ACCESS FOR POST INSTALLATION MAINTENANCE AND ACCESS.
- WHERE DESIGN DEVIATES FROM TYPICAL DETAILS, THE LAYOUT IS SUBJECT TO APPROVAL OF IRISH WATER.
- SEPARATION DISTANCES BETWEEN UTILITIES MAY BE INCREASED TO PROVIDE FOR CHAMBER & THRUST BLOCKS AT BENDS.

TYPICAL SECTION THROUGH DRAIN/SERVICE CONNECTION PIPEWORK
SCALE N.T.S

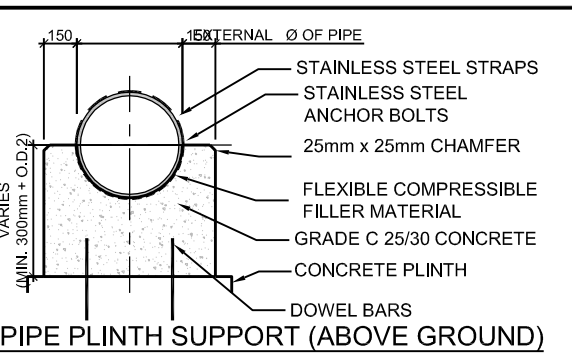
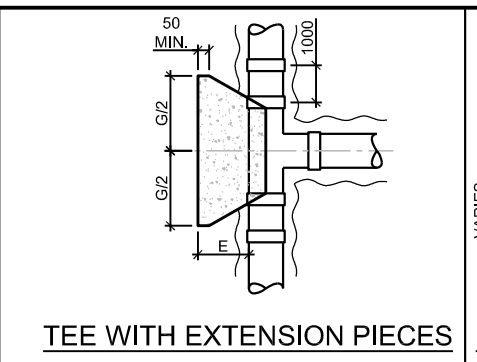
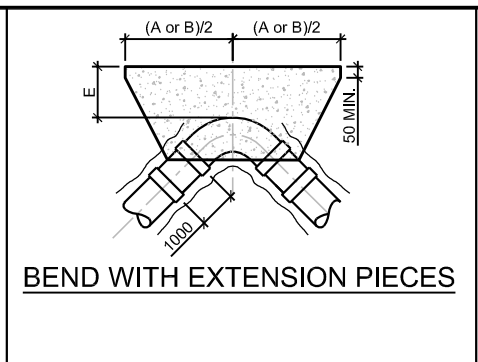
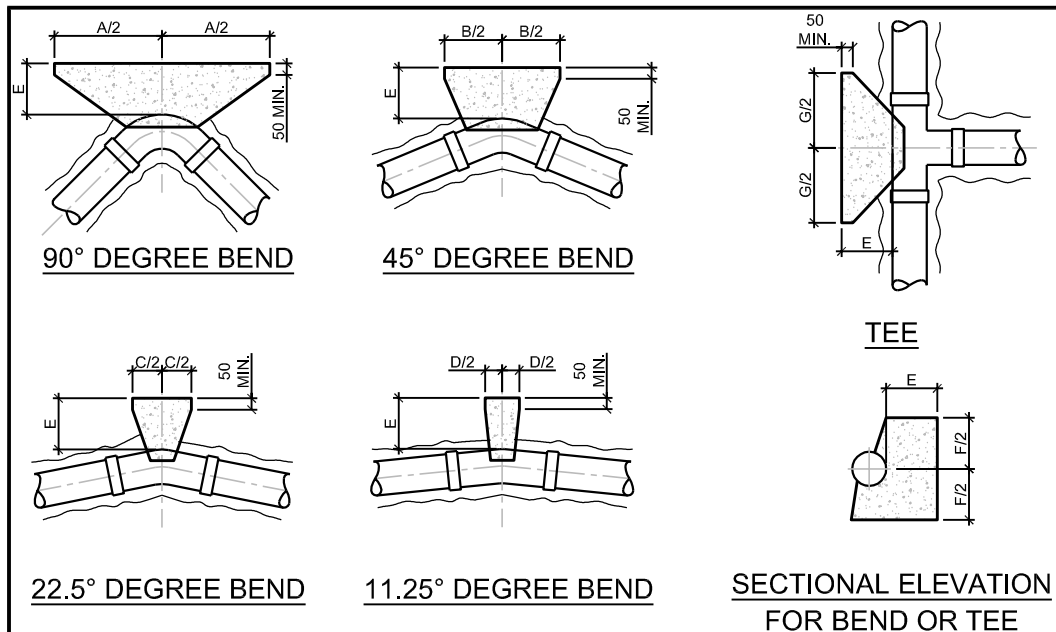
Sheet Title:
INFRASTRUCTURE STANDARD DETAILS
(WW-05/ W-11)

Sheet No. GAR-ISD-001 Rev. A

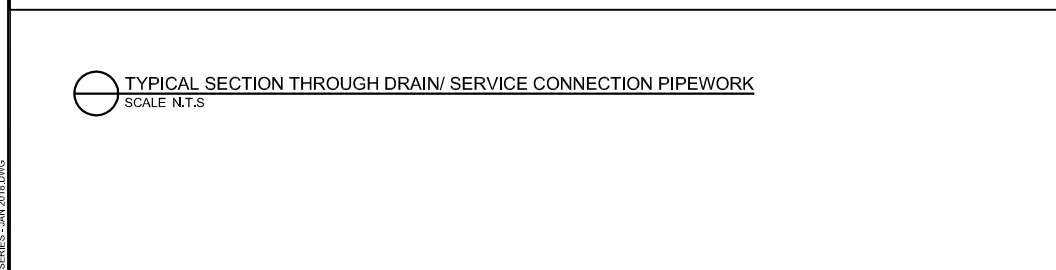
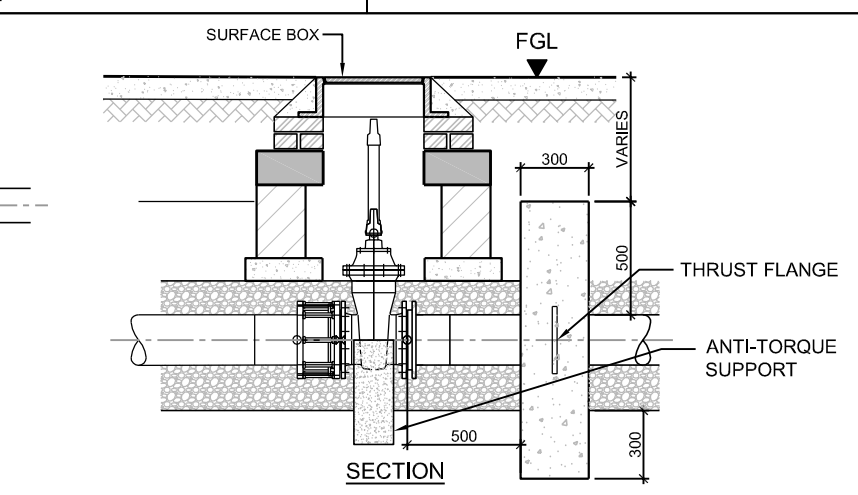
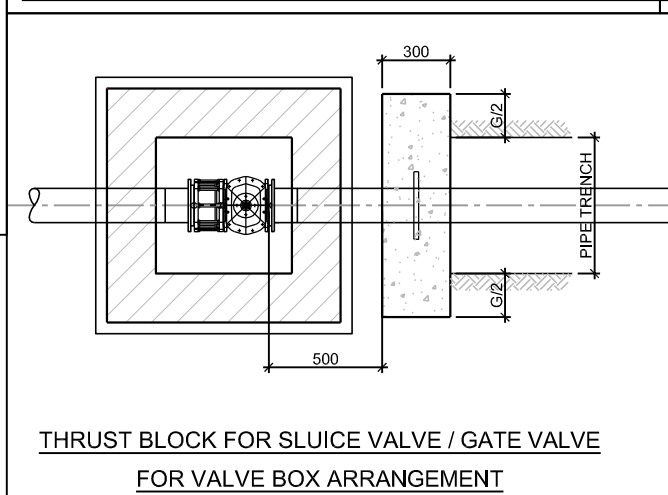
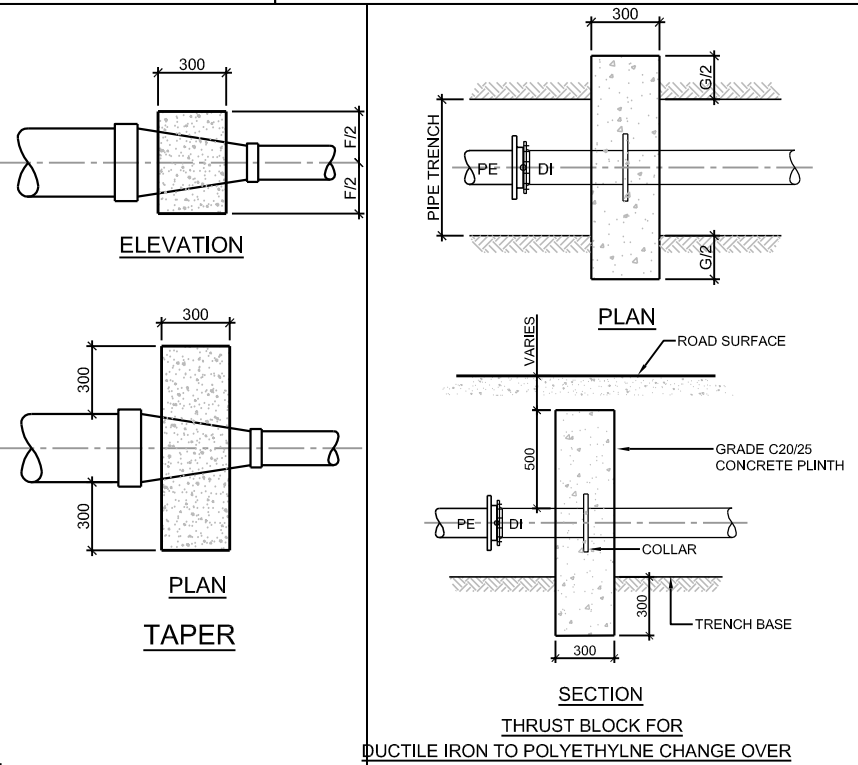
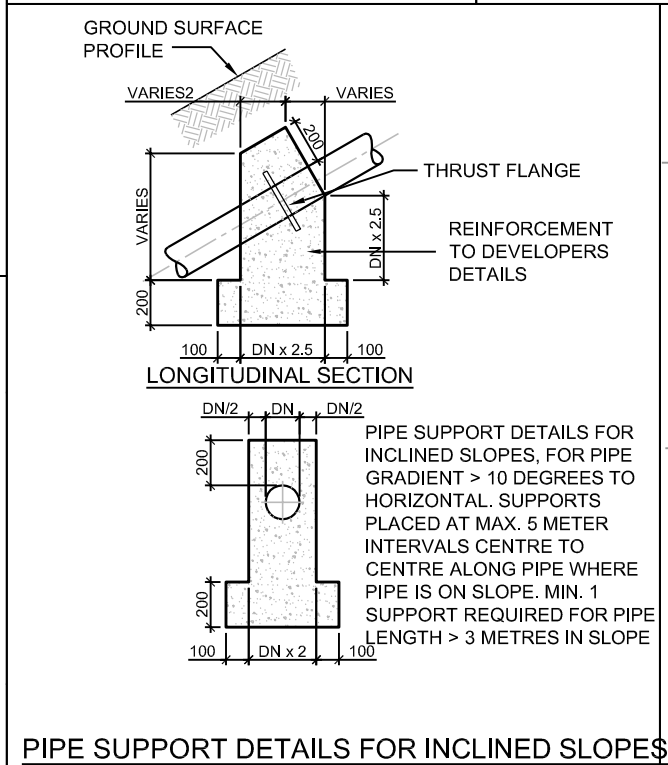
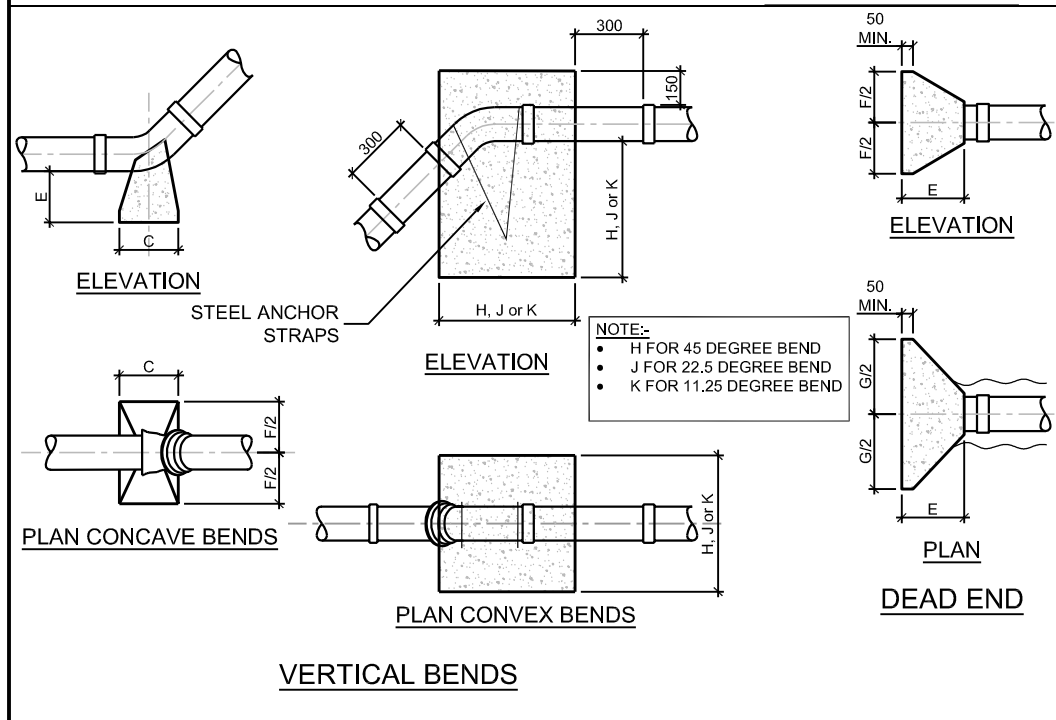
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- DETAIL NOTES**
- ALL DIMENSIONS IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
 - CONCRETE THRUST BLOCKS (ANCHORAGE) SHALL BE POSITIONED SYMMETRICALLY WITH RESPECT TO THE CONNECTING PIPE & BENDS.
 - TRENCH DIMENSIONS : REFER TO DRAWING No's. WW-14/W-28.
 - 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 (mm)									
	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 (mm)									
	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	4480	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	2890	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 (mm)									
	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	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 (m)
1 IN 2 & STEEPER	5.50m
BELOW 1 IN 2 TO 1 IN 4	11.00m
1 IN 4 TO 1 IN 5	16.00m
1 IN 5 TO 1 IN 6	22.00m

THRUST & SUPPORT BLOCKS FOR POTABLE WATER AND FOUL RISING MAINS
SCALE N.T.S.

Sheet Title:
INFRASTRUCTURE STANDARD DETAILS (WW-14/ W-28)

Sheet No. **GAR-ISD-002** Rev. **A**

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DETAIL NOTES

1. OTHER SPECIES NOT NAMED TO BE PLANTED TO THE SAME SPACINGS DEPENDING ON ROOT FORMATION.
2. THE DESIGN OF LANDSCAPING SHALL BE UNDERTAKEN IN CONJUNCTION WITH THE DESIGN OF SEWERS, DRAINS, ETC. THE SEWER/DRAIN SHALL NOT BE LOCATED CLOSER TO THE TREE/BUSH/SHRUB THAN INDICATED ABOVE, EXCEPT WHERE SPECIAL PROTECTION MEASURES ARE PROVIDED, WHERE THERE IS A RISK OF TREE/ROOT INTRUSION, THE SEWER/DRAIN SHALL BE RESISTANT TO TREE ROOT INGRESS (e.g. BY USE OF APPROPRIATE BARRIERS, HIGH PERFORMANCE JOINTS, OR BY USE OF POLYETHYLENE WITH WELDED JOINTS), A TREE SHALL NOT BE PLANTED DIRECTLY OVER SEWERS/DRAINS WHERE EXCAVATION OF THE INFRASTRUCTURE WOULD REQUIRE REMOVAL OF THE TREE, ONLY SHALLOW ROOTING SHRUBS SHALL BE PLANTED CLOSE TO SEWERS/DRAINS.

EXCLUSION AREA

WORKS IN THIS AREA ARE TO BE AVOIDED, UNLESS ABSOLUTELY NECESSARY & AGREED WITH IRISH WATER

EXCAVATIONS FOR PIPEWORK SHOULD NOT BE UNDERTAKEN WITHIN THIS AREA, UNLESS NECESSARY AND NO OTHER OPTION AVAILABLE. WORKS WITHIN THE EXCLUSION ZONE MUST BE SUPERVISED BY A QUALIFIED ARBORIST AND AGREED WITH IRISH WATER. WORKS SHALL BE SUBJECT OF AN ARBORICULTURAL IMPACT ASSESSMENT AS PER BS 5837 & A CLEAR METHOD STATEMENT OUTLINING ALL WORKS ADJACENT TO THE TREES/SHRUBS IS TO BE PREPARED AND AGREED IN ADVANCE OF WORKS.

MATERIAL, PLANT & SPOIL SHALL NOT BE STORED WITHIN THIS ZONE.

METHOD STATEMENTS

ALL WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH BS 5837 AND INFORMED BY NJUG VOLUME 4.

PRECAUTION AREA

EXCAVATIONS FOR PIPEWORK SHOULD NOT BE UNDERTAKEN WITHIN THIS AREA, UNLESS AGREED WITH IRISH WATER.

WORKS WITHIN THE PRECAUTION ZONE MUST BE SUPERVISED BY A QUALIFIED ARBORIST. WORKS SHALL BE SUBJECT OF A CLEAR METHOD STATEMENT OUTLINING ALL WORKS ADJACENT TO THE TREES/SHRUBS WHICH IS TO BE PREPARED & AGREED IN ADVANCE OF THE WORKS

MATERIAL, PLANT & SPOIL SHALL NOT BE STORED WITHIN THIS ZONE.



OUTSIDE RADIUS OF PRECAUTION AREA = 4 X GIRTH OF TREE

GIRTH (CIRCUMFERENCE OF TREE MEASURE AT 1.5m ABOVE GROUND LEVEL)

PREVENTION MEASURES REQUIRED IN LINE WITH LANDSCAPING DESIGN NOTE ABOVE, & SPECIAL PROTECTION REQUIRED. (e.g. BY USE OF APPROPRIATE BARRIERS, HIGH PERFORMANCE JOINTS, OR BY USE OF POLYETHYLENE WITH WELDED JOINTS), THE LANDSCAPE DESIGN AND DETAILS OF THE SPECIAL PROTECTION MEASURES MUST BE AGREED WITH IRISH WATER.

EXISTING PLANTING:

RESTRICTIONS ON TREES/ SHRUBS PLANTING ADJACENT TO SEWERS (WW-06/ W-12) SCALE N.T.S.

Sheet Title: INFRASTRUCTURE STANDARD DETAILS (WW-06/ W-12)

Sheet No. GAR-ISD-003 Rev. A



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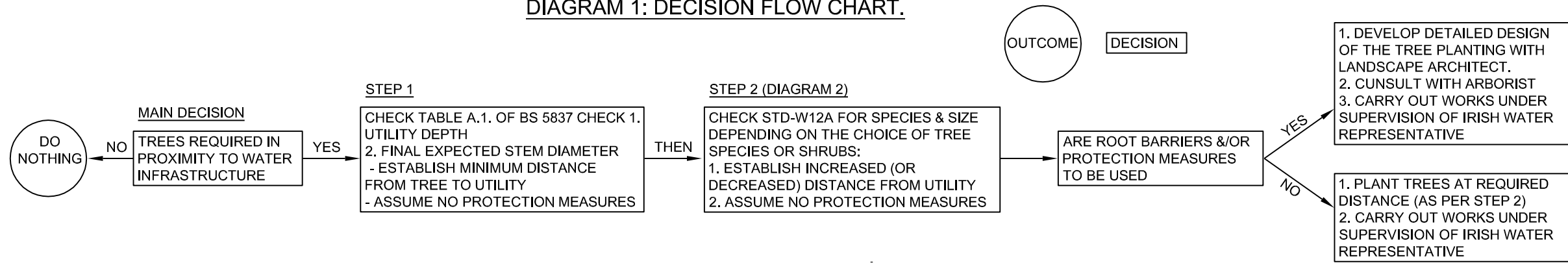
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DIAGRAM 1: DECISION FLOW CHART.



THE DISTANCES GIVEN IN TABLE A.1. OF BS 5837 MUST BE FURTHER INFORMED BY THE SPECIES & DIAGRAM 2 BELOW. DIAGRAM 1 ABOVE PROVIDES A FLOW CHART TO THE DECISION PROCESS WHILST DIAGRAM 2 BELOW IS TO BE USED TO INFORM THE PLANTING REGIME.

PLEASE NOTE THAT TABLE A.1. OF BS 5837 (BELOW) IS TO BE USED TO CALCULATE THE ABSOLUTE MINIMUM DISTANCE BETWEEN NEW TREE PLANTING FROM THE WATER INFRASTRUCTURE (THE SERVICES). THE DISTANCE IS REQUIRED TO AVOID DIRECT DAMAGE TO THE INFRASTRUCTURE FROM FUTURE GROWTH. THE DISTANCE IS A FUNCTION OF THE DEPTH OF THE SERVICES AND THE (FINAL EXPECTED) STEM DIAMETER OF THE TREE AT MATURITY (ie FINAL EXPECTED GROWTH).

TABLE A.1. OF BS 5837	MINIMUM DISTANCE BETWEEN YOUNG TREES OR NEW PLANTING & STRUCTURES, IN METRES (m)		
	FINAL STEM DIA. < 300mm	FINAL STEM DIA. 300mm TO 600mm	FINAL STEM DIA. > 600mm
SERVICES			
< 1m DEEP	0.5	1.5	3.0
> 1m DEEP	-	1.0	2.0

THUS FOR EXAMPLE

- FOR A SERVICE LESS THAN 1 METRE DEEP, THE MINIMUM DISTANCE IS TO BE 1.5m FOR A TREE BETWEEN 300 AND 600mm STEM DIAMETER AT MATURITY.
- FOR A SERVICE GREATER THAN 1 METRE DEEP, THE MINIMUM DISTANCE IS TO BE 1.0m FOR A TREE BETWEEN 300 AND 600mm STEM DIAMETER AT MATURITY.

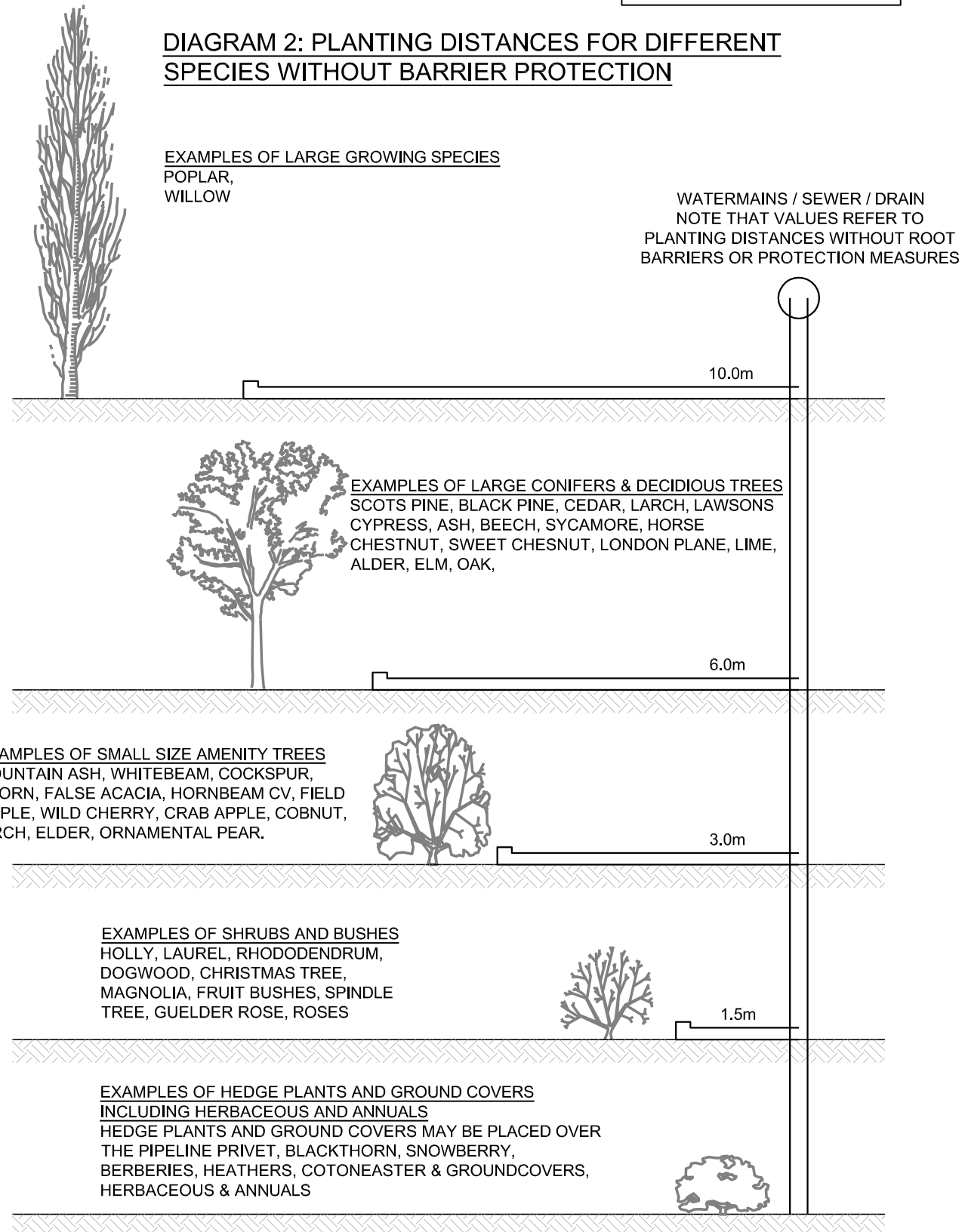
NOTE: RESTRICTIONS RELATE TO INFRASTRUCTURE WITHOUT ROOT INTRUSION PROTECTION.

THE DESIGN OF LANDSCAPING SHALL BE UNDERTAKEN IN CONJUNCTION WITH THE DESIGN OF WATER INFRASTRUCTURE, ETC. THE TREE/BUSHES/SHRUB SHALL NOT BE LOCATED CLOSER TO THE WATER INFRASTRUCTURE THAN INDICATED ABOVE, EXCEPT WHERE SPECIAL PROTECTION MEASURES ARE PROVIDED. WHERE THERE IS A RISK OF TREE/ROOT INTRUSION, THE WATER INFRASTRUCTURE SHALL BE RESISTANT TO TREE ROOT INGRESS (e.g. BY USE OF APPROPRIATE BARRIERS, HIGH PERFORMANCE JOINTS, OR BY USE OF POLYETHYLENE WITH WELDED JOINTS). THE LANDSCAPE DESIGN AND DETAILS OF THE SPECIAL PROTECTION MEASURES MUST BE AGREED WITH IRISH WATER. A TREE SHALL NOT BE PLANTED DIRECTLY OVER WATER INFRASTRUCTURE WHERE EXCAVATION OF THE INFRASTRUCTURE WOULD REQUIRE REMOVAL OF THE TREE UNLESS SUCH PLANTING IS AGREED WITH IRISH WATER AND IN GENERAL ONLY SHALLOW ROOTING SHRUBS SHALL BE PLANTED CLOSE TO WATER INFRASTRUCTURE.

PLEASE ENSURE THAT THESE DISTANCES ARE ADHERED TO IN ORDER TO PROTECT THE TREES FROM ANY FUTURE MAINTENANCE. REFERENCE SHOULD ALSO BE MADE TO BS 5837, BS 8545 AND THE NJUG GUIDELINES VOLUME 4 FOR FURTHER INFORMATION

NOTE
OTHER SPECIES NOT NAMED TO BE PLANTED TO THE SAME SPACINGS DEPENDING ON ROOT FORMATION

DIAGRAM 2: PLANTING DISTANCES FOR DIFFERENT SPECIES WITHOUT BARRIER PROTECTION



DETAIL NOTES

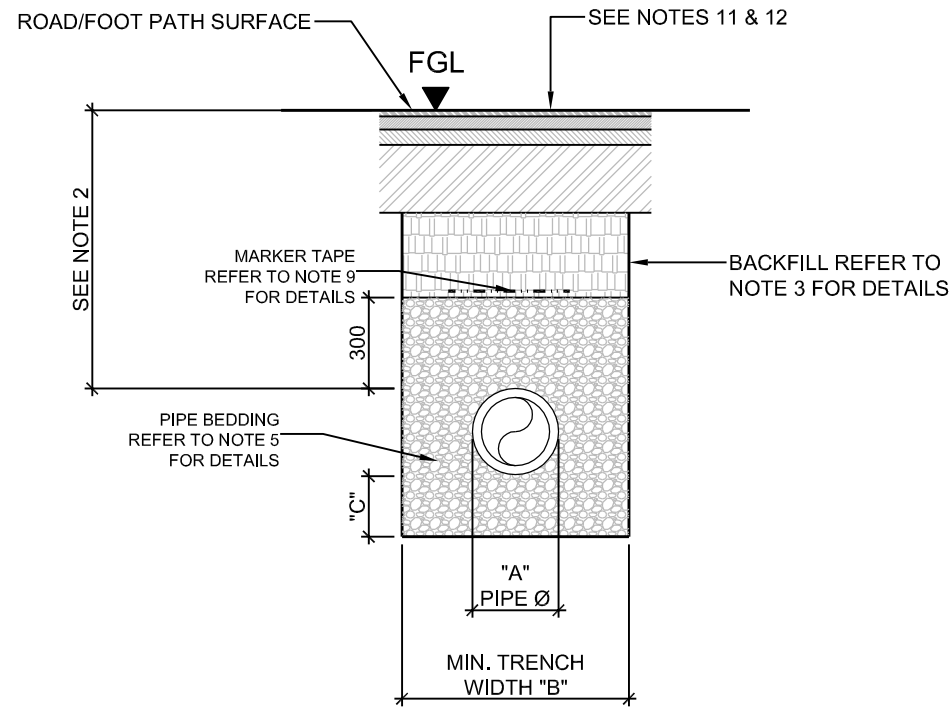
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Sheet No. GAR-ISD-004 Rev. A

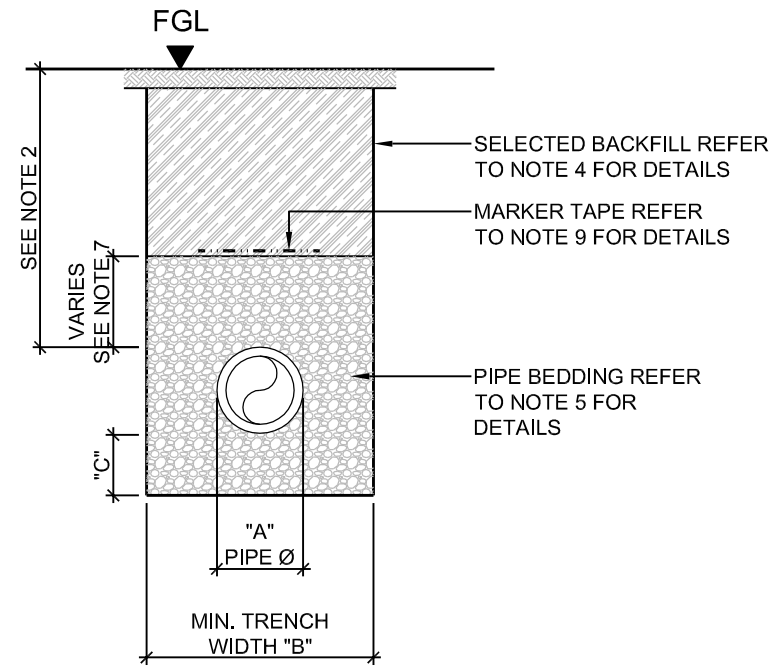
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TYPICAL CROSS SECTION IN ROADS
SCALE N.T.S.



TYPICAL CROSS SECTION IN GRASSED AREAS
SCALE N.T.S.

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

PIPE DIA. "A" (mm)	DEPTH OF BEDDING "C" (mm)
≤ 100mm	100
150mm - 450mm	200

DETAIL NOTES

- DETAIL NO. WW-07/W-13
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 0.9m.
 - DEPTHS OF SEWERS IN GATED ESTATES SHALL BE SIMILAR TO THAT OUTLINED ABOVE.
 - AGRICULTURAL LAND AND PUBLIC OPEN SPACE - DEPTH NOT LESS THAN 0.9m.
 - 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 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 808 IS TO BE COMPACTED AS PER CLAUSE 802 OF THE NATIONAL ROADS AUTHORITY SPECIFICATION FOR ROAD WORKS.
 - SELECTED EXCAVATED MATERIAL MAY BE USED IN GREEN-FIELD AREAS ABOVE GRANULAR PIPE SURROUND MATERIAL SUBJECT TO THE APPROVAL OF 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 GAR002-TDWW-K08.
 - IN SOFT GROUND CONDITIONS (CBR < 5) THE MATERIAL SHOULD BE EXCAVATED AND DISPOSED OF IN ACCORDANCE WITH THE WASTE MANAGEMENT ACT AND CLAUSE 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 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 MAYBE <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.

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INFRASTRUCTURE STANDARD DETAILS
(WW-07/ W-13)

Sheet No. GAR-ISD-005 Rev. A

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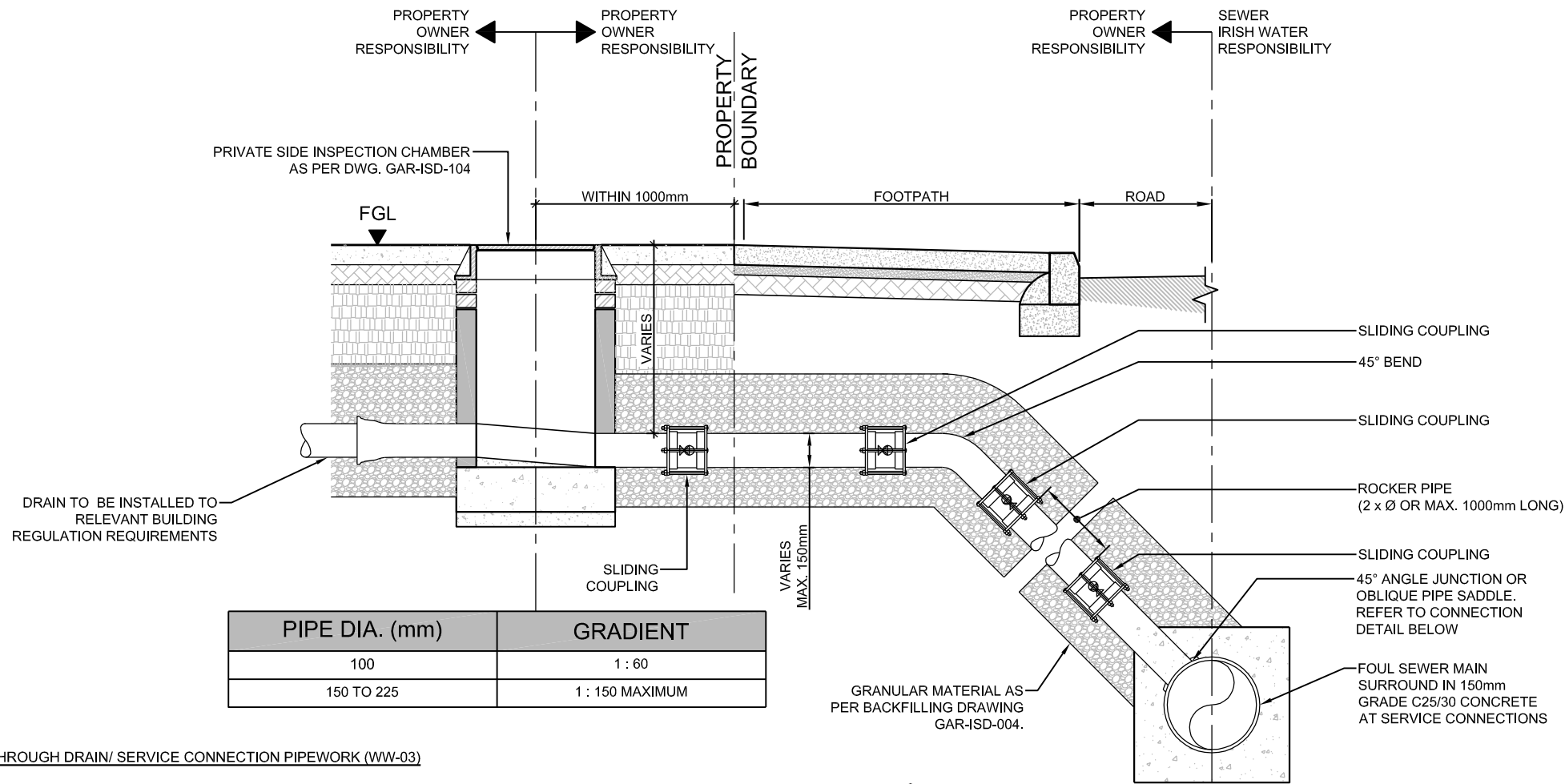
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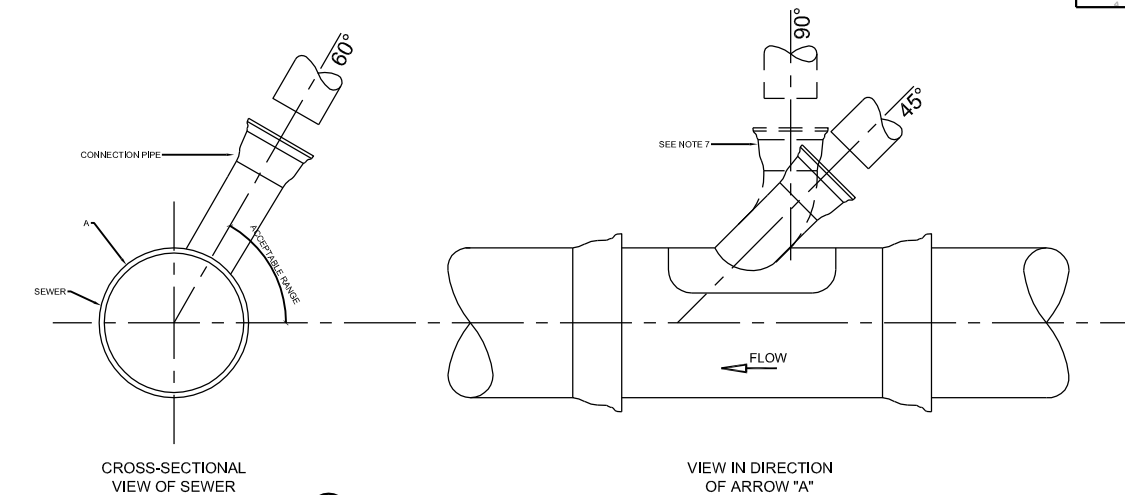
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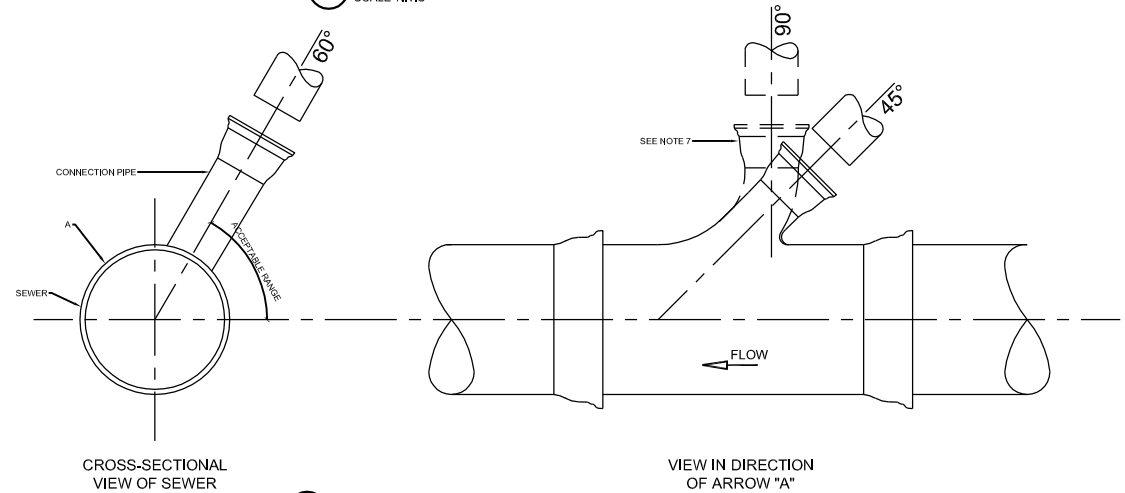




TYPICAL SECTION THROUGH DRAIN/ SERVICE CONNECTION PIPEWORK (WW-03)
SCALE N.T.S



APPROVED 45° SADDLE CONNECTION
SCALE N.T.S



45° JUNCTION CONNECTION
SCALE N.T.S

TYPICAL SEWER/ SERVICE PIPE CONNECTION (WW-04)
SCALE N.T.S

DETAIL NOTES

- DRAIN AND SERVICE CONNECTIONS (WW-003)**
1. AN INSPECTION CHAMBER SHOULD BE LOCATED AT OR WITHIN 1m OF THE PROPERTY BOUNDARY AT THE UPSTREAM END OF EACH SERVICE CONNECTION ON THE PRIVATE SIDE OF THE CURTILAGE. IF PRACTICABLE, CONSULT WITH IW ON ALTERNATIVE LOCATIONS.
 2. ANY PIPE AND ASSOCIATED ACCESS UPSTREAM OF THE POINT OF CONNECTION TO A PUBLIC SEWER WITHIN THE CONFINES OF A PRIVATE BOUNDARY IS A PRIVATE DRAIN AND SHOULD BE CONSTRUCTED IN ACCORDANCE WITH BUILDING REGULATIONS.
- TYPICAL SEWER/SERVICE PIPE CONNECTION (WW-004)**
3. AS FAR AS PRACTICABLE, JUNCTIONS AND SERVICE CONNECTIONS SHALL BE BUILT IN FOR ALL PLANNED USERS WHEN THE SEWER IS BEING CONSTRUCTED, WHERE IT IS NECESSARY TO MAKE A POST-CONSTRUCTION CONNECTION THE DEVELOPER SHALL BRING THE SEWER TO THE INSPECTION CHAMBER, INSTALL THE INSPECTION CHAMBER AND SEAL THE UPSTREAM END UNTIL THE CONNECTION IS REQUIRED.
 4. THE VERTICAL ANGLE BETWEEN THE SERVICE CONNECTING PIPE AND THE HORIZONTAL SHALL BE GREATER THAN 0° AND NOT MORE THAN 60°.
 5. WHERE THE CONNECTION IS BEING MADE TO A SEWER WITH A NOMINAL INTERNAL DIAMETER OF 300mm DIAMETER OR LESS, CONNECTIONS SHALL BE MADE USING 45° ANGLE JUNCTIONS.
 6. WHERE THE CONNECTION IS BEING MADE TO A SEWER WITH A NOMINAL INTERNAL DIAMETER GREATER THAN 300mm :
 - A) IF THE DIAMETER OF THE CONNECTING PIPE IS GREATER THAN HALF THE DIAMETER OF THE SEWER, AN ACCESS MANHOLE SHALL BE CONSTRUCTED TO FORM THE CONNECTION POINT; OR,
 - B) IF THE DIAMETER OF THE CONNECTING PIPE IS LESS THAN OR EQUAL TO HALF THE DIAMETER OF THE SEWER, THEN THE CONNECTION SHALL BE MADE USING A PREFORMED SADDLE FITTING WITH A SLOW BEND BETWEEN THE SADDLE AND THE CONNECTING SEWER/DRAIN .
 7. CONNECTIONS MADE WITH SADDLE FITTINGS SHALL BE MADE BY CUTTING AND SAFELY REMOVING A CORE FROM THE PIPE AND JOINTING THE SADDLE FITTING TO THE PIPE IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS TO ENSURE A WATERTIGHT JOINT, THE CONNECTING PIPE SHALL NOT PROTRUDE INTO THE SEWERS.
 8. THE USE OF 90° CONNECTIONS TO THE SEWER MAY BE ALLOWED SUBJECT TO IRISH REVIEW, PROVIDED THE SADDLE OR BRANCH INCORPORATES A SWEEP TEE CONNECTION TOWARDS THE DIRECTION OF FLOW.

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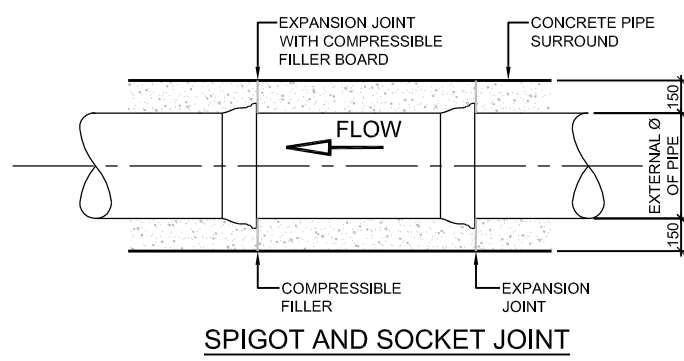
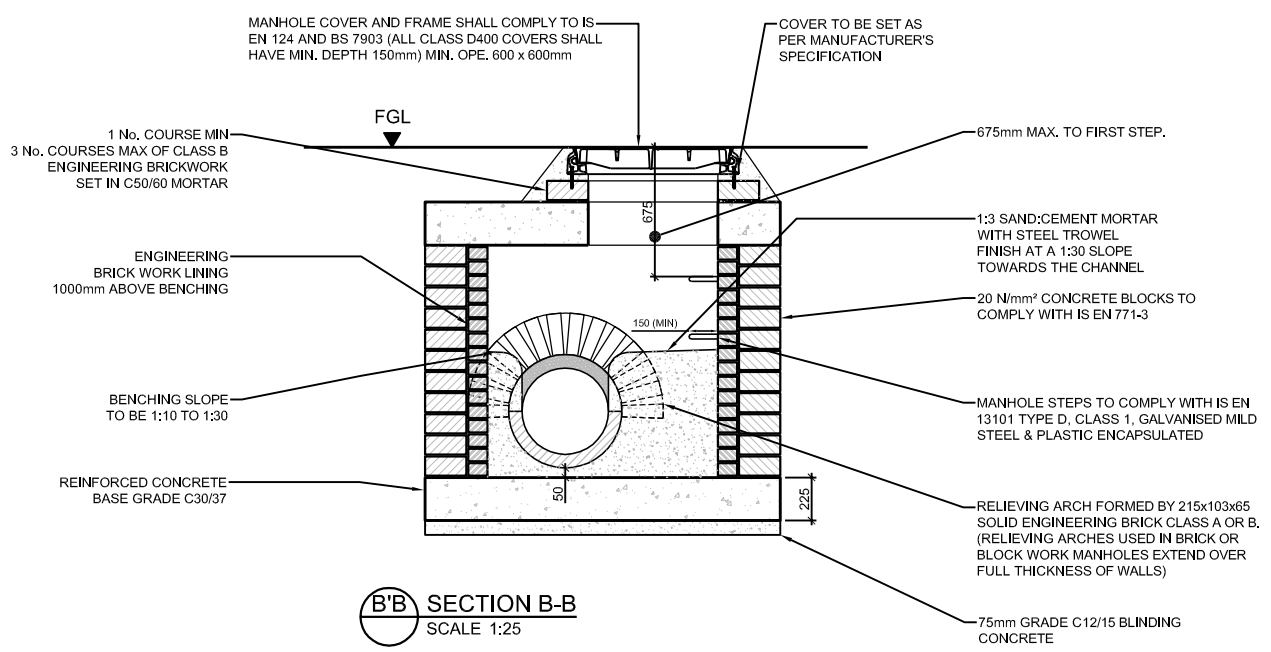
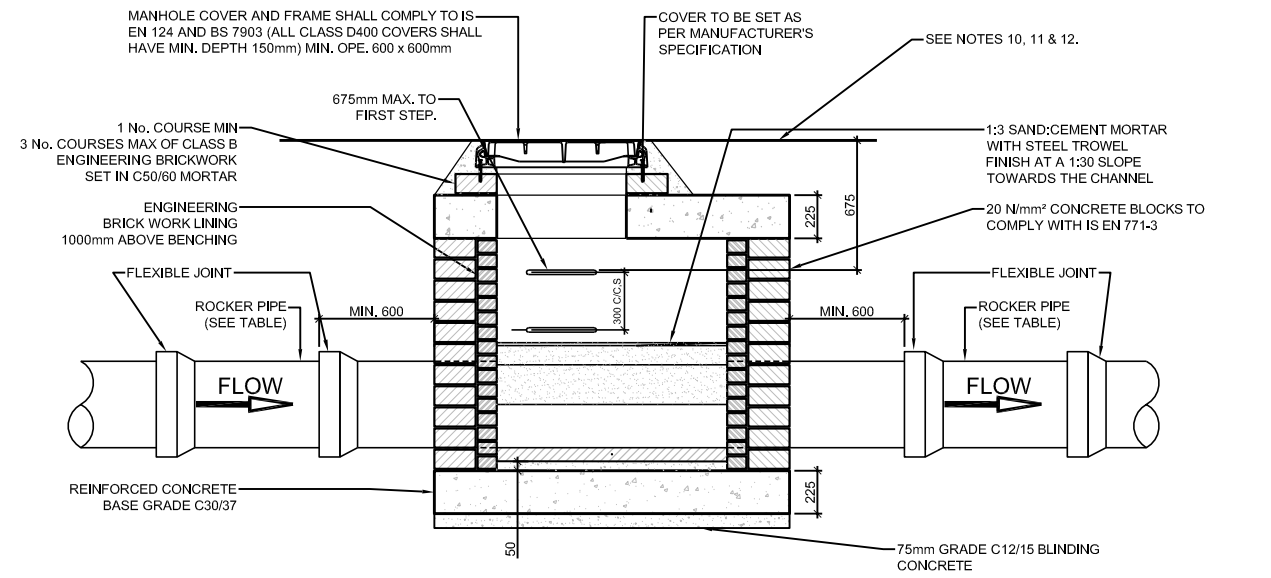
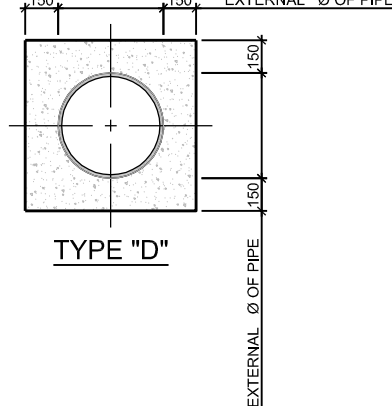
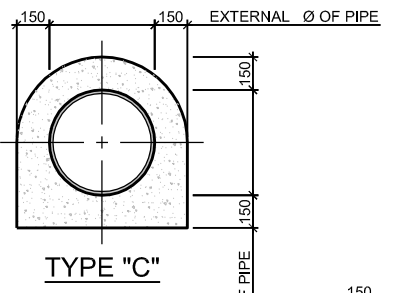
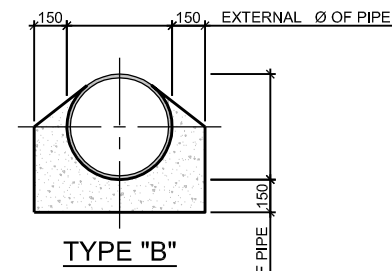
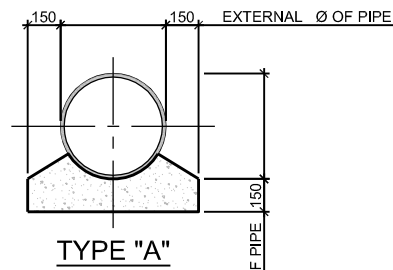
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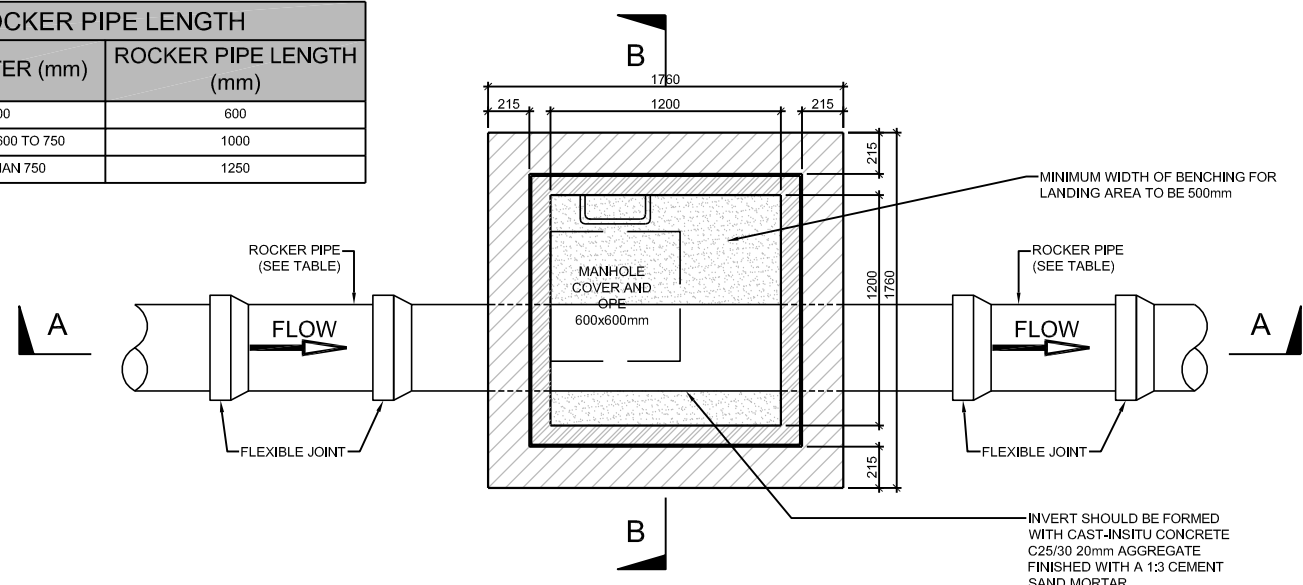
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ROCKER PIPE LENGTH	
PIPE DIAMETER (mm)	ROCKER PIPE LENGTH (mm)
150 TO 600	600
GREATHER THAN 600 TO 750	1000
GREATHER THAN 750	1250



DETAIL NOTES

- WW-08 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 WORKS.
 - CONCRETE PIPE BEDS AND HAUNCHES SHALL HAVE A MINIMUM THICKNESS OF 150mm WITH AN 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 822-1 AND BS EN 822-4, 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.
- WW-09
- SOLID BLOCKWORK TO BE HIGH STRENGTH (20N/mm²) TO IS EN 771.
 - MAXIMUM DEPTH OF BLOCKWORK MANHOLE IS 1.20m (THE USE OF BLOCKWORK IN DEEPER MANHOLES WILL BE CONSIDERED BUT SUCH USE WILL REQUIRE DETAILED STRUCTURAL DESIGN AND BE SUBJECT TO IRISH WATER REVIEW).
 - WALLS TO BE FLUSH POINTED AND NOT PLASTERED INTERNALLY. INTERNAL LINING OF ENGINEERING BRICK TO IS EN 771-1 TO A HEIGHT OF 1M ABOVE BENCHING. ENGINEERING BRICK TO BE BONDED TO BLOCKWORK USING ENGLISH GARDEN WALL BOND.
 - STRUCTURAL DESIGN AND REINFORCEMENT DETAILS FOR ROOF AND BASE SLABS TO BE PROVIDED BY THE DEVELOPER AND SUBMITTED TO IRISH WATER FOR REVIEW. MANHOLE ROOFS SHALL CONSIST OF A REINFORCED CONCRETE SLAB OF IN-SITU CONCRETE, C30/37, WITH A MINIMUM THICKNESS OF 225mm DESIGNED TO CARRY ALL LIVE AND DEAD LOADS. ALTERNATIVELY, APPROVED PRE-CAST CONCRETE ROOF SLABS MAY BE USED SUBJECT TO IRISH WATER REVIEW AND COMPLIANCE WITH BS 5911 PART 4: 2002.
 - COVERS AND FRAMES SHALL BE SUITABLE FOR ROAD AND TRAFFIC CONDITIONS SUBJECT TO REVIEW FROM IRISH WATER.
 - 200mm ALL AROUND, 100mm DEEP CONCRETE PLINTH AROUND COVERS IN GREEN AREAS.
 - ALL CHAMBERS TO BE CHECKED FOR UPLIFT BY THE DEVELOPER BASED ON GROUND CONDITIONS WITHIN THE SITE. SHOULD ANTI FLOTATION MEASURES BE REQUIRED THEY SHALL BE SUBJECT TO REVIEW BY IRISH WATER.
 - ALL CONCRETE TO BE IN ACCORDANCE WITH IS EN 206: 2013.
 - ANY SPECIAL ROAD REINSTATEMENT AROUND COVER & FRAME SHALL BE TO ROAD AUTHORITY'S 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.

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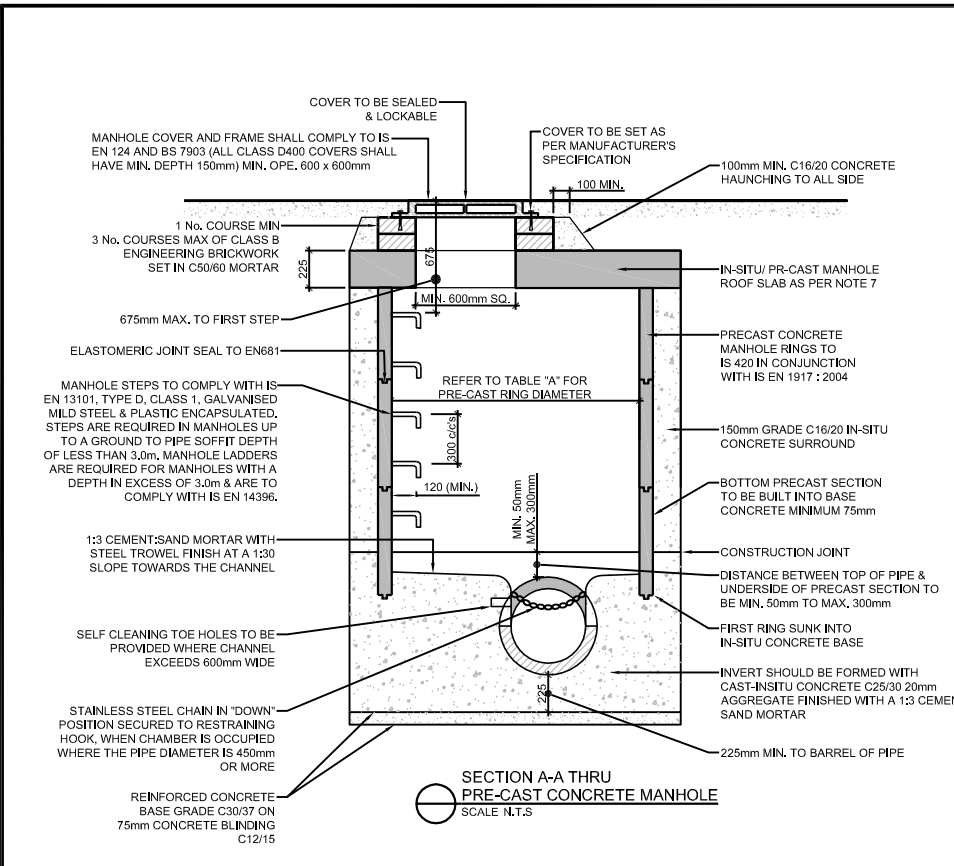
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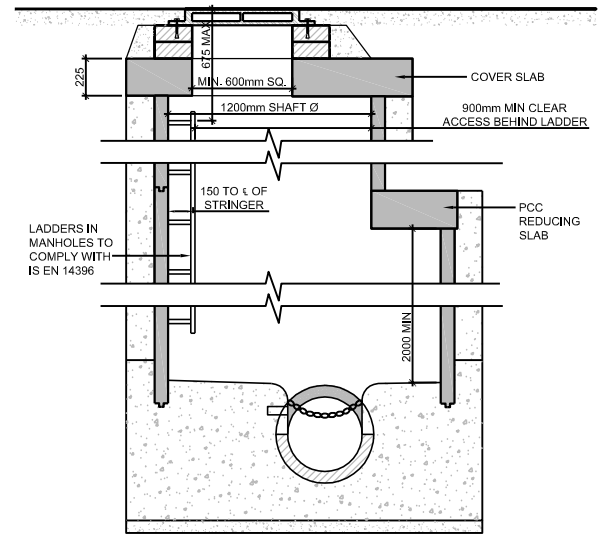
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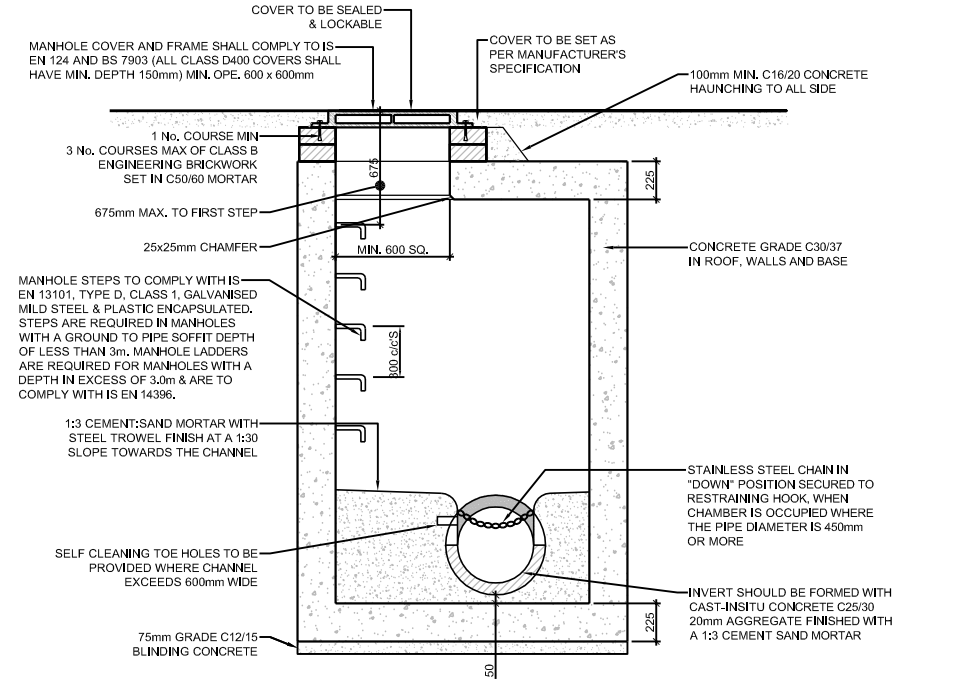


SECTION A-A THRU PRE-CAST CONCRETE MANHOLE
SCALE N.T.S



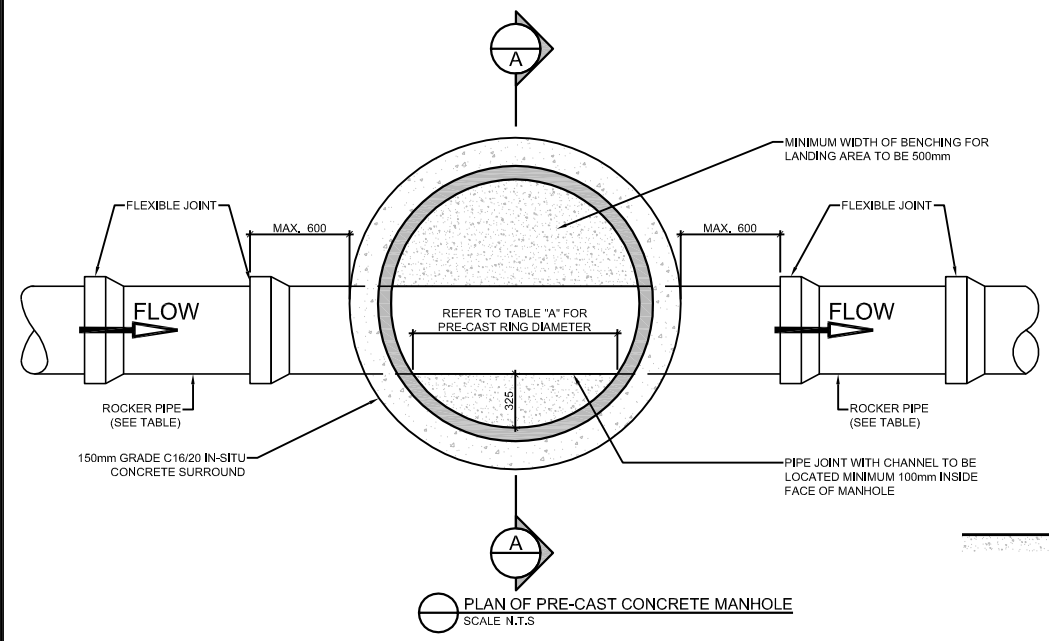
MANHOLE DETAIL >3m & <6m GROUND TO SOFFIT DEPTH
SCALE N.T.S

(NOTE: ON MANHOLES <1.5m Ø, REDUCING SLAB NOT TO BE USED & PCC RINGS TO CONTINUE UP TO COVER SLAB)

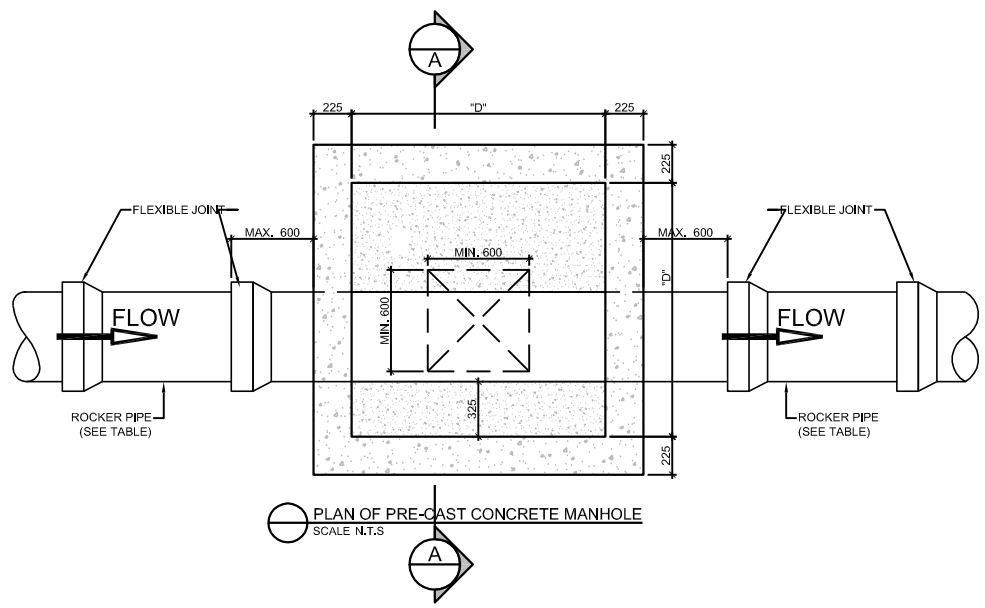


SECTION A-A THRU IN-SITU CONCRETE MANHOLE
SCALE N.T.S

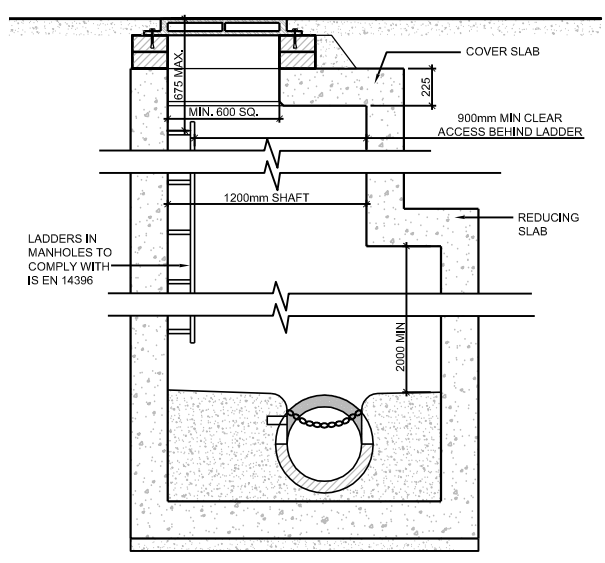
MINIMUM MANHOLE DIMENSION "D"	
MAX. PIPE DIA. IN MANHOLE (mm)	INTERNAL DIMENSION OF MANHOLE (mm)
LESS THAN 375mm	1200
375mm TO 450mm	1350
500mm TO 750mm	1500



PLAN OF PRE-CAST CONCRETE MANHOLE
SCALE N.T.S

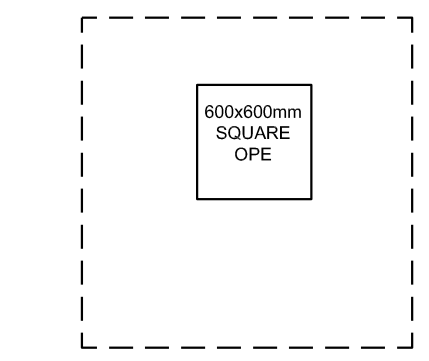


PLAN OF PRE-CAST CONCRETE MANHOLE
SCALE N.T.S



MANHOLE DETAIL >3m & <6m GROUND TO PIPE SOFFIT DEPTH
SCALE N.T.S

(NOTE: ON MANHOLES <1.5m SHAFT DIMENSION, REDUCING SLAB NOT TO BE USED & SHAFT TO CONTINUE UP TO COVER SLAB)



ROOF PLAN OF IN-SITU MANHOLE
SCALE N.T.S

IN-SITU CONCRETE MANHOLE (WW-11)
SCALE N.T.S

ROCKER PIPE LENGTH	
PIPE DIAMETER (mm)	ROCKER PIPE LENGTH (mm)
150 TO 600	600
GREATER THAN 600 TO 750	1000
GREATER THAN 750	1250

TABLE "A" - MIN. MANHOLE DIAMETERS	
MAX. PIPE DIA. IN MANHOLE (mm)	INTERNAL MANHOLE DIA. (mm)
LESS THAN 375mm	1200
375mm TO 450mm	1350
500mm TO 700mm	1500

PRE-CAST CONCRETE MANHOLE (WW-10)
SCALE N.T.S

- DETAIL NOTES**
- ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
 - PRE-CAST MANHOLES UNITS: COMPLYING WITH REQUIREMENTS OF IS EN 1917 AND BS 5911-PART 3.
 - THICKER MANHOLE BASES REQUIRED FOR SEWERS IN EXCESS OF 3m DEEP WHERE THE SIZE IS GREATER THAN THE STANDARD MINIMUM SIZE.
 - APPROVED PRE-CAST CONCRETE BASES MAY BE USED INCORPORATING CHANNELS, BENCHING ETC. SUBJECT TO IRISH WATER APPROVAL AND COMPLYING WITH BS 5911-PART 4: 2002.
 - STRUCTURAL DESIGN AND REINFORCEMENT DETAILS TO BE PROVIDED BY THE DEVELOPER AND SUBMITTED TO IRISH WATER FOR REVIEW.
 - MANHOLES GREATER THAN 3m IN DEPTH WILL REQUIRE A DETAILED STRUCTURAL DESIGN AND BE SUBJECT TO IRISH WATER APPROVAL.
 - MANHOLE ROOFS SHOULD CONSIST OF REINFORCED CONCRETE SLAB OF IN-SITU CONCRETE, C30/37, WITH A MINIMUM THICKNESS OF 225mm DESIGNED TO CARRY ALL LIVE AND DEAD LOADS. ALTERNATIVELY, APPROVED PRE-CAST CONCRETE ROOF SLABS MAY BE USED SUBJECT TO IRISH WATER APPROVAL AND COMPLIANCE WITH BS 5911 PART 4: 2002.
 - COVERS AND FRAMES SHALL BE SUITABLE FOR ROAD AND TRAFFIC CONDITIONS SUBJECT TO APPROVAL FROM IRISH WATER.
 - 200mm ALL AROUND, 100mm DEEP CONCRETE PLINTH WITH PROTECTIVE STAINLESS STEEL METAL BAND AROUND COVERS IN GREEN AREAS.
 - ALL CHAMBERS TO BE CHECKED FOR UPLIFT BY THE DEVELOPER BASED ON GROUND CONDITIONS WITHIN THE SITE. SHOULD ANTI-FLOATATION MEASURES BE REQUIRED THEY SHALL BE SUBJECT TO APPROVAL FROM IRISH WATER.
 - ALL CONCRETE TO BE IN ACCORDANCE WITH IS EN 206:2013.
 - IN-SITU MANHOLES TO HAVE A MINIMUM WALL AND FLOOR THICKNESS OF 225mm FOR MANHOLE DEPTHS UP TO 3.0m AND 300mm OR MORE WHEN THE MANHOLE DEPTH EXCEEDS 3.0m.
 - ANY SPECIAL ROAD REINSTATEMENT AROUND COVER & FRAME SHALL BE TO ROAD AUTHORITY'S 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.
 - IF DEPTH FROM GROUND TO PIPE SOFFIT IS GREATER THAN 6m DEEP, A SITE SPECIFIC ENGINEERED SOLUTION FOR ACCESS SHALL BE PROVIDED.
 - PROPRIETARY WATERTIGHT PCC MANHOLE RING SYSTEMS WITH A WALL THICKNESS = 125mm, & A WATER TIGHT JOINT SEALING SYSTEM, MAY BE USED WITHOUT CONCRETE SURROUND, SUBJECT TO THE GROUND WATER LEVEL AT THE MANHOLE BEING LOW, & SUBJECT TO REVIEW BY IRISH WATER.

Sheet Title:
INFRASTRUCTURE STANDARD DETAILS
(WW-10/ WW-11)

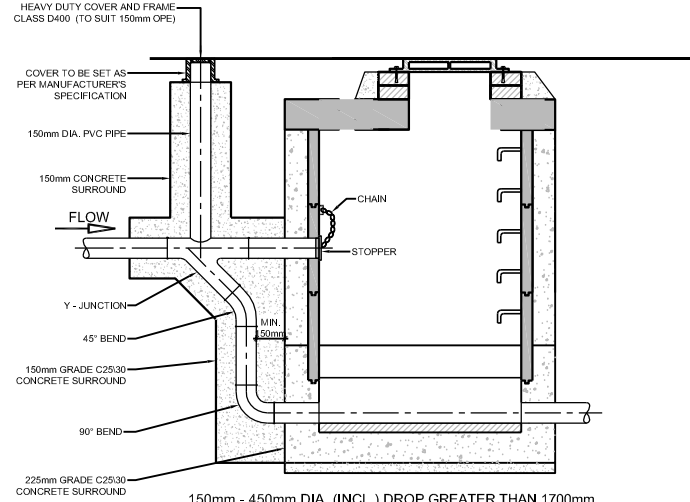
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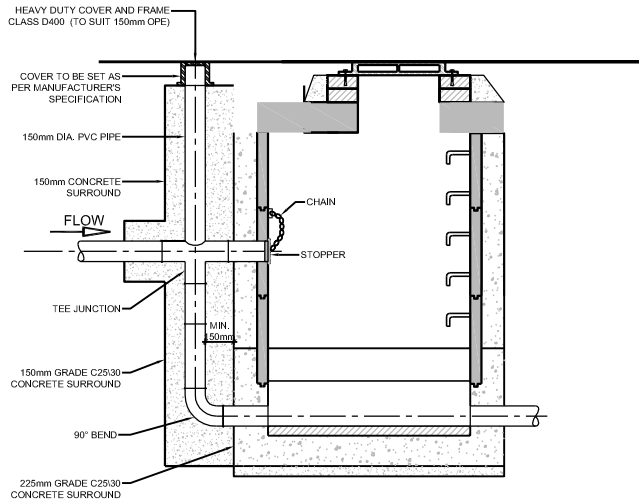
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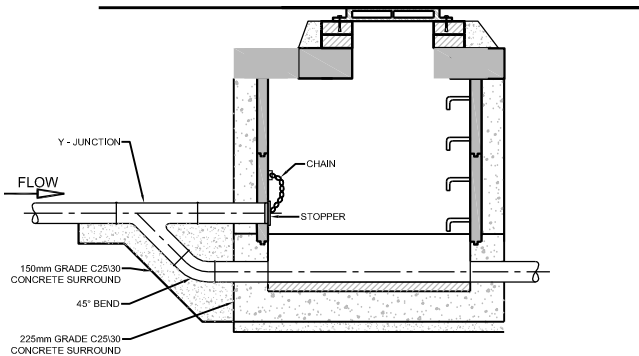
150mm - 450mm DIA. (INCL.) DROP GREATER THAN 1700mm
500mm - 900mm DIA. (INCL.) DROP GREATER THAN 2300mm

BACKDROP MANHOLES - TYPE 1
SCALE N.T.S.



150mm - 450mm DIA. (INCL.) DROP GREATER THAN 900mm AND LESS THAN 1700mm
500mm - 900mm DIA. (INCL.) DROP GREATER THAN 1300mm AND LESS THAN 2300mm

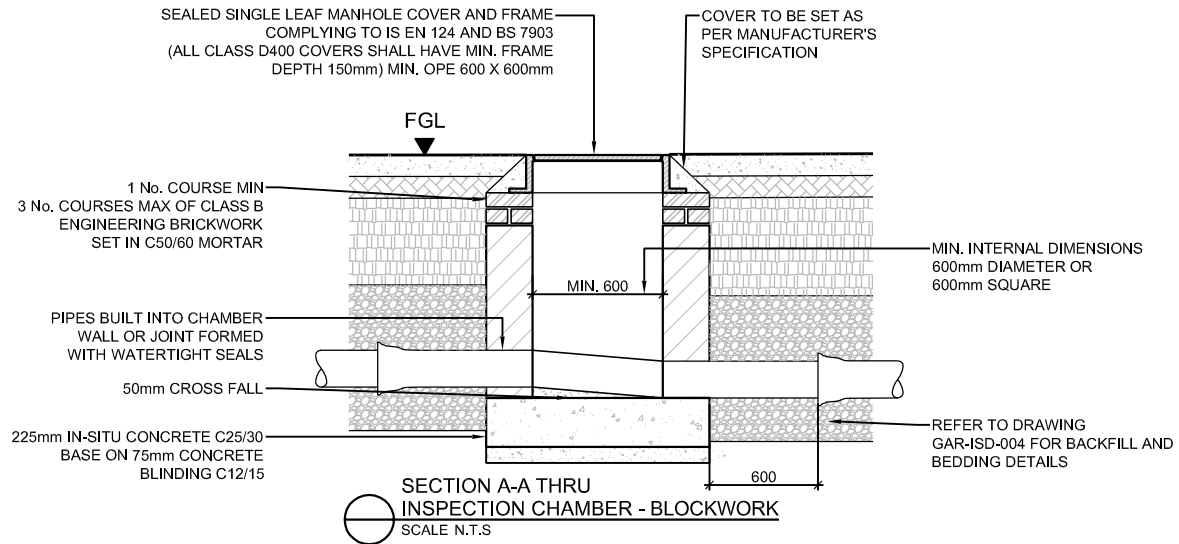
BACKDROP MANHOLES - TYPE 2
SCALE N.T.S.



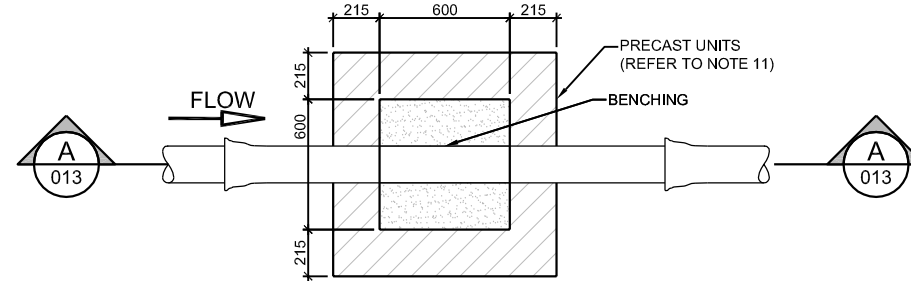
150mm - 450mm DIA. (INCL.) DROP GREATER THAN 600mm AND LESS THAN 900mm
500mm - 900mm DIA. (INCL.) DROP GREATER THAN 600mm AND LESS THAN 1300mm

BACKDROP MANHOLES - TYPE 3
SCALE N.T.S.

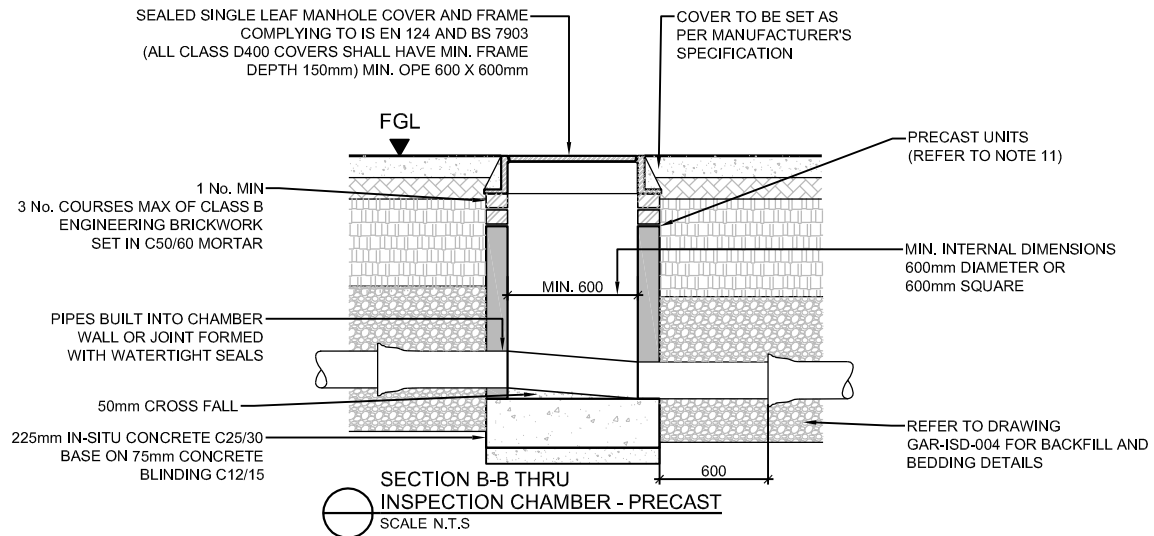
BACKDROP MANHOLES (WW- 12)
SCALE N.T.S.



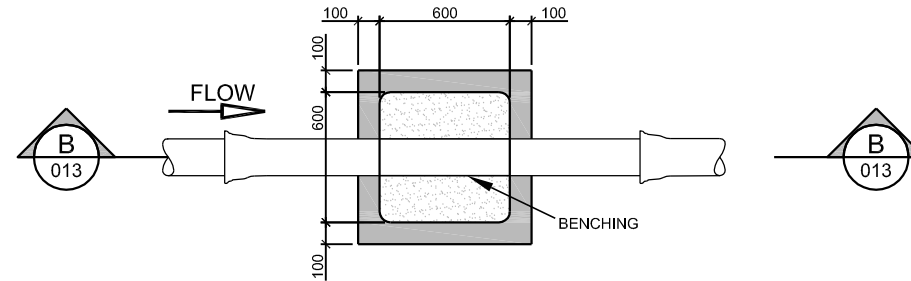
SECTION A-A THRU
INSPECTION CHAMBER - BLOCKWORK
SCALE N.T.S.



PLAN OF INSPECTION CHAMBER - BLOCKWORK
SCALE N.T.S.



SECTION B-B THRU
INSPECTION CHAMBER - PRECAST
SCALE N.T.S.



PLAN OF INSPECTION CHAMBER - PRECAST
SCALE N.T.S.

PRIVATE SIDE INSPECTION CHAMBER (WW- 13)
SCALE N.T.S.

DETAIL NOTES


- ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
- RODDING EYE CHAMBER SHALL BE COVERED WITH APPROVED HEAVY DUTY METAL COVERS TO IS 281 AND BS 5834. COVER AND FRAME SHALL BE SUITABLE FOR ROAD AND TRAFFIC CONDITIONS AND IS SUBJECT TO REVIEW BY IRISH WATER.
- ALL CHAMBERS TO BE CHECKED FOR UPLIFT BY THE DEVELOPER BASED ON GROUND CONDITIONS WITHIN THE SITE. SHOULD ANTI-FLOATATION MEASURES BE REQUIRED THEY SHALL BE SUBJECT TO REVIEW BY IRISH WATER.
- ALL CONCRETE TO BE IN ACCORDANCE WITH IS EN 206.
- MANHOLE DETAILS TO BE IN ACCORDANCE WITH GAR-1SD-102 & 103.
- AN INSPECTION CHAMBER SHOULD BE LOCATED AT OR WITHIN 1m OF THE PROPERTY BOUNDARY AT THE UPSTREAM END OF EACH SERVICE CONNECTION ON THE PRIVATE SIDE OF THE CURTILAGE. IF PRACTICABLE, CONSULT WITH IW IN ALTERNATIVE LOCATIONS.
- ANY PIPE AND ASSOCIATED ACCESS UPSTREAM OF THE POINT OF CONNECTION TO A PUBLIC SEWER IS A PRIVATE DRAIN AND SHOULD BE CONSTRUCTED IN ACCORDANCE WITH THE BUILDING REGULATIONS.
- ACCESS POINTS SHOULD BE LOCATED SO THAT THEY ARE ACCESSIBLE AND APPARENT TO THE MAINTAINER AT ALL TIMES FOR USE. THEY SHOULD AVOID REAR GARDENS OR ENCLOSED LOCATIONS AND THEY SHOULD NEVER BE OVERLAIN WITH SURFACE DRESSING, TOPSOIL, ETC.
- COVERS AND FRAMES SHALL BE SUITABLE FOR ROAD AND TRAFFIC CONDITIONS SUBJECT TO REVIEW BY IRISH WATER.
- 200mm ALL AROUND, 100mm DEEP CONCRETE PLINTH AROUND COVERS IN GREEN AREAS.
- PROPRIETARY PREFABRICATED CHAMBER UNITS MAY ALSO BE USED. SUBJECT TO REVIEW BY IRISH WATER.
- CONCRETE CHAMBERS SHALL BE SURROUNDED BY A MINIMUM OF 150mm COMPACTED CLAUSE 808 MATERIAL AS PER GAR-1SD-004.

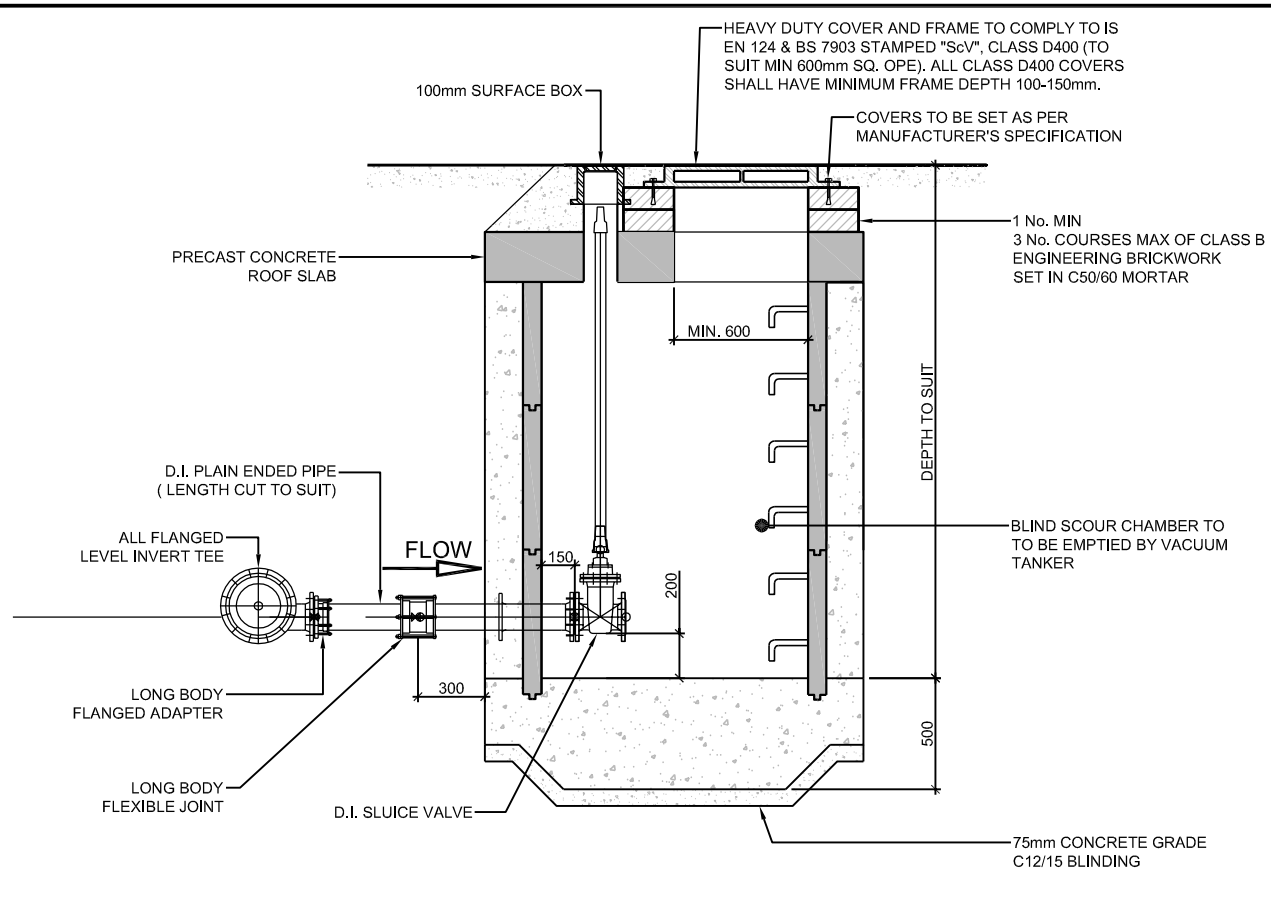
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INFRASTRUCTURE STANDARD DETAILS
(WW-12/ WW-13)

Sheet No. GAR-1SD-104 Rev. A

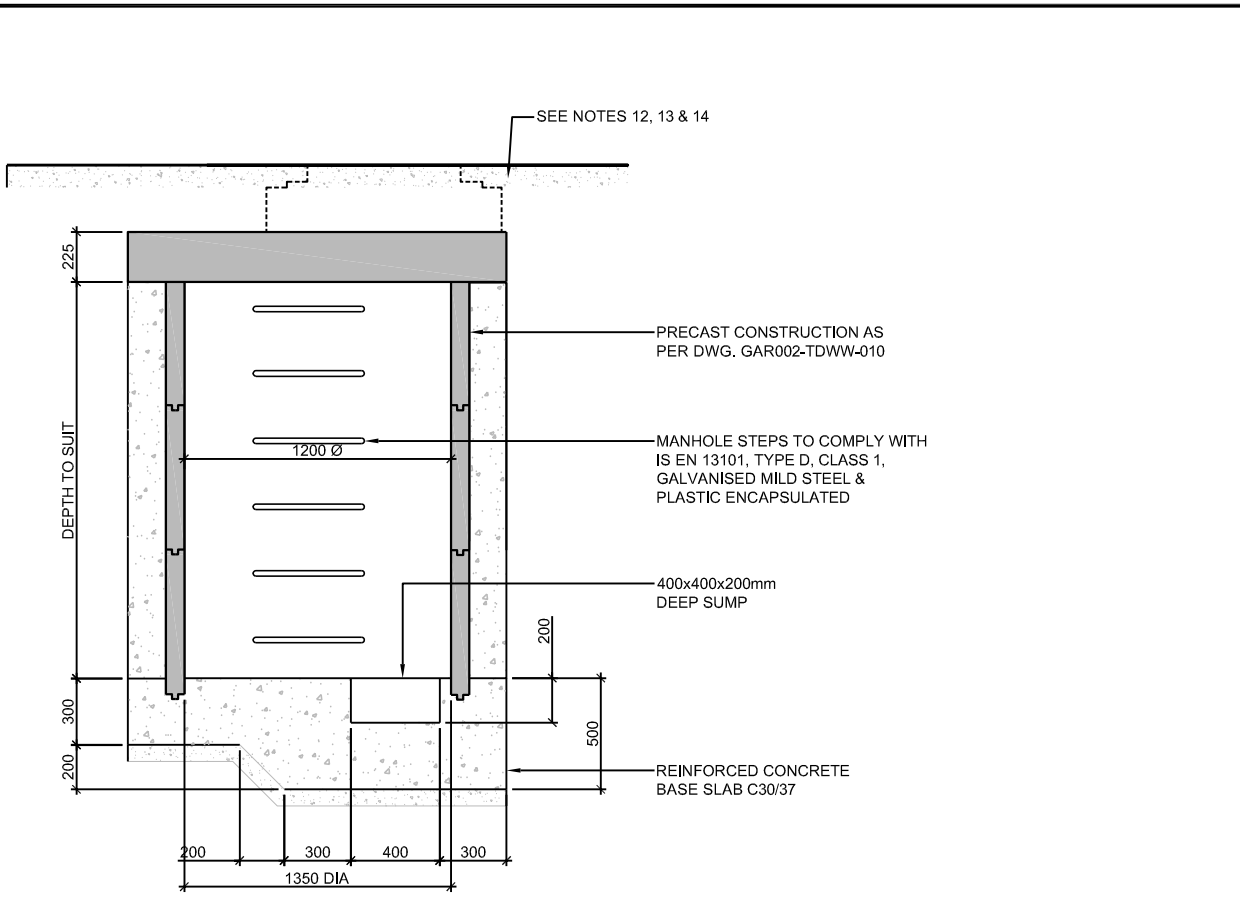
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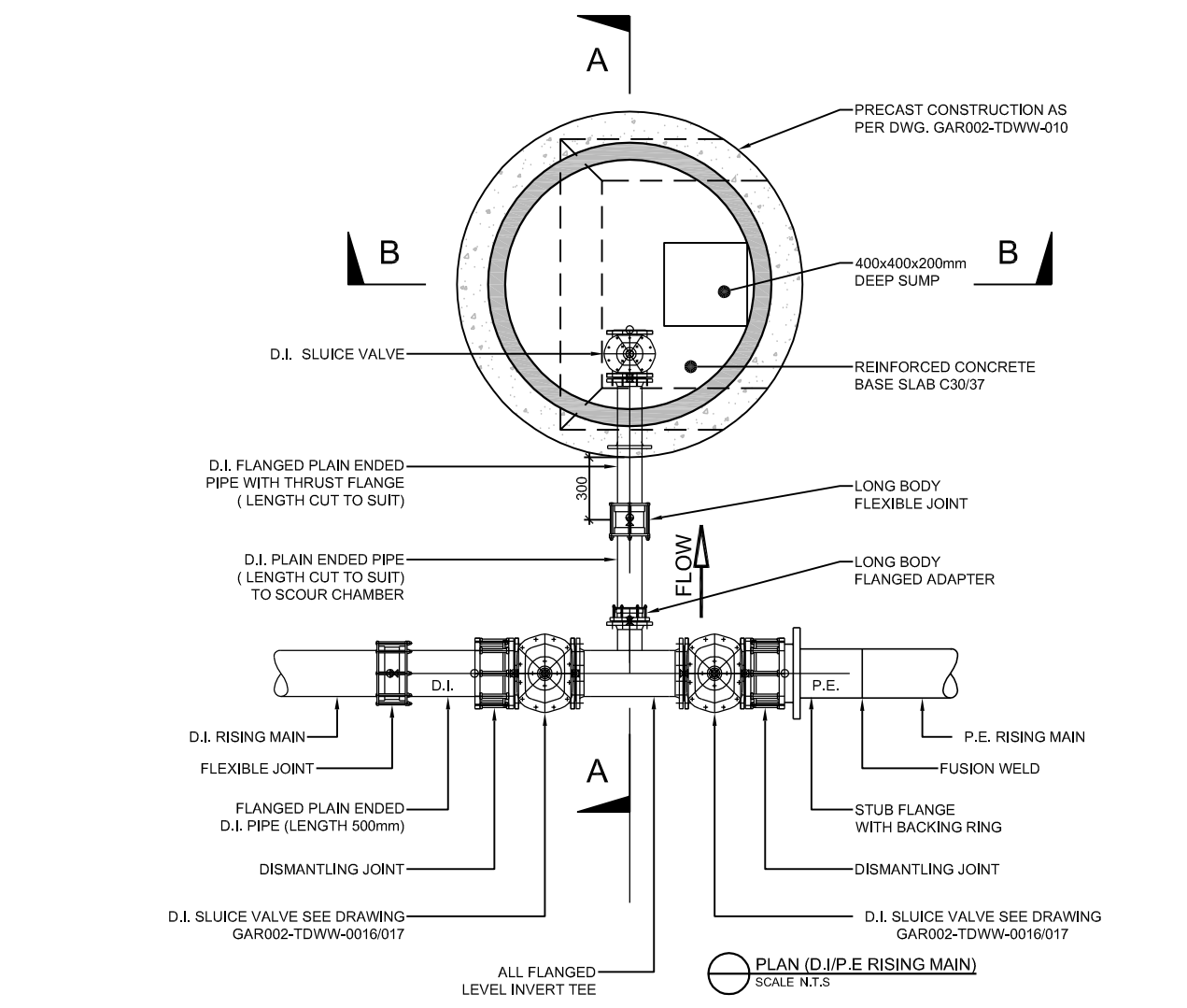
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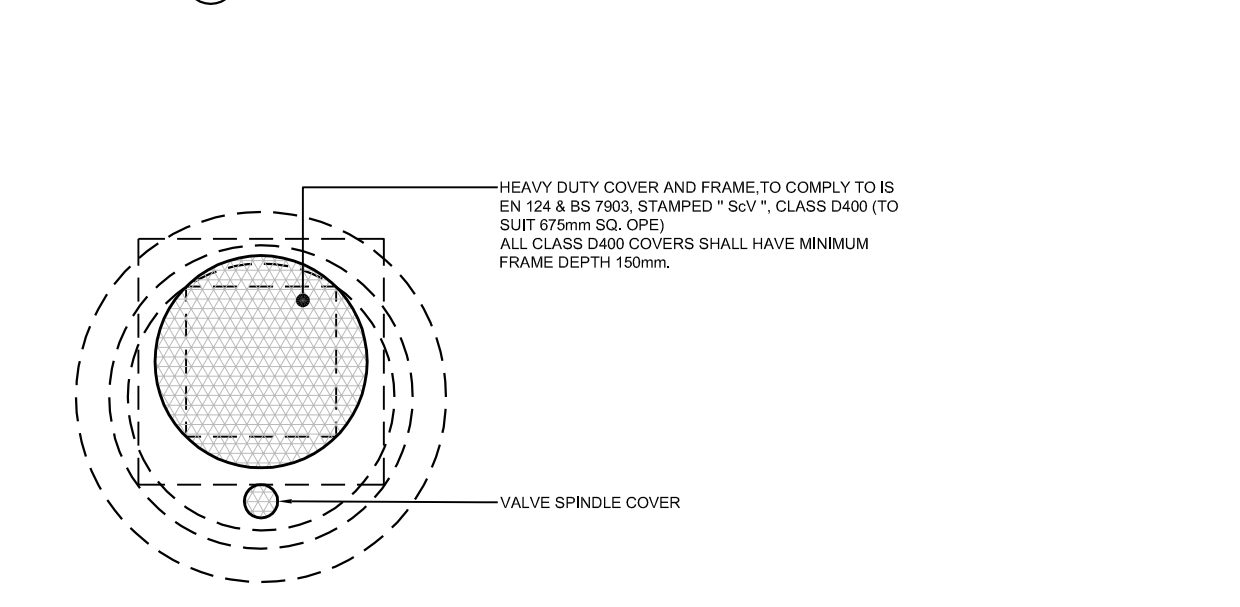
SECTION A-A
SCALE N.T.S



SECTION B-B
SCALE N.T.S



PLAN (D.I./P.E. RISING MAIN)
SCALE N.T.S



ROOF PLAN
SCALE N.T.S

FOUL RISING MAIN <200mm DIA.

DIA. OF RISING MAIN (mm)	DIA. OF SCOUR (mm)
80mm	80
100mm TO 200mm	100

**SCOUR VALVE CHAMBER
FOUL RISING MAIN (<200mm DIA.) (WW-15)**
SCALE N.T.S

- DETAIL NOTES**
- ALL DIMENSIONS IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
 - VALVE SURFACE BOX TO BE IN ACCORDANCE WITH IS 261 AND BS 5834. SCOUR CHAMBERS SHALL BE COVERED WITH APPROVED HEAVY DUTY METAL COVERS TO IS EN 124 RATING D400. COVERS AND FRAMES SHALL BE SUITABLE FOR ROAD AND TRAFFIC CONDITIONS SUBJECT TO REVIEW BY IRISH WATER.
 - SLUCE VALVES SHALL BE DOUBLE FLANGED WITH DUCTILE IRON RESILIENT SEAL GATE VALVES, SUITABLE FOR USE IN RISING MAINS. THEY SHALL COMPLY WITH THE REQUIREMENTS OF IS EN 1074 AND THEY SHALL HAVE THE APPROPRIATE CE MARKING.
 - SCOUR CHAMBER TO BE IN ACCORDANCE WITH BS EN 1992-3.
 - STRUCTURAL DESIGN AND REINFORCEMENT DETAILS TO BE PROVIDED BY THE DEVELOPER AND SUBMITTED TO IRISH WATER FOR REVIEW. ROOF SLABS SHALL BE DESIGNED TO CARRY ALL LIVE LOADS & DEAD LOADS, & CONSIST OF A REINFORCED CONCRETE SLAB OF IN-SITU CONCRETE, GRADE C30/37, WITH A MINIMUM THICKNESS OF 225mm. ALTERNATIVELY, PRE-CAST CONCRETE ROOFS MAY BE USED, SUBJECT TO IRISH WATER REVIEW, & COMPLIANCE WITH BS 5911 Part 4.
 - THRUST BLOCKS (NOT SHOWN ON DRAWING), TO BE PROVIDED AS PER STANDARD DRAWING GAR002-TDWW-014 AT ALL TEES, BENDS, TAPERS, DEAD ENDS AND PIPES AT STEEP SLOPES.
 - 200mm ALL AROUND, 100mm DEEP CONCRETE PLINTH AROUND COVERS IN GREEN AREAS.
 - ANTI CORROSION TAPE TO BE PROVIDED AROUND BURIED FLANGES.
 - ALL CONCRETE TO BE IN ACCORDANCE WITH IS EN 206.
 - ALL DUCTILE IRON PIPEWORK AND FITTINGS TO BE IN ACCORDANCE WITH IS EN 588.
 - ALL CHAMBERS TO BE CHECKED FOR UPLIFT BY THE DEVELOPER BASED ON GROUND CONDITIONS WITHIN THE SITE. SHOULD ANTI FLOATATION MEASURES BE REQUIRED THEY SHALL BE SUBJECT TO APPROVAL FROM IRISH WATER.
 - ANY SPECIAL ROAD REINSTATEMENT AROUND COVER & FRAME SHALL BE TO ROAD AUTHORITY'S 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.

Sheet Title:
INFRASTRUCTURE STANDARD DETAILS (WW-15)

Sheet No. **GAR-ISD-105** Rev. **A**

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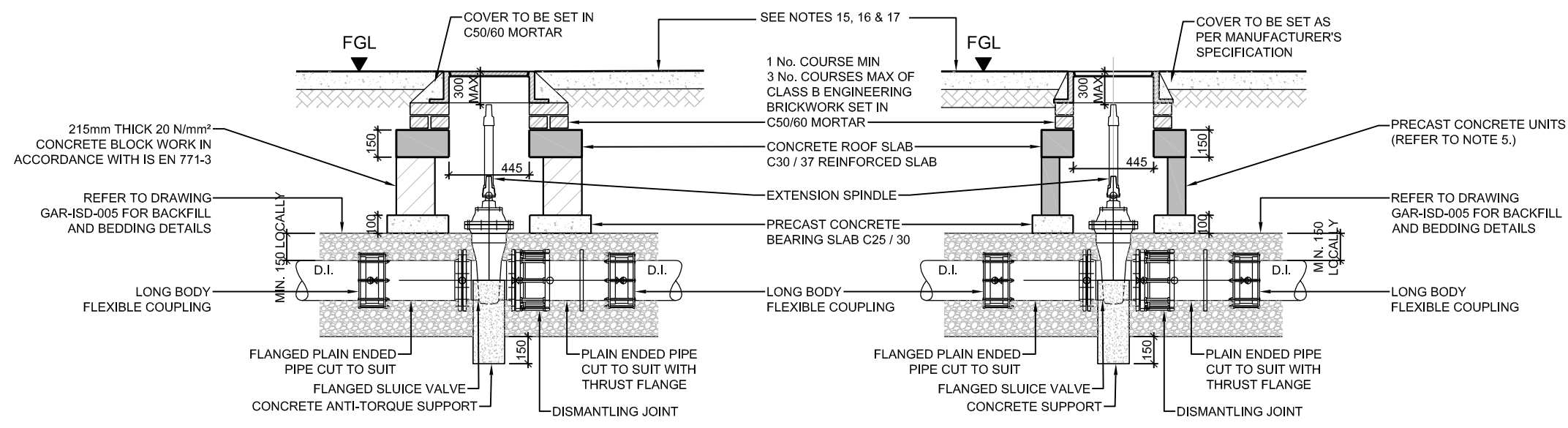
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NSAI/COR/CURRENT STANDARD INFRASTRUCTURE DETAILS/SERIES WASTEWATER/GAR/ISD/SERIES - JAN 2016/DWG

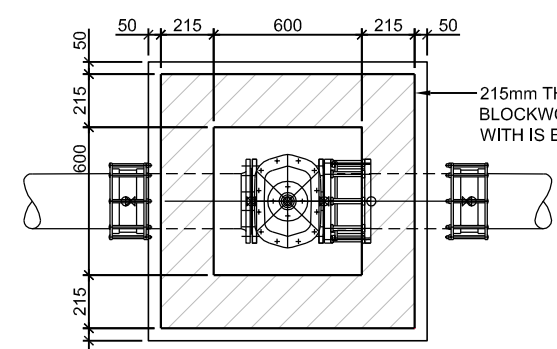
DETAIL NOTES

- ALL DIMENSIONS IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
- SLUICE VALVE CHAMBERS SHALL BE COVERED WITH APPROVED HEAVY DUTY METAL COVERS TO IS 261 AND BS 5834. COVER AND FRAME SHALL BE SUITABLE FOR ROAD AND TRAFFIC CONDITIONS AND IS SUBJECT TO REVIEW BY IRISH WATER.
- SLUICE VALVES SHALL BE DOUBLE FLANGED WITH DUCTILE IRON RESILIENT SEAL GATE VALVES, SUITABLE FOR USE IN RISING MAINS. THEY SHALL COMPLY WITH THE REQUIREMENTS OF IS EN 1074 AND THEY SHALL HAVE THE APPROPRIATE CE MARKINGS.
- ALL SLUICE VALVES SHALL BE CLOCKWISE CLOSING.
- VALVE CHAMBER TO BE CONSTRUCTED OF PRECAST CONCRETE UNITS OR HIGH DENSITY BLOCKWORK. ALTERNATIVELY PROPRIETARY PREFABRICATED CHAMBER UNITS MAY ALSO BE USED, SUBJECT TO REVIEW BY IRISH WATER. ROOF SLABS SHALL BE DESIGNED TO CARRY ALL LIVE LOADS & DEAD LOADS, & CONSIST OF A REINFORCED CONCRETE SLAB OF IN-SITU CONCRETE, GRADE C30/37, WITH A MINIMUM THICKNESS OF 150mm. ALTERNATIVELY, PRE-CAST CONCRETE ROOFS MAY BE USED, SUBJECT TO IRISH WATER REVIEW, & COMPLIANCE WITH BS 5911, Part 4.
- CONCRETE CHAMBERS SHALL BE SURROUNDED BY A MINIMUM OF 150mm COMPACTED CLAUSE 808 MATERIAL AS PER GAR-ISD-004.
- ALL CONCRETE TO BE IN ACCORDANCE WITH IS EN 206 : 2013.
- DUCTILE IRON PIPES AND FITTINGS TO BE IN ACCORDANCE WITH IS EN 598.
- PE PIPES TO BE IN ACCORDANCE WITH IS EN 12201 : 2011.
- 200mm ALL AROUND, 100mm DEEP CONCRETE PLINTH AROUND COVERS IN GREEN AREAS.
- THRUST BLOCKS (NOT SHOWN ON DRAWING), TO BE PROVIDED AS PER STANDARD DRAWING GAR-ISD-002 AT ALL TEES, BENDS, TAPERS, DEAD ENDS AND PIPES AT STEEP SLOPES.
- ANTI-CORROSION TAPE TO BE PROVIDED AROUND BURIED FLANGES.
- ALL CHAMBERS TO BE CHECKED FOR UPLIFT BY THE DEVELOPER BASED ON GROUND CONDITIONS WITHIN THE SITE SHOULD ANTI-FLOATATION MEASURES BE REQUIRED THEY SHALL BE SUBJECT TO REVIEW BY IRISH WATER.
- ALL THRUST FLANGES TO BE ADEQUATELY RESTRAINED BY THRUST BLOCKS AS PER DRAWING No. GAR-ISD-002. THRUST BLOCKS NOT SHOWN FOR CLARITY.
- ANY SPECIAL ROAD REINSTATEMENT AROUND COVER & FRAME SHALL BE TO ROAD AUTHORITY'S 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.

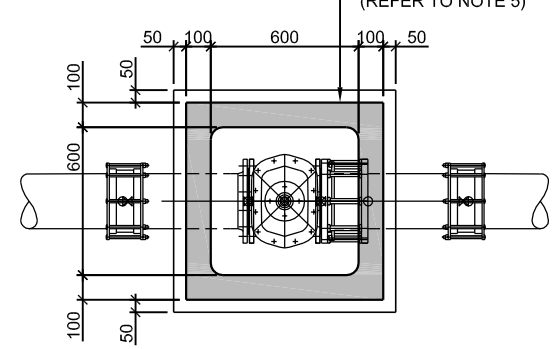


BLOCKWORK SECTION
SCALE N.T.S

PRECAST SECTION
SCALE N.T.S

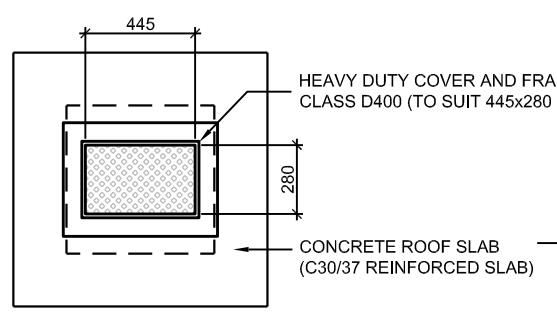


SLUICE VALVE CHAMBER- BLOCKWORK
SCALE N.T.S

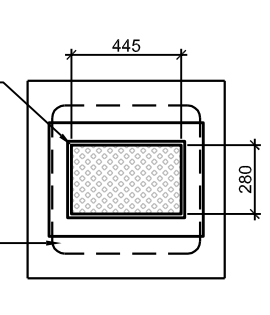


SLUICE VALVE CHAMBER- PRECAST
SCALE N.T.S

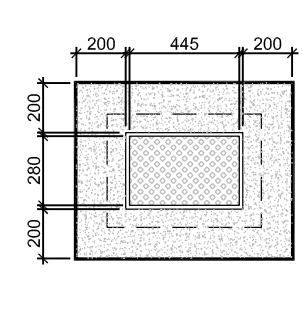
SLUICE VALVE DETAILS FOR RISING MAINS DUCTILE IRON (D.I.) PIPE (<200mm DIA.)
SCALE N.T.S



BLOCKWORK SV ROOF PLAN
SCALE N.T.S



PRECAST SV ROOF PLAN
SCALE N.T.S



SV PLINTH DETAIL IN GRASS AREAS
SCALE N.T.S

SLUICE VALVE DETAILS FOR RISING MAINS DUCTILE IRON (D.I.) PIPE (<200mm DIA.) (SHEET 1/2) (WW-16)
SCALE N.T.S

Sheet Title:
INFRASTRUCTURE STANDARD DETAILS (WW-16)

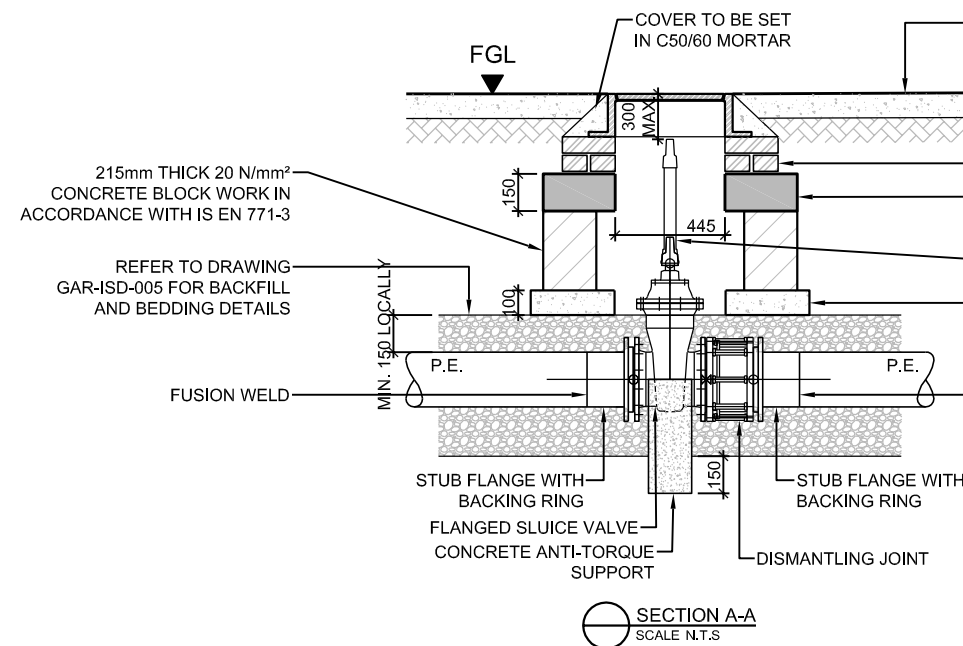
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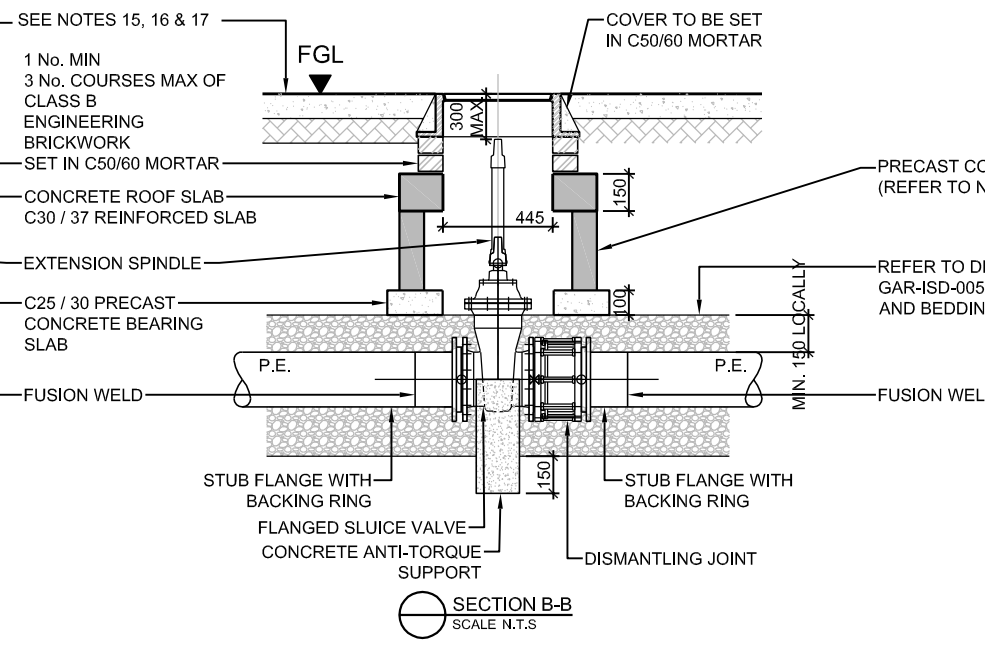
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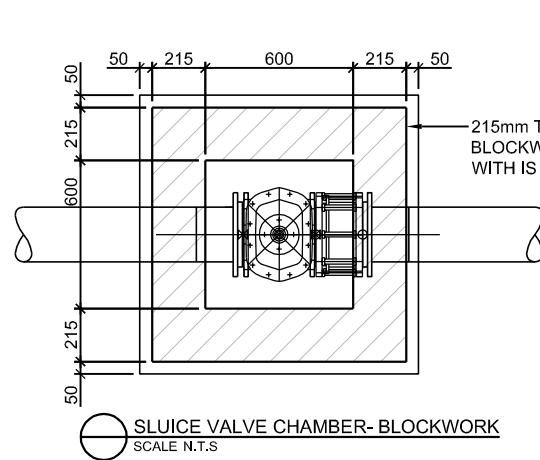
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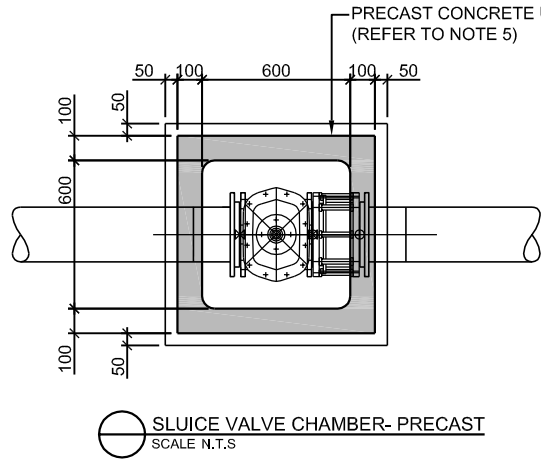
SECTION A-A
SCALE N.T.S.



SECTION B-B
SCALE N.T.S.

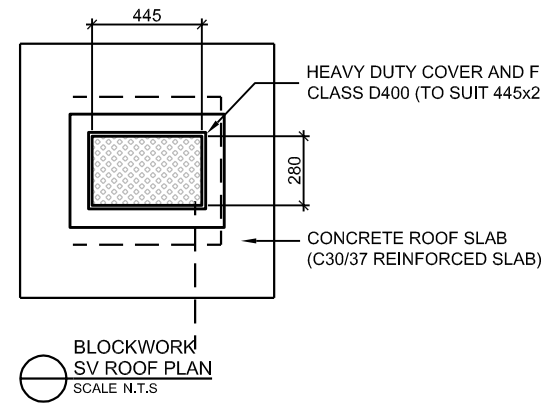


SLUICE VALVE CHAMBER- BLOCKWORK
SCALE N.T.S.

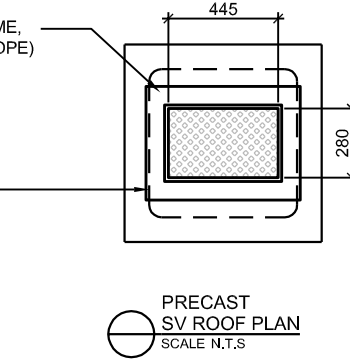


SLUICE VALVE CHAMBER- PRECAST
SCALE N.T.S.

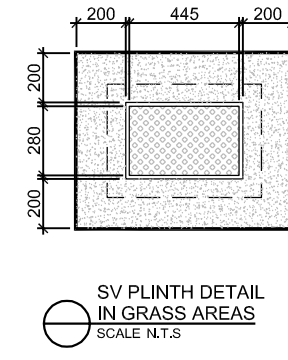
SLUICE VALVE DETAILS FOR RISING MAINS DUCTILE IRON (D.I) PIPE (<200mm DIA.)
SCALE N.T.S.



BLOCKWORK SV ROOF PLAN
SCALE N.T.S.



PRECAST SV ROOF PLAN
SCALE N.T.S.



SV PLINTH DETAIL
IN GRASS AREAS
SCALE N.T.S.

SLUICE VALVE DETAILS FOR RISING MAINS
POLYETHYLENE (P.E) PIPE (<200mm DIA.) (SHEET 2/2) (WW-17)
SCALE N.T.S.

DETAIL NOTES

- ALL DIMENSIONS IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
- SLUICE VALVE CHAMBERS SHALL BE COVERED WITH APPROVED HEAVY DUTY METAL COVERS TO IS 261 AND BS 5834. COVER AND FRAME SHALL BE SUITABLE FOR ROAD AND TRAFFIC CONDITIONS AND IS SUBJECT TO REVIEW BY IRISH WATER.
- SLUICE VALVES SHALL BE DOUBLE FLANGED WITH DUCTILE IRON RESILIENT SEAL GATE VALVES, SUITABLE FOR USE IN RISING MAINS. THEY SHALL COMPLY WITH THE REQUIREMENTS OF IS EN 1074 AND THEY SHALL HAVE THE APPROPRIATE CE MARKINGS.
- ALL SLUICE VALVES SHALL BE CLOCKWISE CLOSING.
- VALVE CHAMBER TO BE CONSTRUCTED OF PRECAST CONCRETE UNITS OR HIGH DENSITY BLOCKWORK. ALTERNATIVELY PROPRIETARY PREFABRICATED CHAMBER UNITS MAY ALSO BE USED, SUBJECT TO REVIEW BY IRISH WATER. ROOF SLABS SHALL BE DESIGNED TO CARRY ALL LIVE LOADS & DEAD LOADS, & CONSIST OF A REINFORCED CONCRETE SLAB OF IN-SITU CONCRETE, GRADE C30/37, WITH A MINIMUM THICKNESS OF 150mm. ALTERNATIVELY, PRE-CAST CONCRETE ROOFS MAY BE USED, SUBJECT TO IRISH WATER REVIEW, & COMPLIANCE WITH BS 5911, Part 4.
- CONCRETE CHAMBERS SHALL BE SURROUNDED BY A MINIMUM OF 150mm COMPACTED CLAUSE 808 MATERIAL AS PER GAR-ISD-004.
- ALL CONCRETE TO BE IN ACCORDANCE WITH IS EN 206 : 2013.
- DUCTILE IRON PIPES AND FITTINGS TO BE IN ACCORDANCE WITH IS EN 598.
- PE PIPES TO BE IN ACCORDANCE WITH IS EN 12201 : 2011.
- 200mm ALL AROUND, 100mm DEEP CONCRETE PLINTH AROUND COVERS IN GREEN AREAS.
- THRUST BLOCKS (NOT SHOWN ON DRAWING), TO BE PROVIDED AS PER STANDARD DRAWING GAR-ISD-002 AT ALL TEES, BENDS, TAPERS, DEAD ENDS AND PIPES AT STEEP SLOPES.
- ANTI-CORROSION TAPE TO BE PROVIDED AROUND BURIED FLANGES.
- ALL CHAMBERS TO BE CHECKED FOR UPLIFT BY THE DEVELOPER BASED ON GROUND CONDITIONS WITHIN THE SITE SHOULD ANTI-FLOATATION MEASURES BE REQUIRED THEY SHALL BE SUBJECT TO REVIEW BY IRISH WATER.
- ANY SPECIAL ROAD REINSTATEMENT AROUND COVER & FRAME SHALL BE TO ROAD AUTHORITY'S 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.

Sheet Title:
INFRASTRUCTURE STANDARD DETAILS
(WW-17)

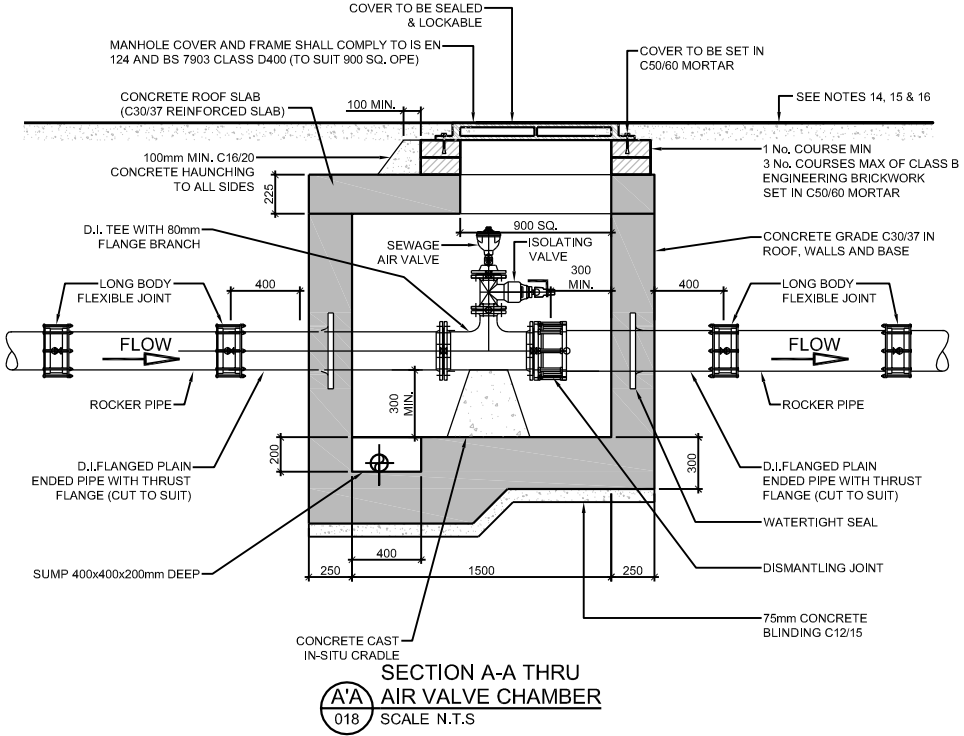
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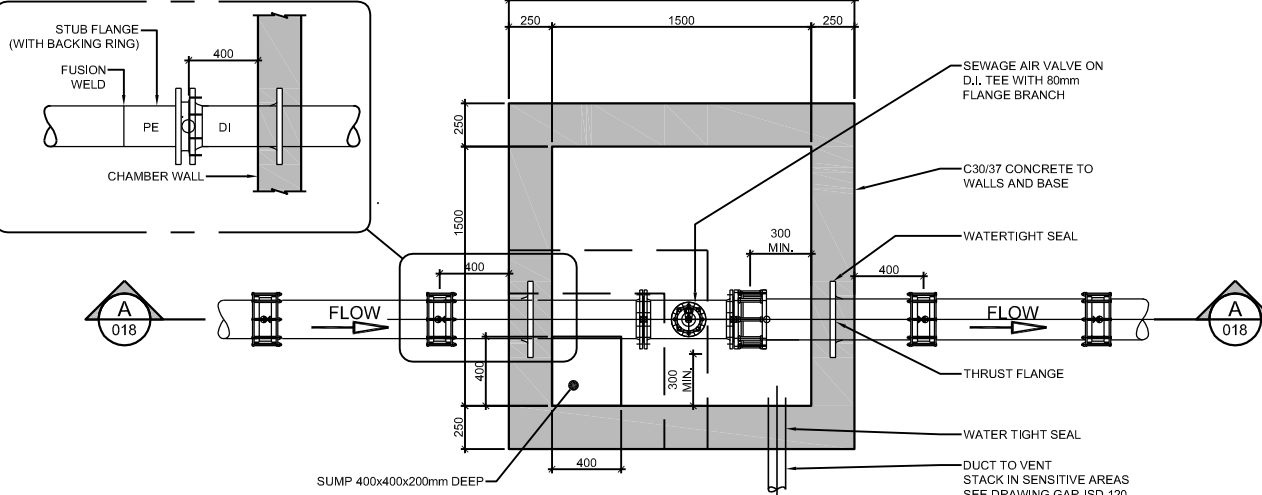
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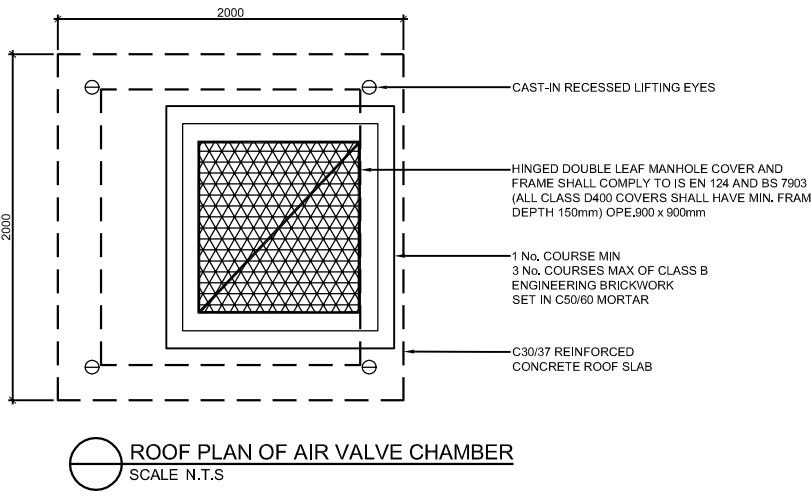
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SECTION A-A THRU AIR VALVE CHAMBER
SCALE N.T.S.

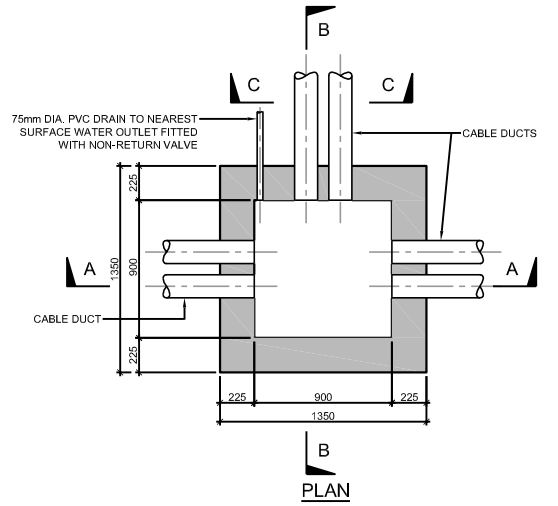


PLAN OF AIR VALVE CHAMBER
SCALE N.T.S.

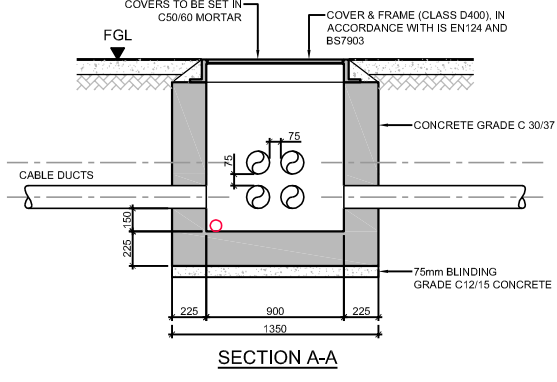


ROOF PLAN OF AIR VALVE CHAMBER
SCALE N.T.S.

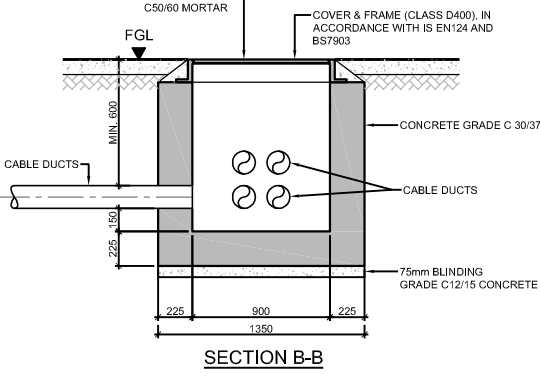
AIR VALVE CHAMBER (FOUL RISING MAIN < 200mm DIA.) (WW- 18)
SCALE N.T.S.



DUCT CHAMBER
SCALE N.T.S.



SECTION A-A



SECTION B-B

DUCT CHAMBER (WW- 19)
SCALE N.T.S.

DETAIL NOTES

- WW-18**
ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
 - VENTILATION STACK TO BE PROVIDED IN SENSITIVE AREAS AND ODOUR UNIT MAY BE REQUIRED DEPENDING ON LOCATION.
 - ISOLATING VALVE TO BE IN ACCORDANCE WITH IS EN 1074-2.
 - STRUCTURAL DESIGN AND REINFORCEMENT DETAILS TO BE PROVIDED BY THE DEVELOPER AND SUBMITTED TO IRISH WATER FOR REVIEW. ROOF SLABS SHALL BE DESIGNED TO CARRY ALL LIVE LOADS & DEAD LOADS & CONSIST OF A REINFORCED CONCRETE SLAB OF IN-SITU CONCRETE, GRADE C30/37, WITH A MINIMUM THICKNESS OF 225mm. ALTERNATIVELY, PRE-CAST CONCRETE ROOFS MAY BE USED, SUBJECT TO IRISH WATER REVIEW, & COMPLIANCE WITH BS 5911, Part 4.
 - DOUBLE AIR VALVE CHAMBER SHALL BE COVERED WITH APPROVED HEAVY DUTY VENTILATED METAL COVER TO IS EN 124 RATING D400. COVERS AND FRAMES SHALL BE SUITABLE FOR ROAD AND TRAFFIC CONDITIONS SUBJECT TO REVIEW BY IRISH WATER.
 - 200mm ALL AROUND, 100mm DEEP CONCRETE PLINTH AROUND COVERS IN GREEN AREAS.
 - THRUST BLOCKS (NOT SHOWN ON DRAWING), TO BE PROVIDED AS PER STANDARD DRAWING GAR-ISD-002 AT ALL TEES, BENDS, TAPERS, DEAD ENDS AND PIPES AT STEEP SLOPES.
 - PRE-CAST UNITS MAY BE USED SUBJECT TO REVIEW BY IRISH WATER.
 - ANTI CORROSION TAPE TO BE PROVIDED AROUND ALL BURIED FLANGES.
 - ALL CONCRETE TO BE IN ACCORDANCE WITH IS EN 206.
 - ALL DUCTILE IRON PIPE WORK AND FITTINGS TO BE IN ACCORDANCE WITH IS EN 598.
 - ALL PE PIPES AND FITTINGS TO BE IN ACCORDANCE WITH IS EN 12201: 2011.
 - ALL CHAMBERS TO BE CHECKED FOR UPLIFT BY THE DEVELOPER BASED ON GROUND CONDITIONS WITHIN THE SITE. SHOULD ANTI FLOATATION MEASURES BE REQUIRED THEY SHALL BE SUBJECT TO REVIEW BY IRISH WATER.
 - ANY SPECIAL ROAD REINSTATEMENT AROUND COVER & FRAME SHALL BE TO ROAD AUTHORITY'S 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.
- WW-19**
ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
- STRUCTURAL DESIGN AND REINFORCEMENT DETAILS TO BE PROVIDED BY THE DEVELOPER AND SUBMITTED TO IRISH WATER FOR REVIEW.
 - DUCT ARRANGEMENT MAY VARY DEPENDING ON REQUIREMENTS.
 - CABLE DUCTS TO BE IN ACCORDANCE WITH BS 4460 AND BS EN 1401. DUCTS FOR ESB USE TO BE IN ACCORDANCE WITH ESB SPECIFICATION.
 - PROPRIETARY DUCT CHAMBER MAY BE USED SUBJECT TO REVIEW BY IRISH WATER.
 - LONG RADIUS BENDS MAY BE USED FOR CHANGES IN DIRECTION OF UP TO 45°. DUCT CHAMBERS SHALL BE PROVIDED FOR ALL BENDS GREATER THAN 45°.
 - DUCT CHAMBERS TO BE LOCATED AT 50m INTERVALS MAXIMUM.
 - APPROPRIATE MARKER TAPE SHALL BE LAID 200mm ABOVE THE EXTERNAL CROWN OF THE DUCT AND SHOULD INCORPORATE REINFORCED TRACING WIRE. TRACING WIRES SHALL BE CONNECTED ACROSS CHAMBERS. ELECTRICAL MARKER TAPE TO BE USED IN ACCORDANCE WITH ESB SPECIFICATION.
 - ALL CHAMBERS TO BE CHECKED FOR UPLIFT BY THE DEVELOPER BASED ON GROUND CONDITIONS WITHIN THE SITE. SHOULD ANTI FLOATATION MEASURES BE REQUIRED THEY SHALL BE SUBJECT TO REVIEW BY IRISH WATER.
 - ALL CONCRETE TO BE IN ACCORDANCE WITH IS EN 206.
 - ALL DUCTING TO BE INSTALLED WITH DRAW CORDS/ROPES, TO ALLOW THE PULL THROUGH OF CABLES.
 - CABLE DUCT INTERFACE WITH CHAMBER WALL TO BE SEALED TO PREVENT INGRESS OF GROUNDWATER TO CHAMBER.

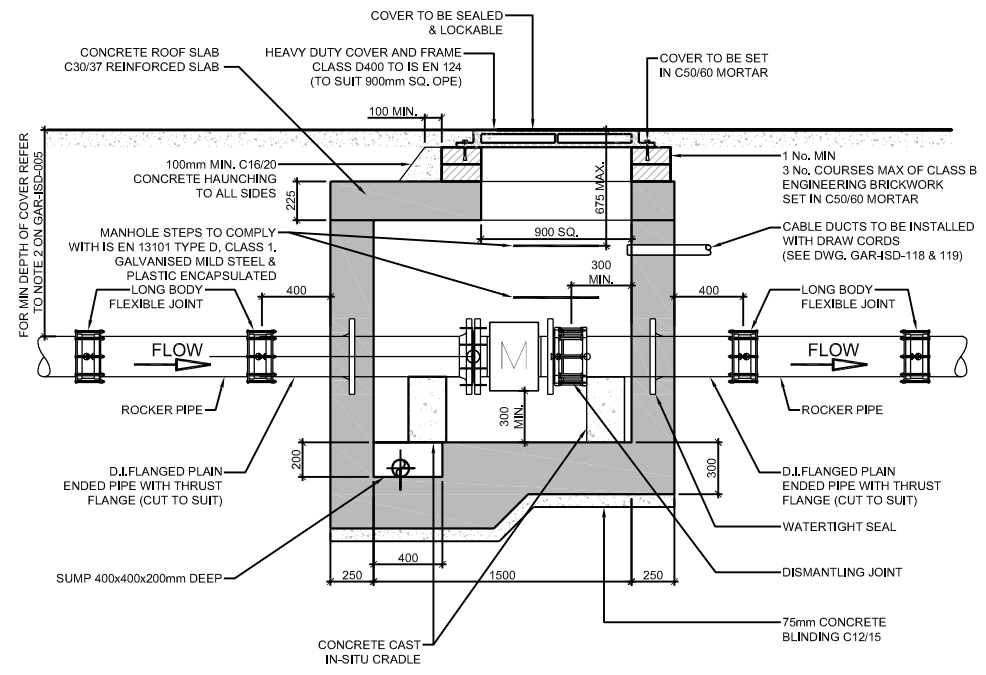
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Sheet No.	Rev.
GAR-ISD-108	A

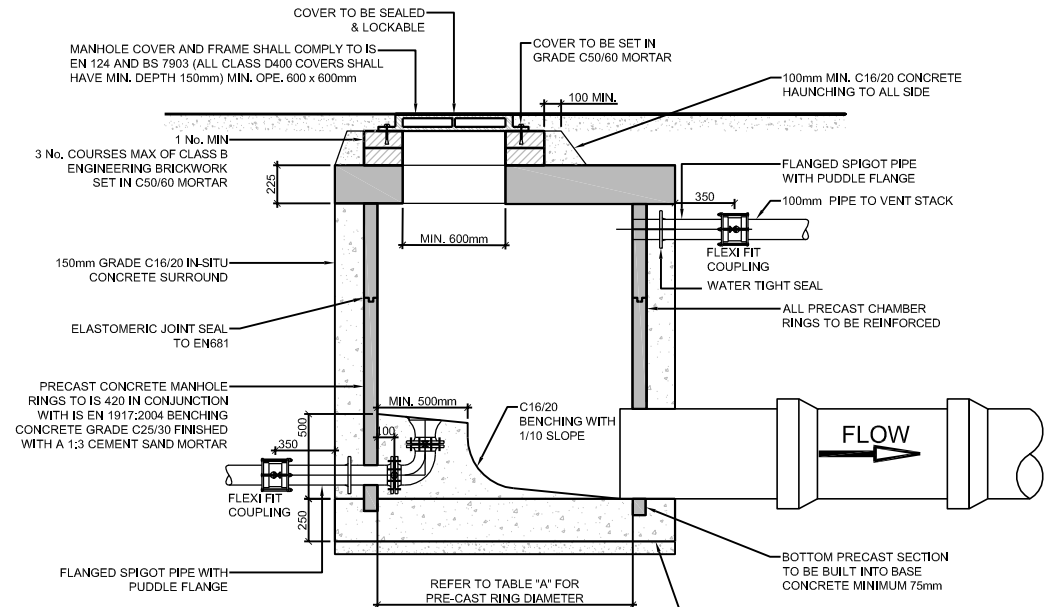
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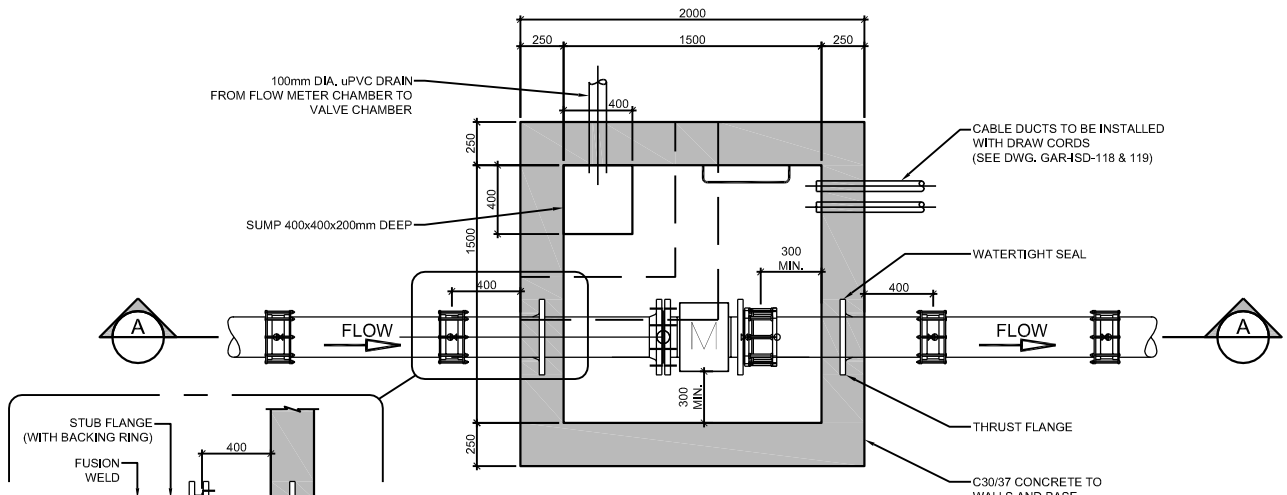
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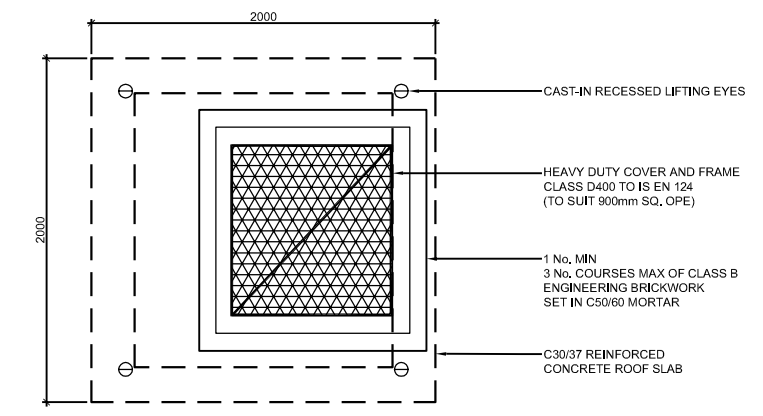
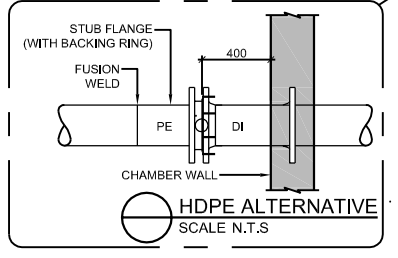
SECTION A-A THRU
FLOW METER CHAMBER
SCALE N.T.S



SECTION A-A THRU
DISCHARGE MANHOLE
SCALE N.T.S

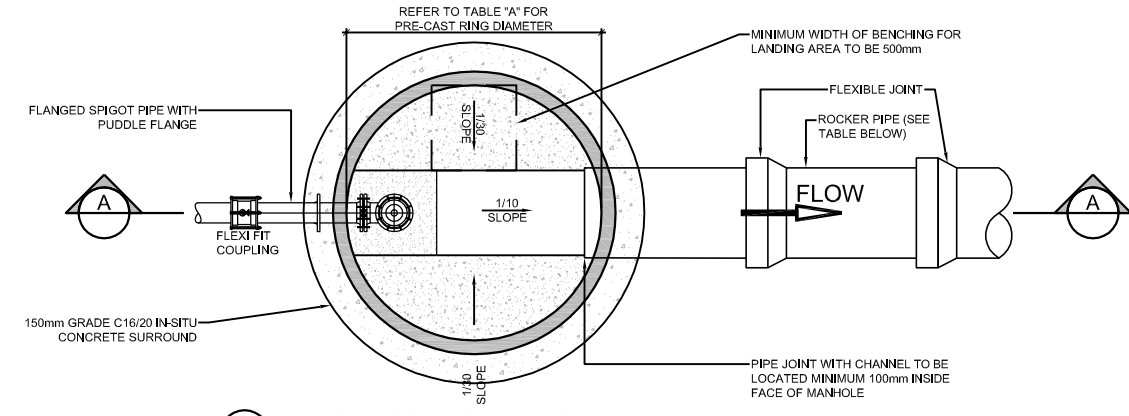


PLAN OF FLOW METER CHAMBER
SCALE N.T.S



ROOF PLAN OF FLOW METER CHAMBER
SCALE N.T.S

FLOW METER CHAMBER (WW- 27)
SCALE N.T.S



PLAN OF DISCHARGE MANHOLE
SCALE N.T.S

RISING MAIN DISCHARGE MANHOLE
SCALE N.T.S

TABLE "A" - MIN. MANHOLE DIAMETERS	
MAX. PIPE DIA. IN MANHOLE (mm)	INTERNAL MANHOLE DIA. (mm)
LESS THAN 375mm	1200
375mm TO 450mm	1350
450mm TO 700mm	1500

ROCKER PIPE LENGTH	
PIPE DIAMETER (mm)	ROCKER PIPE LENGTH (mm)
150 TO 600	600
GREATER THAN 600 TO 750	1000
GREATER THAN 750	1250

RISING MAIN DISCHARGE MANHOLE (WW- 29)
SCALE N.T.S

DETAIL NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
2. STRUCTURAL DESIGN AND REINFORCEMENT DETAIL TO BE PROVIDED BY THE DEVELOPER AND SUBMITTED TO IRISH WATER FOR REVIEW. ROOF SLABS SHALL BE DESIGNED TO CARRY ALL LIVE LOADS & DEAD LOADS, & CONSIST OF A REINFORCED CONCRETE SLAB OF IN-SITU CONCRETE, GRADE C30/37, WITH A MINIMUM THICKNESS OF 225mm. ALTERNATIVELY, PRE-CAST CONCRETE ROOFS MAY BE USED, SUBJECT TO IRISH WATER APPROVAL, & COMPLIANCE WITH BS 5911, Part 4.
3. METER CHAMBER SHALL BE COVERED WITH APPROVED HEAVY DUTY METAL COVER TO IS EN 124 RATING D400, COVERS AND FRAMES SHALL BE SUITABLE FOR ROAD AND TRAFFIC CONDITIONS SUBJECT TO REVIEW BY IRISH WATER.
4. 200mm ALL AROUND, 100mm DEEP CONCRETE PLINTH WITH PROTECTIVE STAINLESS STEEL METAL BAND AROUND COVERS IN GREEN AREAS.
5. PRE-CAST UNITS MAY BE USED SUBJECT TO APPROVAL FROM IRISH WATER.
6. DUCTILE IRON PIPES AND FITTINGS TO BE IN ACCORDANCE WITH IS EN 598. PE PIPES AND FITTINGS TO BE IN ACCORDANCE WITH IS EN 12201:2011.
7. ANTI CORROSION TAPE TO BE PROVIDED AROUND ALL BURIED FLANGES.
8. ALL CHAMBERS TO BE CHECKED FOR UPLIFT BY THE DEVELOPER BASED ON GROUND CONDITIONS WITHIN THE SITE, SHOULD ANTI FLOATATION MEASURES BE REQUIRED THEY SHALL BE SUBJECT TO REVIEW BY IRISH WATER.
9. FLOW METERS REQUIRE A MINIMUM LENGTH OF PIPE ON EACH SIDE OF THE VALVE TO BE COMPLETELY FREE OF FITTINGS, VALVES, REDUCER ETC, AS PER THE MANUFACTURERS INSTRUCTIONS.
10. ALL CONCRETE TO BE IN ACCORDANCE WITH IS EN 206.
11. ANY SPECIAL ROAD REINSTATEMENT AROUND COVER & FRAME SHALL BE TO ROAD AUTHORITY'S REQUIREMENTS.
12. NEW ROAD CONSTRUCTION & SURFACE FINISH TO BE TO ROAD AUTHORITY REQUIREMENTS.
13. 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.
14. PRE-CAST MANHOLES UNITS: COMPLYING WITH REQUIREMENTS OF IS EN 1917 AND BS 5911-PART 3.
15. THICKER MANHOLE BASES REQUIRED FOR SEWERS IN EXCESS OF 3m DEEP WHERE THE SIZE IS GREATER THAN THE STANDARD MINIMUM SIZE.
16. APPROVED PRE-CAST CONCRETE BASES MAY BE USED INCORPORATING CHANNELS, BENCHING ETC, SUBJECT TO IRISH WATER APPROVAL AND COMPLYING WITH BS 5911-PART 4 2002.
17. STRUCTURAL DESIGN AND REINFORCEMENT DETAILS TO BE PROVIDED BY THE DEVELOPER AND SUBMITTED TO IRISH WATER FOR REVIEW.
18. MANHOLE ROOFS SHOULD CONSIST OF REINFORCED CONCRETE SLAB OF IN-SITU CONCRETE, C30/37, WITH A MINIMUM THICKNESS OF 225mm DESIGNED TO CARRY ALL LIVE AND DEAD LOADS, ALTERNATIVELY, APPROVED PRE-CAST CONCRETE ROOF SLABS MAY BE USED SUBJECT TO IRISH WATER REVIEW AND COMPLIANCE WITH BS 5911 PART 4; 2002.
19. COVERS AND FRAMES SHALL BE SUITABLE FOR ROAD AND TRAFFIC CONDITIONS SUBJECT TO APPROVAL FROM IRISH WATER.
20. 200mm ALL AROUND, 100mm DEEP CONCRETE PLINTH WITH PROTECTIVE STAINLESS STEEL METAL BAND AROUND COVERS IN GREEN AREAS.
21. ALL CHAMBERS TO BE CHECKED FOR UPLIFT BY THE DEVELOPER BASED ON GROUND CONDITIONS WITHIN THE SITE, SHOULD ANTI FLOATATION MEASURES BE REQUIRED THEY SHALL BE SUBJECT TO REVIEW BY IRISH WATER.
22. ALL CONCRETE TO BE IN ACCORDANCE WITH IS EN 206:2013.
23. ANY SPECIAL ROAD REINSTATEMENT AROUND COVER & FRAME SHALL BE TO ROAD AUTHORITY'S REQUIREMENTS.
24. NEW ROAD CONSTRUCTION & SURFACE FINISH TO BE TO ROAD AUTHORITY REQUIREMENTS.
25. 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.

Sheet Title:
INFRASTRUCTURE STANDARD DETAILS
(WW-27/WW-29)

Sheet No. GAR-ISD-116 Rev. A

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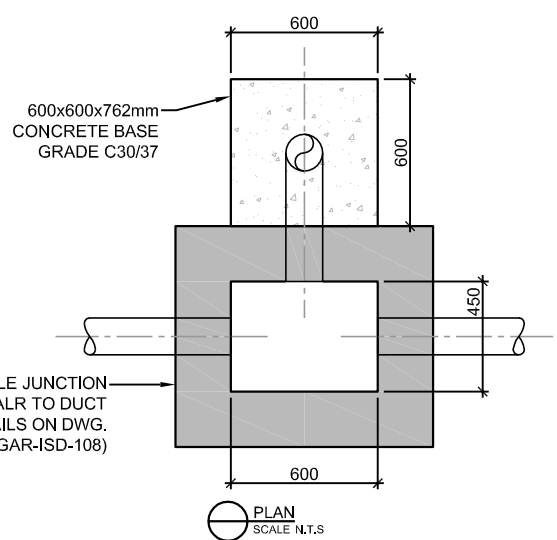
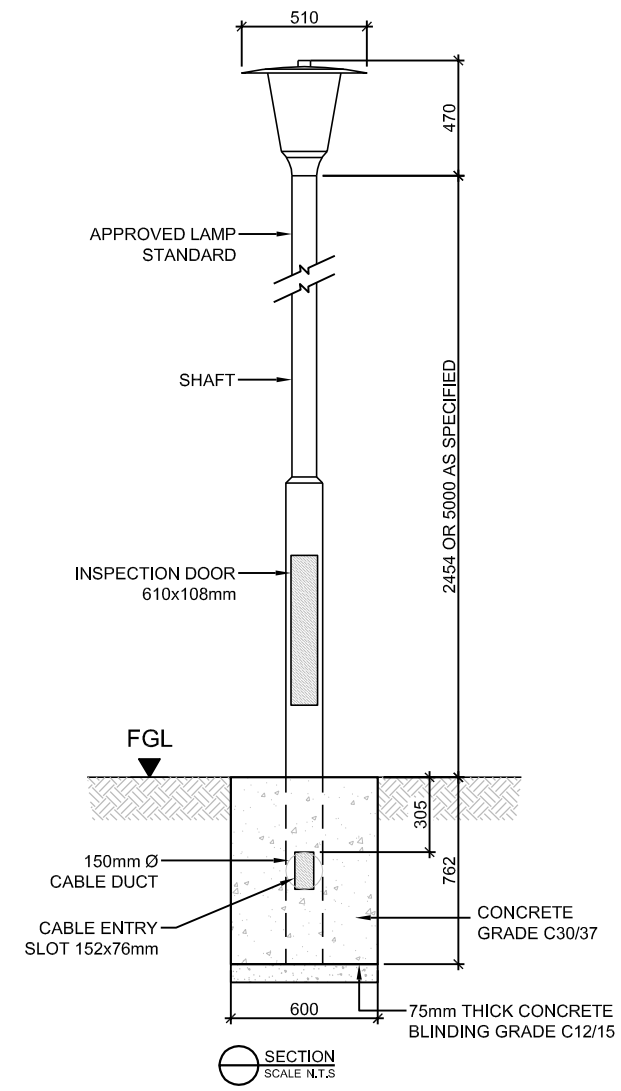
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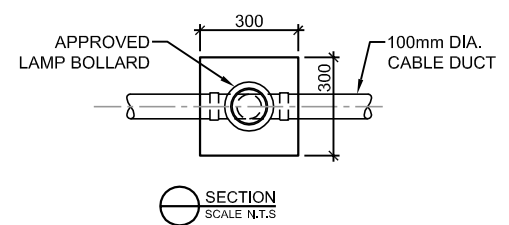
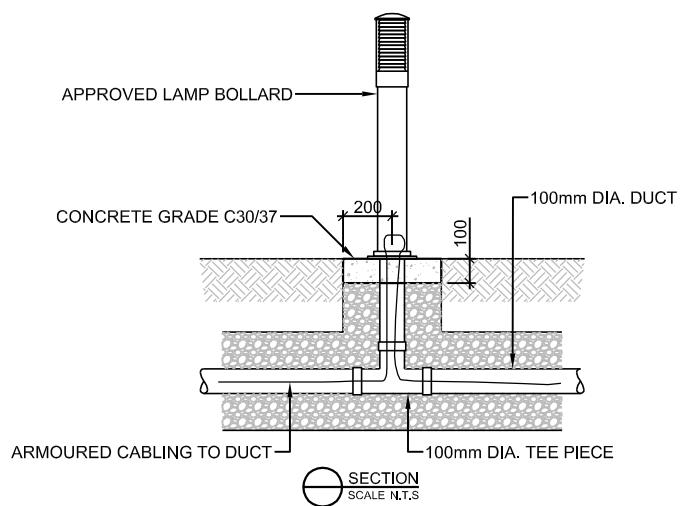
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DETAIL NOTES

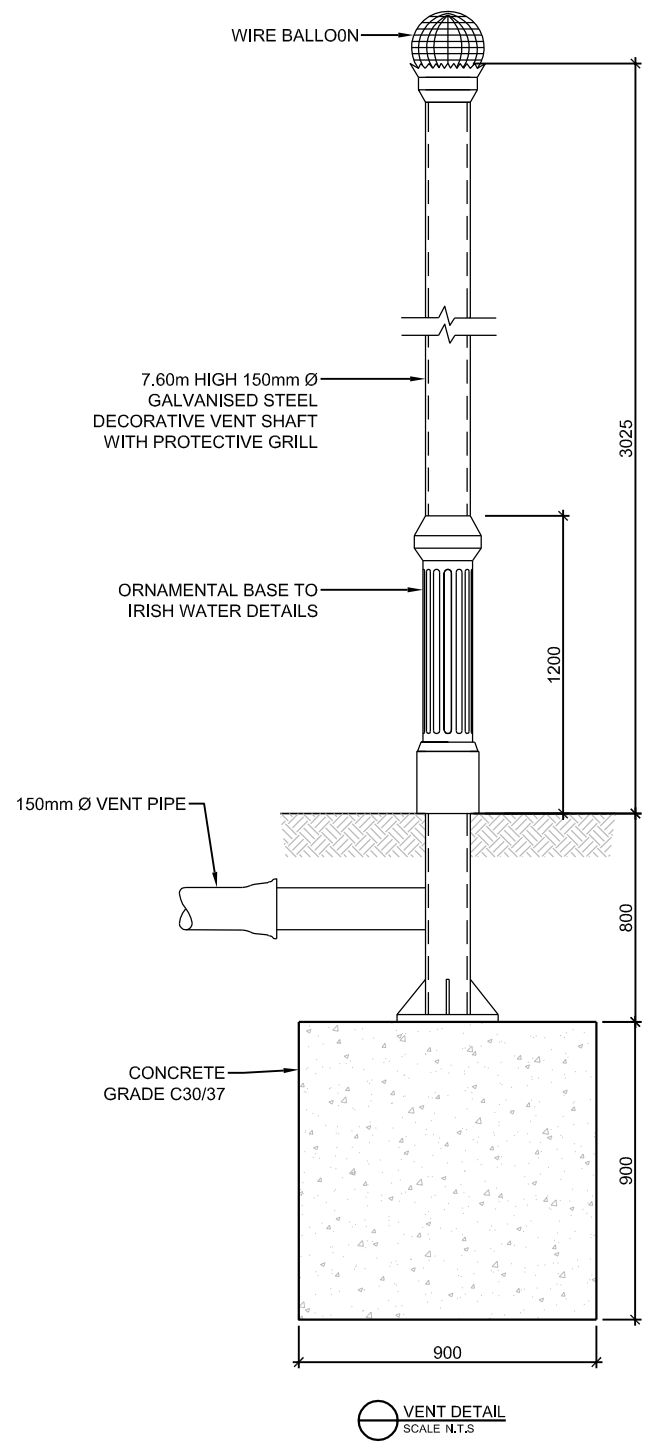
- 1. **WW-33**
ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
- 2. LAMP BOLLARD TO BE REVIEWED BY IRISH WATER.
- 3. LAMP STANDARD TO BE REVIEWED BY IRISH WATER.
- 4. ELECTRICAL DUCTING TO BE IN ACCORDANCE WITH ESB SPECIFICATION.
- 5. **WW-34**
STRUCTURAL DESIGN AND REINFORCEMENT DETAIL TO BE PROVIDED BY THE DEVELOPER AND SUBMITTED TO IRISH WATER FOR REVIEW.
- 6. ALL CONCRETE TO BE IN ACCORDANCE WITH IS EN 206



LAMP STANDARD & LAMP BOLLARD
SCALE N.T.S.



LAMP BOLLARD
SCALE N.T.S.



VENT STACK
SCALE N.T.S.

Sheet Title:
INFRASTRUCTURE STANDARD DETAILS
(WW-33/ WW-34)

Sheet No. **GAR-ISD-120** Rev. **A**

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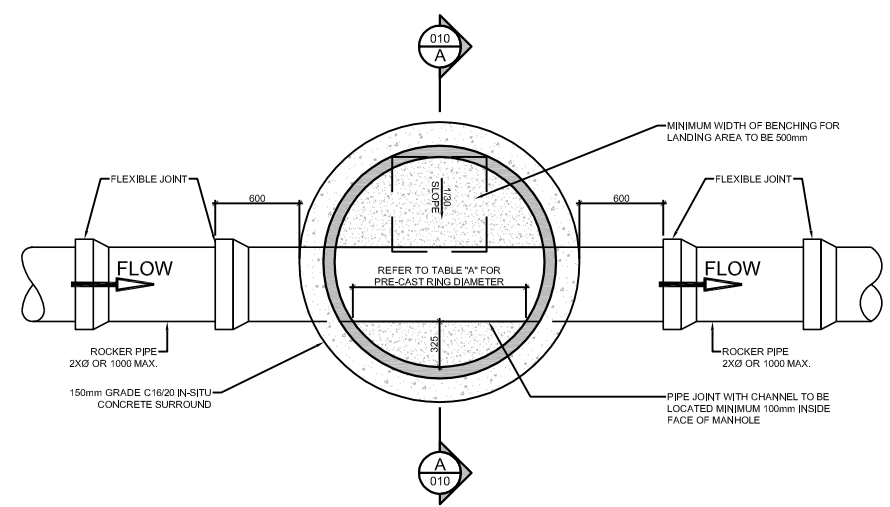
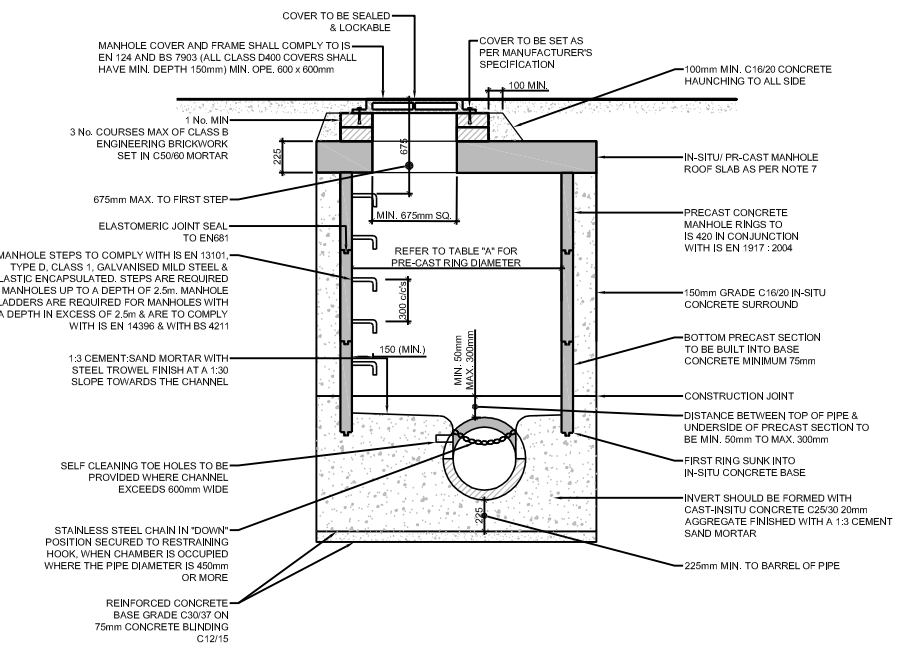
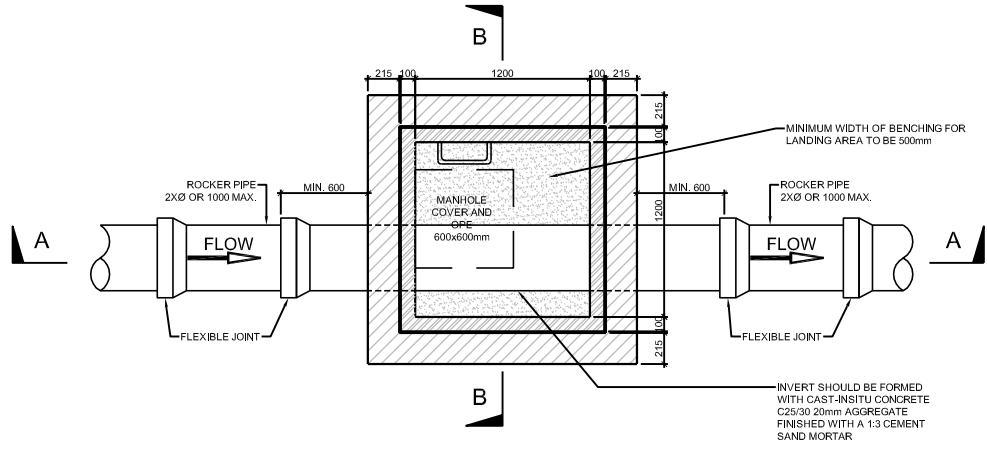
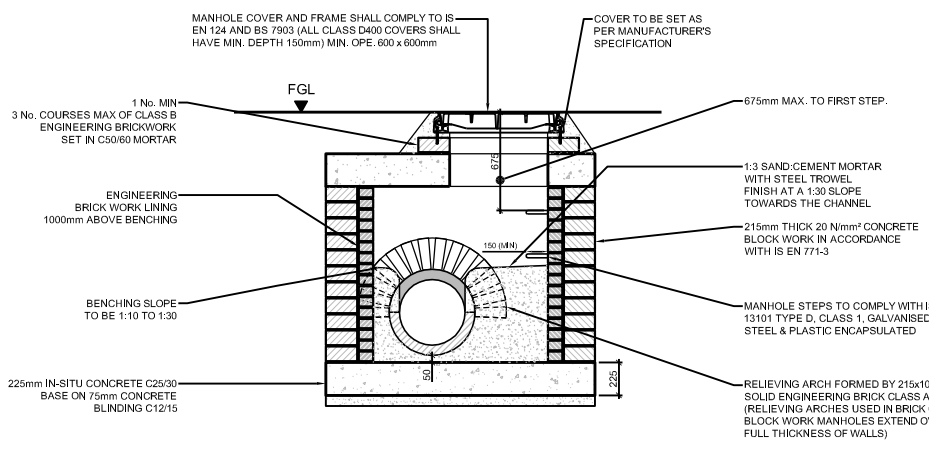
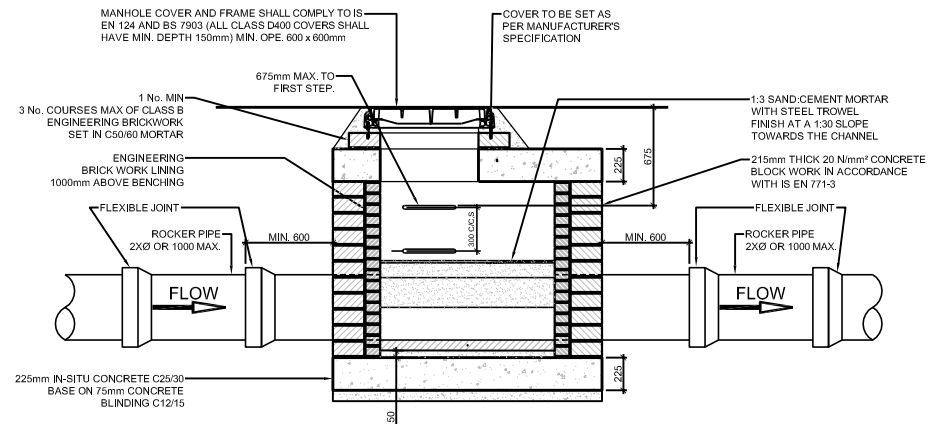


TABLE "A" - MIN. MANHOLE DIAMETERS	
MAX. PIPE DIA. IN MANHOLE (mm)	INTERNAL MANHOLE DIA. (mm)
LESS THAN 375mm	1200
375mm TO 450mm	1350
500mm TO 700mm	1500

- DETAIL NOTES**
- ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
 - SOLID BLOCKWORK TO BE OF HIGH STRENGTH (20 N/mm²) TO IS EN771.
 - MAXIMUM DEPTH OF BLOCK WORK MANHOLE IS 1.20m (THE USE OF BLOCK WORK IN DEEPER MANHOLES WILL BE CONSIDERED BUT SUCH USE WILL REQUIRE DETAILED STRUCTURAL DESIGN AND WRITTEN APPROVAL FROM IRISH WATER).
 - WALLS TO BE FLUSH POINTED AND NOT PLASTERED INTERNALLY. INTERNAL LINING OF ENGINEERING BRICK TO IS EN 771-1 TO A HEIGHT OF 1m ABOVE BENCHING. ENGINEERING BRICK TO BE BONDED TO BLOCKWORK USING ENGLISH GARDEN WALL BOND.
 - STRUCTURAL DESIGN AND REINFORCEMENT DETAILS FOR ROOF AND BASE SLABS TO BE PROVIDED BY THE DEVELOPER AND SUBMITTED TO IRISH WATER FOR REVIEW.
 - COVERS AND FRAMES SHALL BE SUITABLE FOR ROAD AND TRAFFIC CONDITIONS SUBJECT TO APPROVAL FROM IRISH WATER.
 - 200mm ALL AROUND, 100mm DEEP CONCRETE PLINTH WITH PROTECTIVE STAINLESS STEEL METAL BAND AROUND COVERS IN GREEN AREAS.
 - ALL CHAMBERS TO BE CHECKED FOR UPLIFT BY THE DEVELOPER BASED ON GROUND CONDITIONS WITHIN THE SITE. SHOULD ANTI FLOATION MEASURES BE REQUIRED THEY SHALL BE SUBJECT TO APPROVAL FROM IRISH WATER.
 - ALL CONCRETE TO BE IN ACCORDANCE WITH IS EN 206:2013.

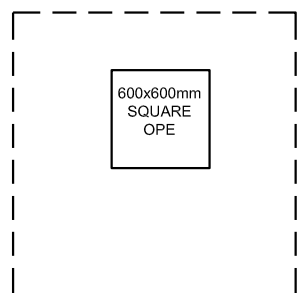
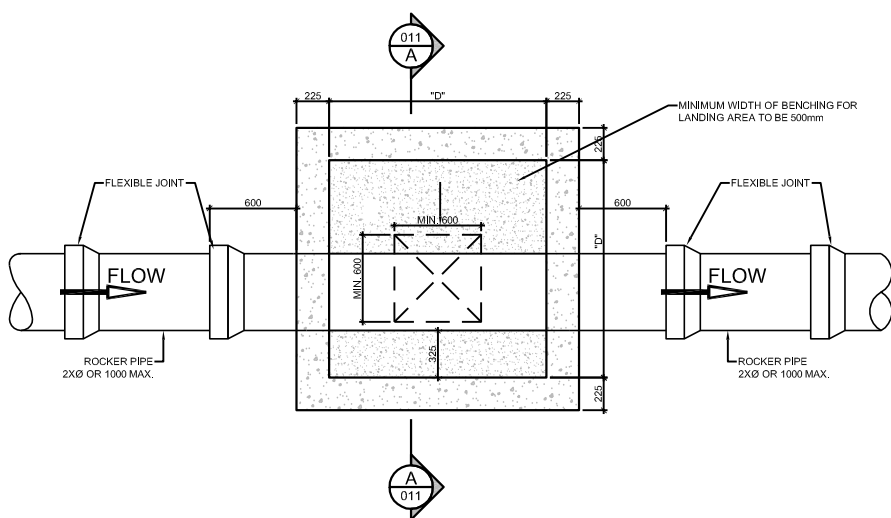
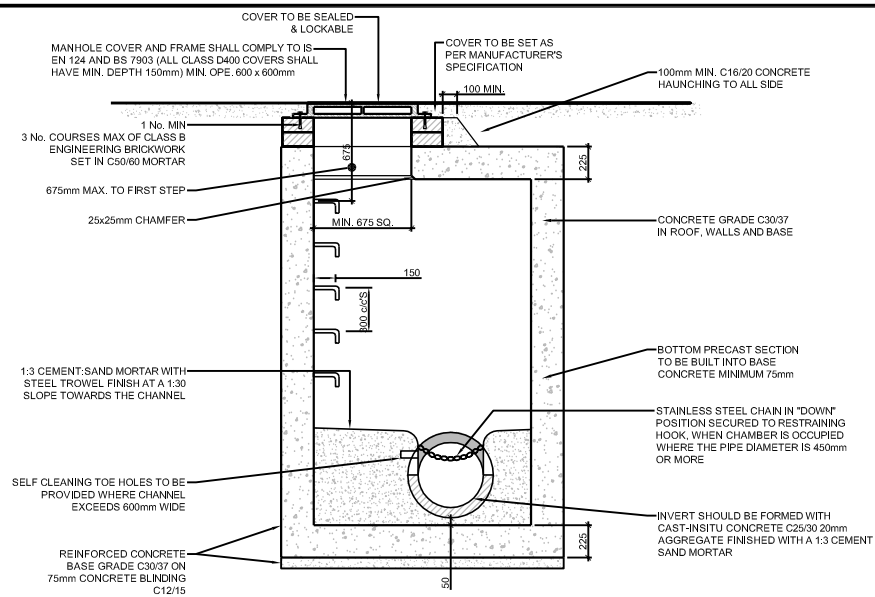
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(SW-01/ SW-02)

Sheet No. GAR-ISD-201 Rev. A

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MINIMUM MANHOLE DIMENSION "D"	
MAX. PIPE DIA. IN MANHOLE (mm)	INTERNAL DIMENSION OF MANHOLE (mm)
LESS THAN 375mm	1200
375mm TO 450mm	1350
500mm TO 700mm	1500

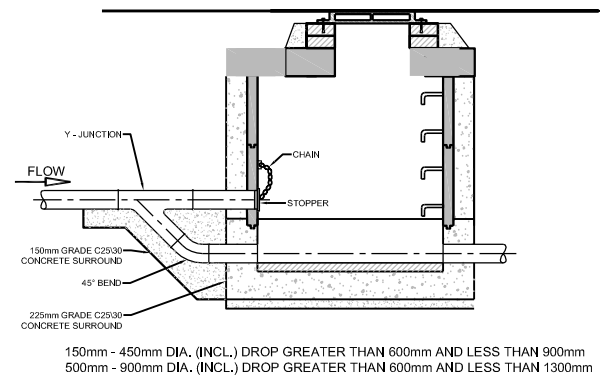
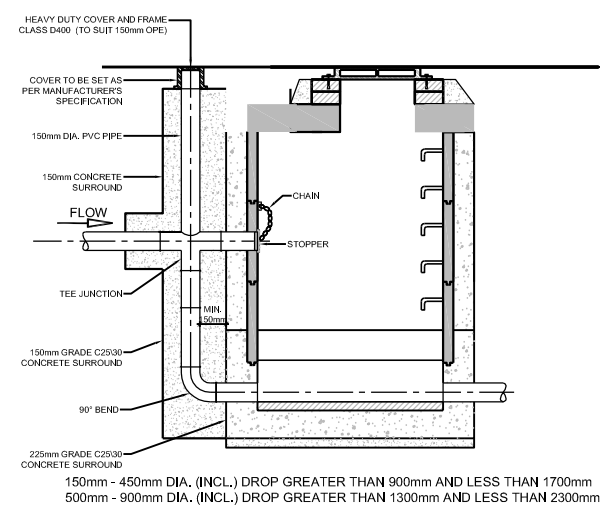
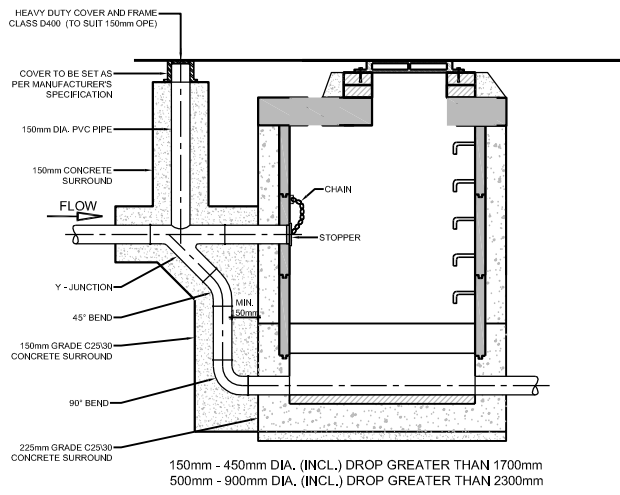


TABLE "A" - MIN. MANHOLE DIAMETERS	
MAX. PIPE DIA. IN MANHOLE (mm)	INTERNAL MANHOLE DIA. (mm)
LESS THAN 375mm	1200
375mm TO 450mm	1350
500mm TO 700mm	1500

- DETAIL NOTES**
- ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
 - IN-SITU MANHOLES TO HAVE A MINIMUM WALL AND FLOOR THICKNESS OF 225mm FOR MANHOLE DEPTHS UP TO 3.0m AND 300mm OR MORE WHEN THE MANHOLE DEPTH EXCEEDS 3.0m.
 - STRUCTURAL DESIGN & REINFORCEMENT DETAILS TO BE PROVIDED BY THE DEVELOPER AND SUBMITTED TO IRISH WATER FOR REVIEW.
 - MANHOLES GREATER THAN 3m IN DEPTH WILL REQUIRE A DETAILED STRUCTURAL DESIGN AND BE SUBJECT TO IRISH WATER APPROVAL.
 - COVERS AND FRAMES SHALL BE SUITABLE FOR ROAD AND TRAFFIC CONDITIONS SUBJECT TO APPROVAL FROM IRISH WATER.
 - 200mm ALL AROUND, 100mm DEEP CONCRETE PLINTH WITH PROTECTIVE STAINLESS STEEL METAL BAND AROUND COVERS IN GREEN AREAS.
 - ALL CHAMBERS TO BE CHECKED FOR UPLIFT BY THE DEVELOPER BASED ON GROUND CONDITIONS WITHIN THE SITE, SHOULD ANTI-FLOATATION MEASURES BE REQUIRED THEY SHALL BE SUBJECT TO APPROVAL FROM IRISH WATER.
 - ALL CONCRETE TO BE IN ACCORDANCE WITH IS EN 206 : 2013.

Sheet Title:
INFRASTRUCTURE STANDARD DETAILS
(SW-03/ SW-04)

Sheet No. **GAR-ISD-202** Rev. **A**

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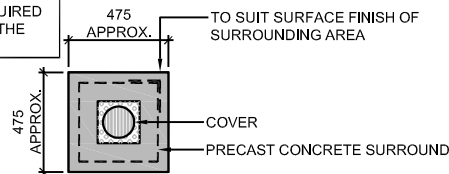
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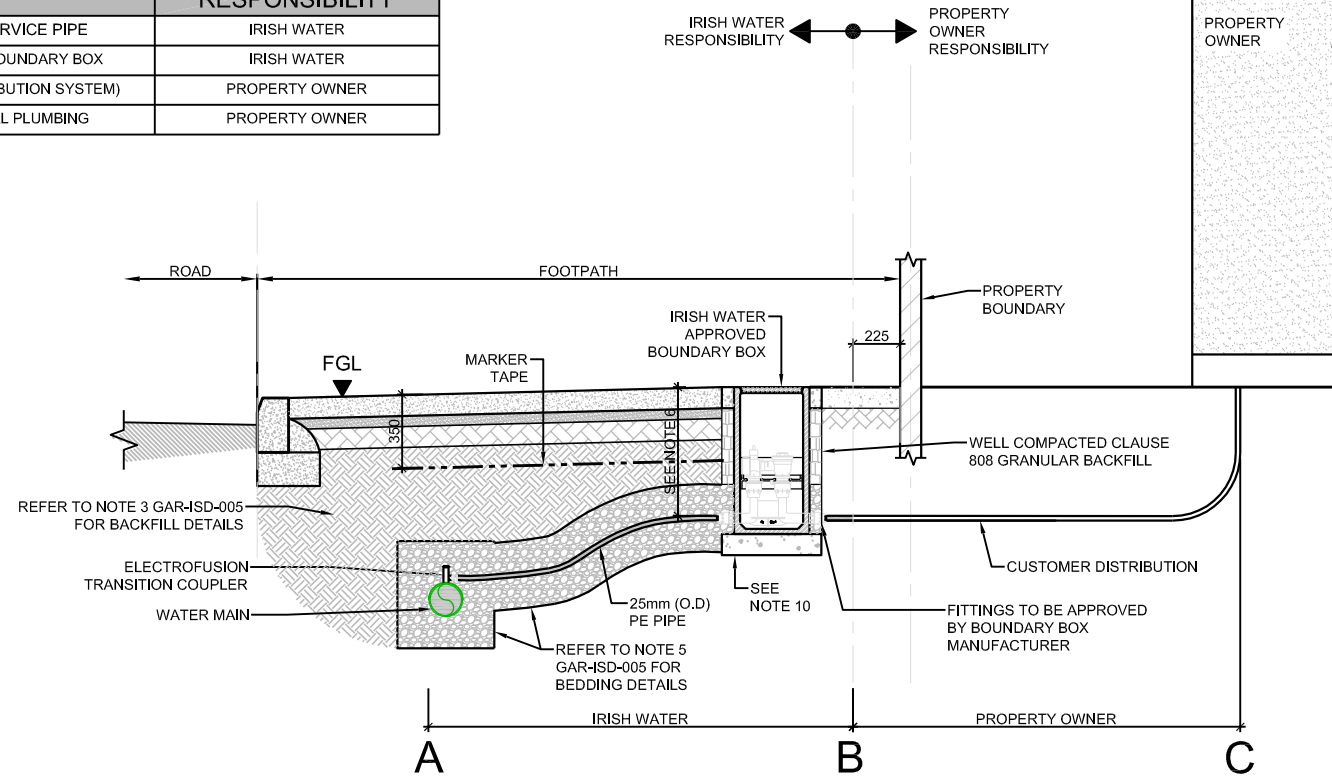
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	MAINTENANCE RESPONSIBILITY
A - B SERVICE PIPE	IRISH WATER
METER / BOUNDARY BOX	IRISH WATER
B - C (DISTRIBUTION SYSTEM)	PROPERTY OWNER
INTERNAL PLUMBING	PROPERTY OWNER

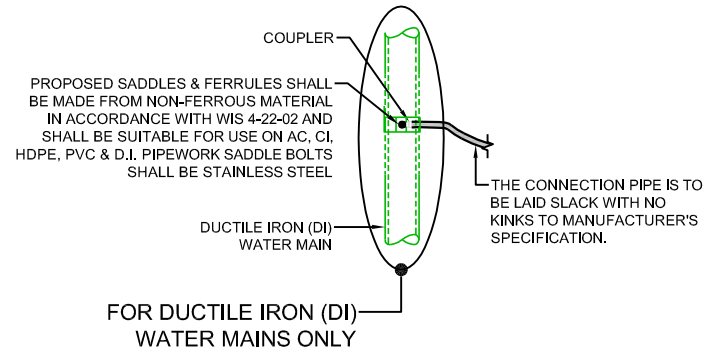
NOTE:
THIS DETAIL APPLIES TO WHERE THE FINISHED SURFACE IS EITHER UNBOUND (GRASS VERGE), BRICK PAVING OR MACADAM, & WHERE A CONCRETE PLINTH IS REQUIRED TO SUPPORT THE TOP OF THE BOUNDARY BOX.



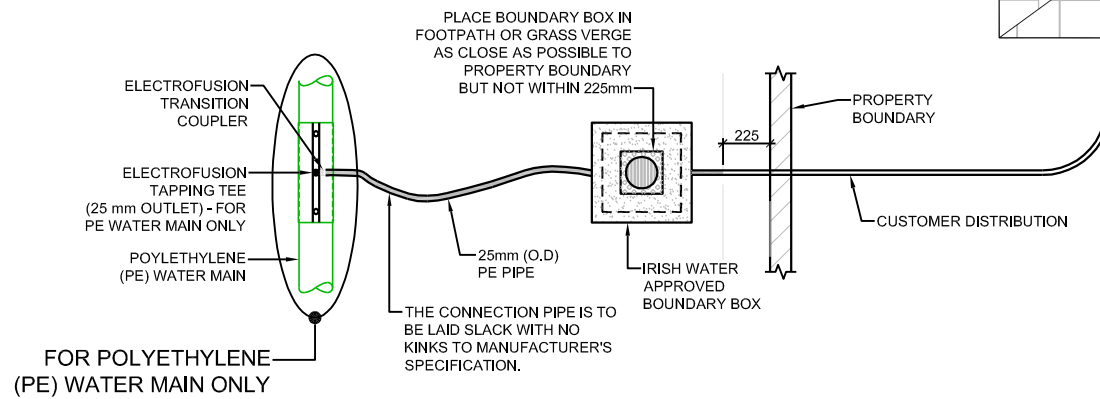
PLAN OF BOUNDARY BOX (W-03)
SCALE N.T.S



TYPICAL SECTION THROUGH WATERMAIN/SERVICE CONNECTION
SCALE N.T.S



FOR DUCTILE IRON (DI) WATER MAINS ONLY



FOR POLYETHYLENE (PE) WATER MAIN ONLY

PLAN THROUGH WATERMAIN/ SERVICE CONNECTION
SCALE N.T.S

CUSTOMER CONNECTION AND BOUNDARY BOX (W-03)
SCALE N.T.S

DETAIL NOTES

- GENERAL NOTES:**
- ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
 - FOR CONNECTION TO AN EXISTING MAIN THE CONNECTION SHALL BE AS PER THE PIPE MANUFACTURER'S SPECIFICATION.
 - ELECTRO FUSION COUPLING TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
 - ALL CONCRETE TO BE IN ACCORDANCE WITH IS EN 206.
- BOUNDARY BOX NOTES:**
- THE BOUNDARY BOX IS TO BE IN ACCORDANCE WITH THE IRISH WATER SPECIFICATION, INCORPORATING A G1.5 MANIFOLD, STOP-TAP, FROST PLUG & NON-RETURN VALVE.
 - THE BOUNDARY BOX SHALL BE POSITIONED IN PUBLIC SPACE & AS CLOSE AS POSSIBLE TO THE PROPERTY BOUNDARY BUT NO PART OR FITTING TO BE WITHIN 225mm OF THE PROPERTY LINE.
 - THE BOUNDARY BOX SHALL BE LOCATED WHERE IT IS SAFE TO OPEN THE COVER & ACCESS THE STOP TAP OR VISUALLY READ THE METER, i.e. ON A FOOTPATH OR VERGE, & NOT IN A CARRIAGEWAY.
 - THE SURFACE BOX COVER ON THE BOUNDARY BOX SHOULD BE NOT LESS THAN GRADE C (BS 5834-2:2011); & THE BOUNDARY BOX SHOULD BE LOCATED SUCH THAT HEAVIER GRADES OF COVER WOULD NOT BE REQUIRED.
 - THE SHAFT OF THE BOUNDARY BOX IS TO BE INSTALLED VERTICALLY, & THE SURFACE BOX/COVER INCLINED TO MATCH THE SURFACE GRADIENT.
 - THE BOUNDARY BOX IS TO BE INSTALLED AT A MINIMUM DEPTH OF 600mm (+/- 25mm) TO THE CROWN OF THE INLET & OUTLET FITTINGS ON THE OUTSIDE OF THE BOX.
 - THE SERVICE CONNECTION PIPE SHALL NOT BE WRAPPED AROUND THE SHAFT OF THE BOUNDARY BOX OR BENT IN ANY RADIUS LESS THAN THAT APPROVED BY THE MANUFACTURER.
 - THE PIPE FITTINGS TO THE BOUNDARY BOX SHALL BE APPROVED BY THE BOUNDARY BOX MANUFACTURER.
 - THE BOUNDARY BOX SHALL BE INSTALLED HYGIENICALLY & LEFT CLEAN & FREE OF CONSTRUCTION WASTE OR DIRT FOR LATER METER INSTALLATION BY IRISH WATER.
 - BOX TO BE FOUNDED ON 100mm DEPTH OF C12/15 CONCRETE AND SURROUNDED WITH CLAUSE 808 GRANULAR MATERIAL.
 - THE DESIRABLE MINIMUM DEPTH OF COVER FROM THE FINISHED GROUND LEVEL TO THE EXTERNAL CROWN OF A SERVICE CONNECTION SHALL BE 750mm WITH AN ABSOLUTE MINIMUM DEPTH OF 600mm FOR SHORT DISTANCES (SUBJECT TO IRISH WATER AGREEMENT). THE DESIRABLE MAXIMUM COVER FOR A SERVICE CONNECTION PIPE SHOULD BE 1200mm, WHERE PRACTICABLE.
 - CUSTOMER'S DISTRIBUTION PIPEWORK WITHIN THE PREMISES SHOULD BE SUITABLY SIZED TO ACCOMMODATE FLOW FROM 20mm INTERNAL DIAMETER SERVICE PIPE.

Sheet Title:
INFRASTRUCTURE STANDARD DETAILS
(W-03)

Sheet No. GAR-ISD-301 Rev. A

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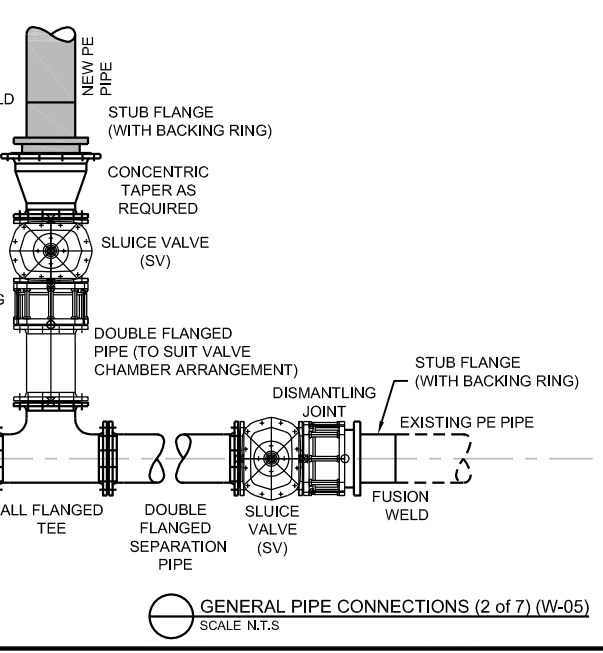
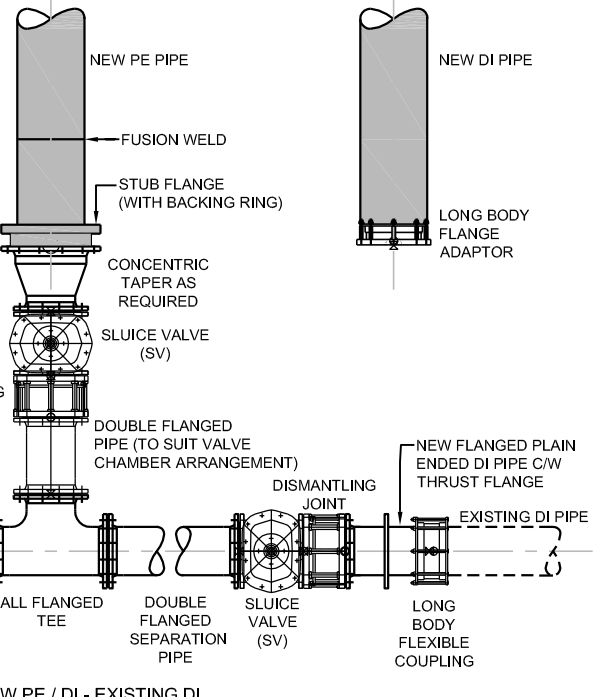
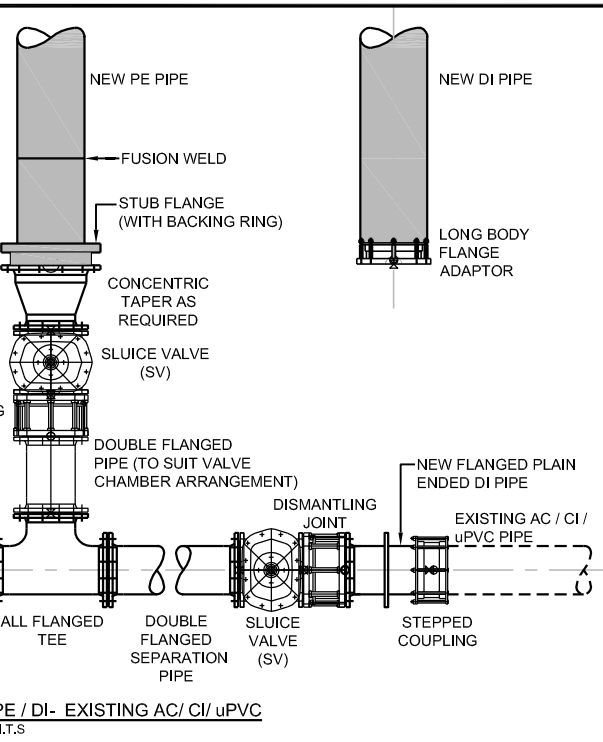
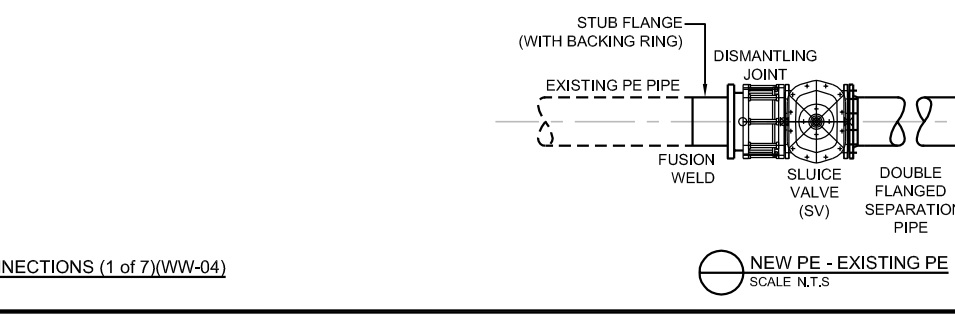
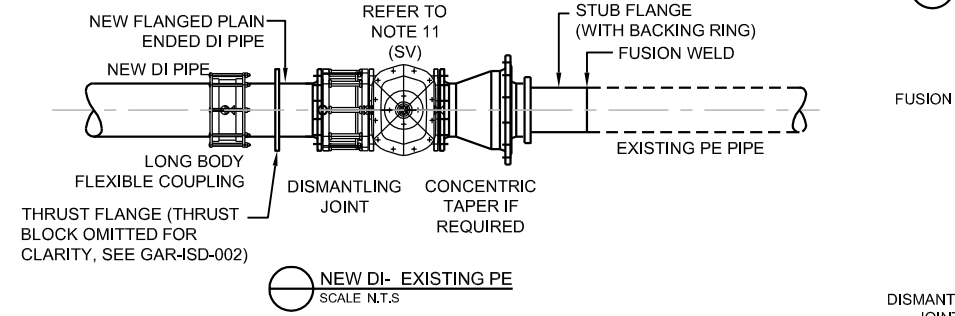
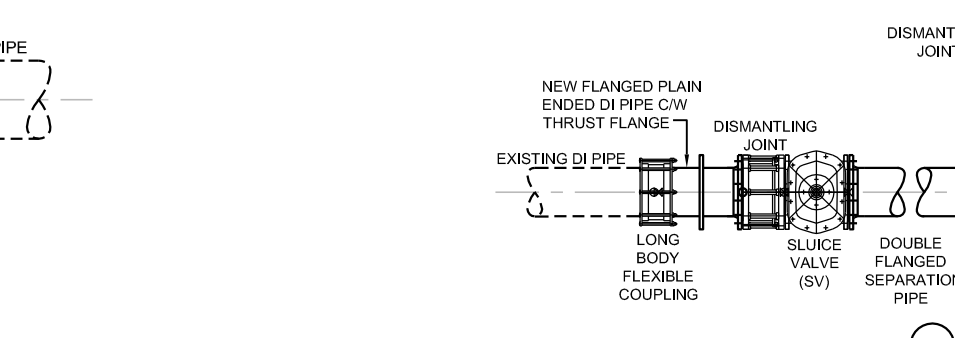
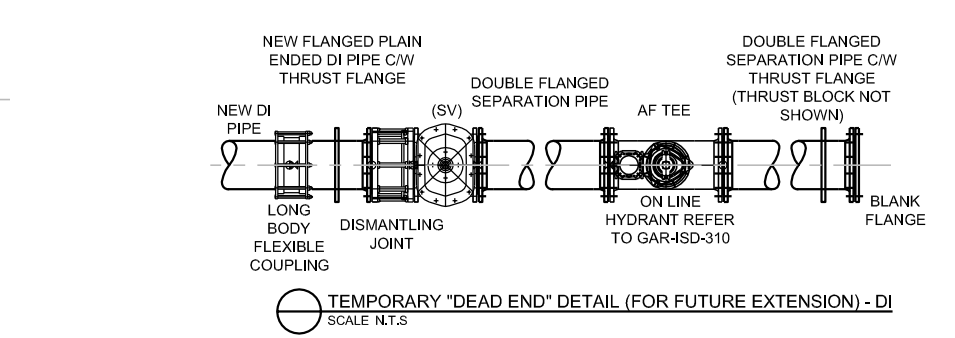
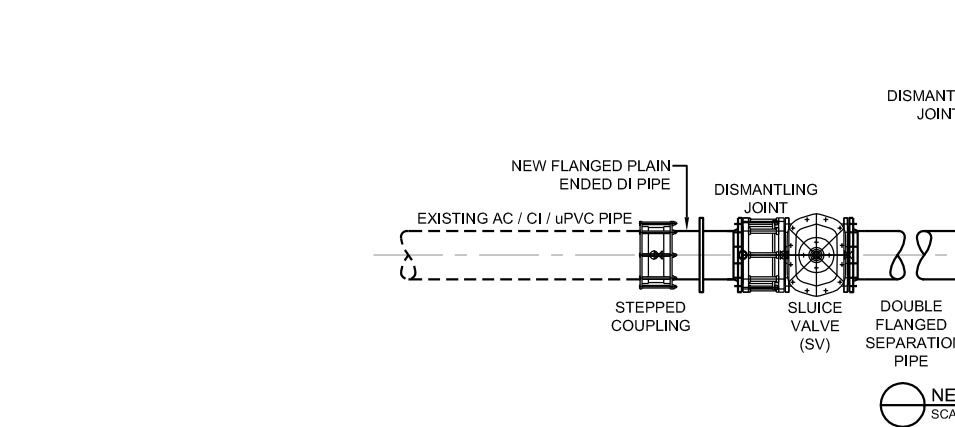
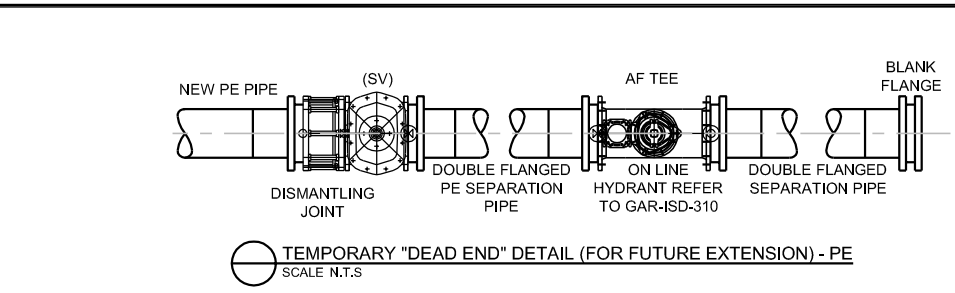
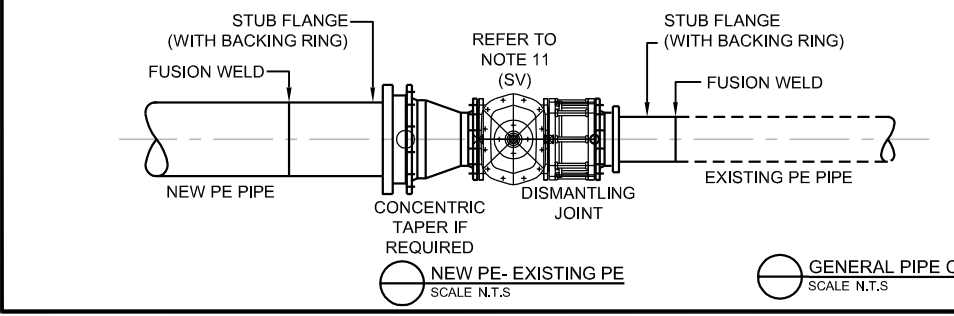
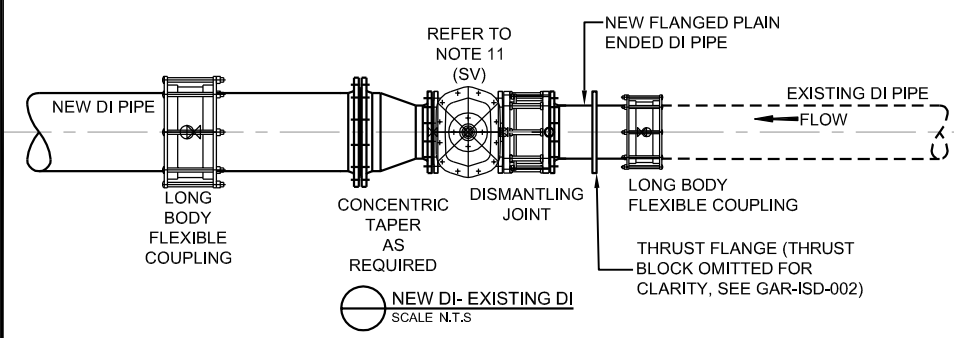
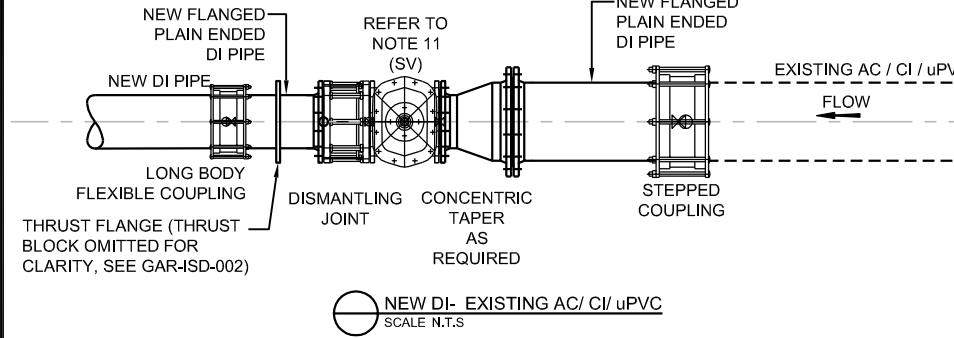
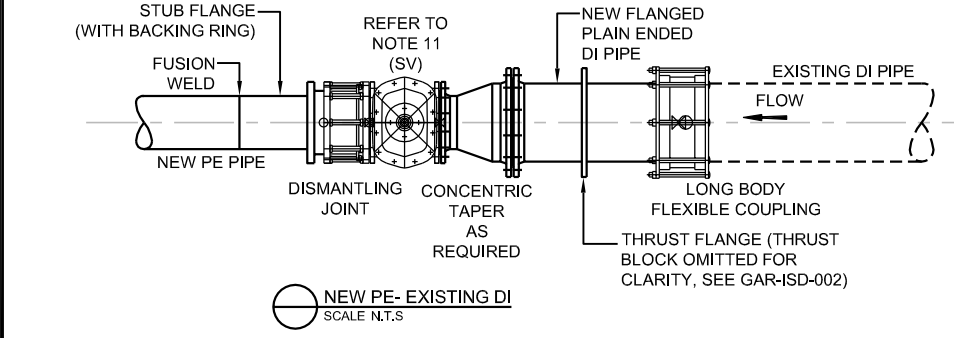
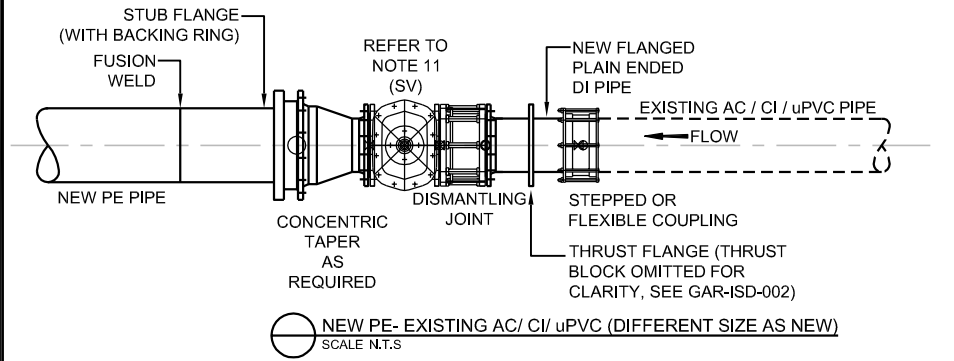
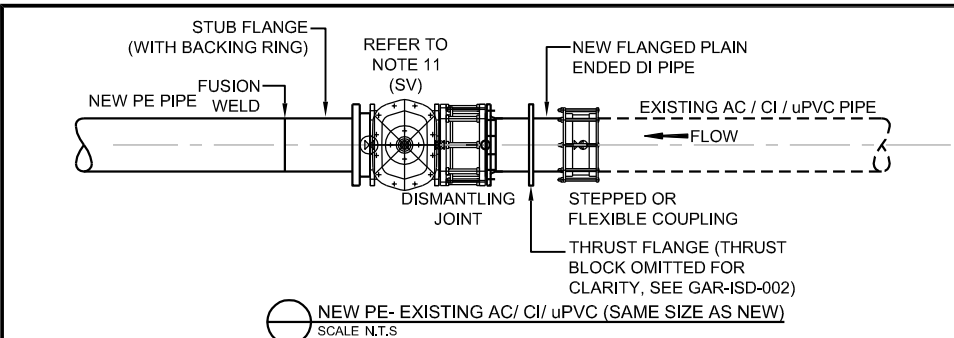
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DETAIL NOTES

- NOTES:**
- ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
 - ALL BENDS, TEES, DEAD ENDS, ETC. OF PIPELINES TO BE ADEQUATELY RESTRAINED BY THRUST BLOCKS AS PER DRAWING No. GAR-isd-002. THRUST BLOCKS NOT SHOWN FOR CLARITY.
 - BUTT FUSION WELDING AND ELECTRO FUSION JOINTING OF PIPES SHALL ONLY BE CARRIED OUT BY TRAINED OPERATIVES IN POSSESSION OF A CURRENT TRAINING CERTIFICATE, USING FULLY AUTOMATIC APPROVED JOINTING MACHINERIES IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. THE IDENTITY OF THE PE PIPELINE MANUFACTURER SHALL BE MADE KNOWN TO IRISH WATER PRIOR TO COMMENCEMENT OF THE INSTALLATION. CERTIFICATION AND TESTING (INCLUDING INDEPENDENT THIRD PARTY CERTIFICATION) SHALL BE PROVIDED TO CONFIRM QUALITY ASSURANCE COMPLIANCE. EACH JOINT SHALL BE CLEARLY MARKED WITH THE JOINT LOGGED AUTOMATICALLY ON THE JOINTING MACHINE. A PRINTOUT OF THE JOINT DETAILS, WITH A GPS LOCATION OF EACH JOINT, SHALL BE PROVIDED AND RETAINED FOR QUALITY ASSURANCE PURPOSES.
 - CONNECTING TO EXISTING MAINS IS TO BE CARRIED OUT BY IRISH WATER OR AN APPROVED IRISH WATER AGENT.
 - WHEN EXISTING AC WATERMANS ARE PRESENT A SPECIFIC METHOD STATEMENT SHALL BE SUBMITTED TO IRISH WATER PRIOR TO WORKS TAKING PLACE AND SUBJECT TO WRITTEN APPROVAL, DETAILING THE PROTECTION TO BE PUT IN PLACE TO EXISTING MAINS. METHOD OF REMOVAL OF EXISTING AC. METHOD OF DISPOSAL OF EXISTING AC AND METHOD OF CONNECTION TO EXISTING AC.
 - PIPE MATERIAL REFERENCES AS FOLLOWS:
 - AC - ASBESTOS CEMENT
 - DI - DUCTILE IRON
 - CI - CAST IRON
 - PE - POLYETHYLENE
 - uPVC - UNPLASTICISED POLY VINYL CHLORIDE
 - ST - STEEL
 - OTHER - REFERS TO ALL EXISTING PIPE MATERIALS OTHER THAN PE (TYPICALLY AC, DI, CI, uPVC & ST)
 - VALVE CHAMBERS TO BE IN ACCORDANCE WITH GAR-isd-306 (DI) AND GAR-isd-307 (PE). CHAMBERS NOT SHOWN FOR CLARITY.
 - ALL THRUST FLANGES TO BE ADEQUATELY RESTRAINED BY THRUST BLOCKS AS PER DRAWING No. GAR-isd-002. THRUST BLOCKS NOT SHOWN FOR CLARITY.
 - DOUBLE FLANGED SEPARATION PIPE, UP TO 5m IN LENGTH, MAY BE REQUIRED TO ALLOW SEPARATION DISTANCE BETWEEN VALVE CHAMBERS
 - A HIGH LEVEL OF HEALTH AND SAFETY PROCEDURES IS REQUIRED WHEN WORKING ON AC MAINS & THE OPERATION OF DISMANTLING/ REMOVAL OF AC PIPES & JOINTS.
 - VALVES SHALL BE ARRANGED IN SUCH A MANNER TO ALLOW FOR THE NETWORK TO BE MANAGED TO ENSURE THAT NO MORE THAN 40 PROPERTIES LOSE WATER FROM A BURST ON THE SYSTEM AT ANY ONE TIME.

Sheet Title:
INFRASTRUCTURE STANDARD DETAILS (W-04)(W-05)

Sheet No. **GAR-isd-302** Rev. **A**



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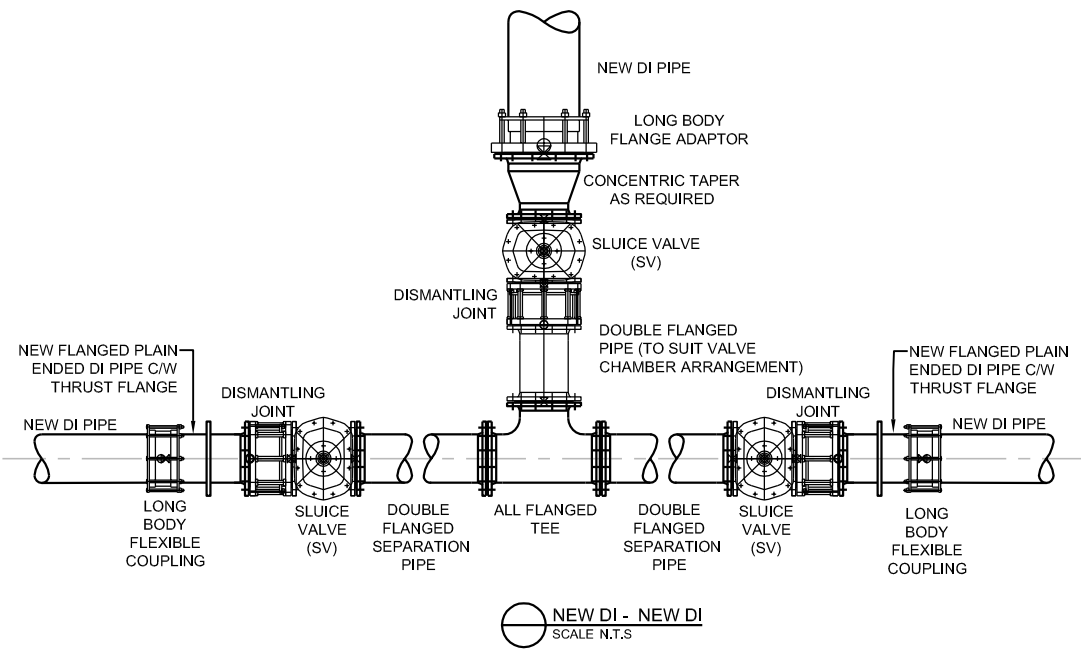
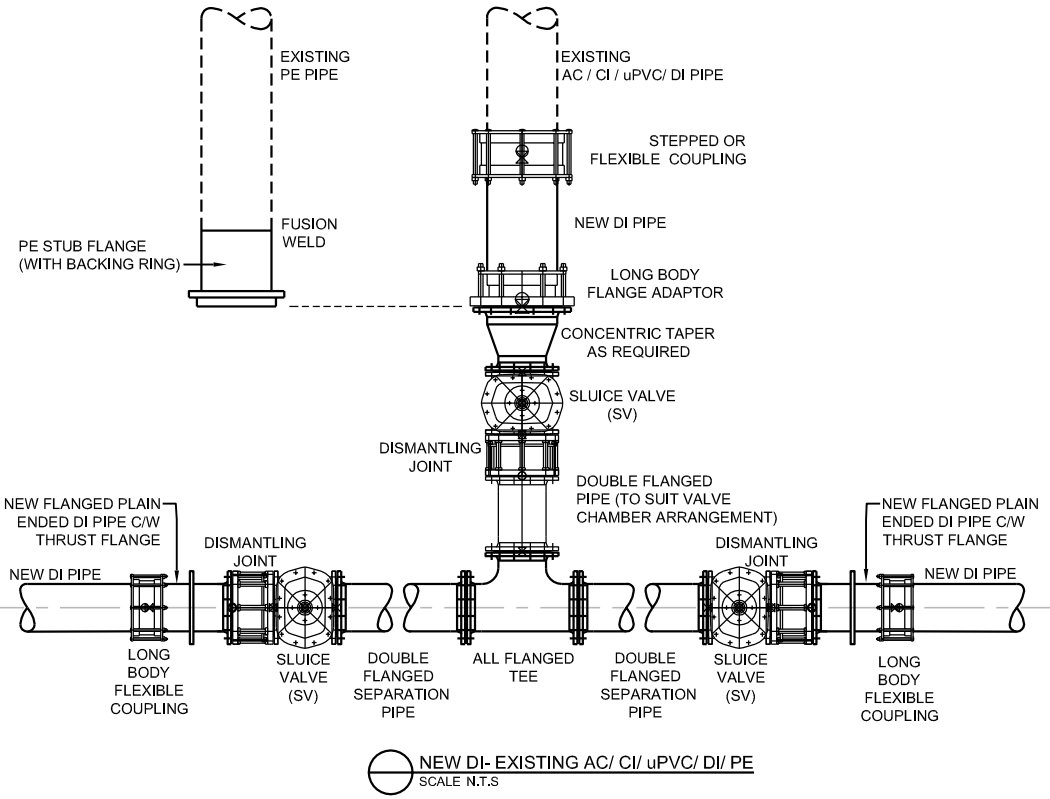
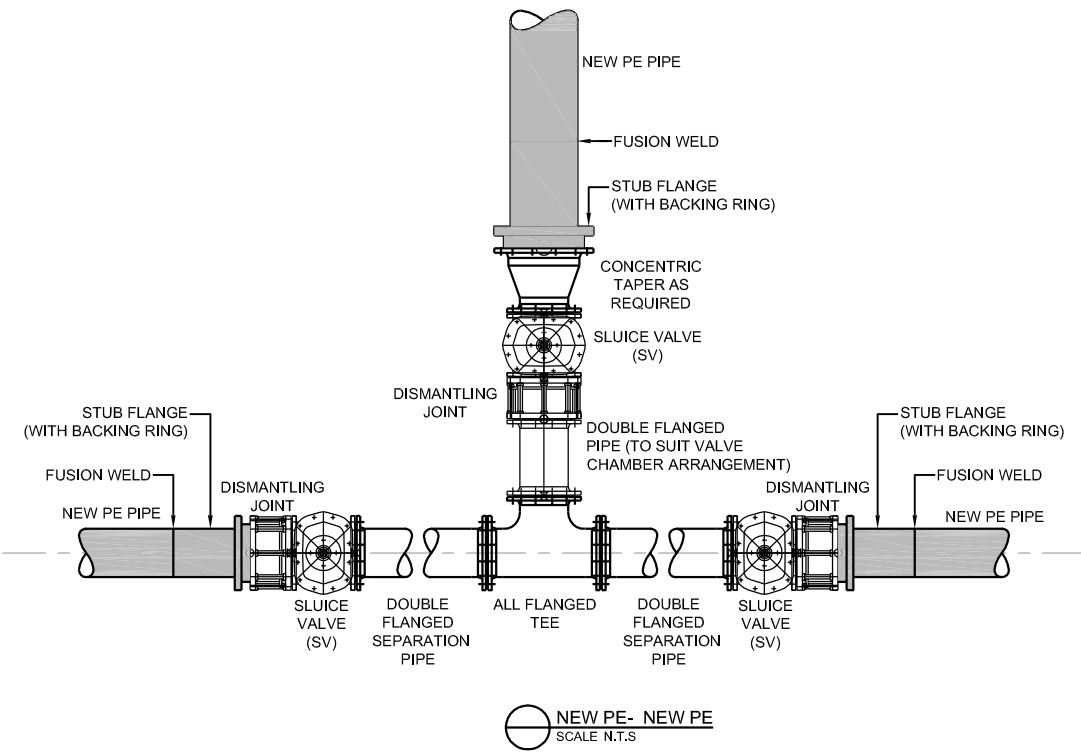
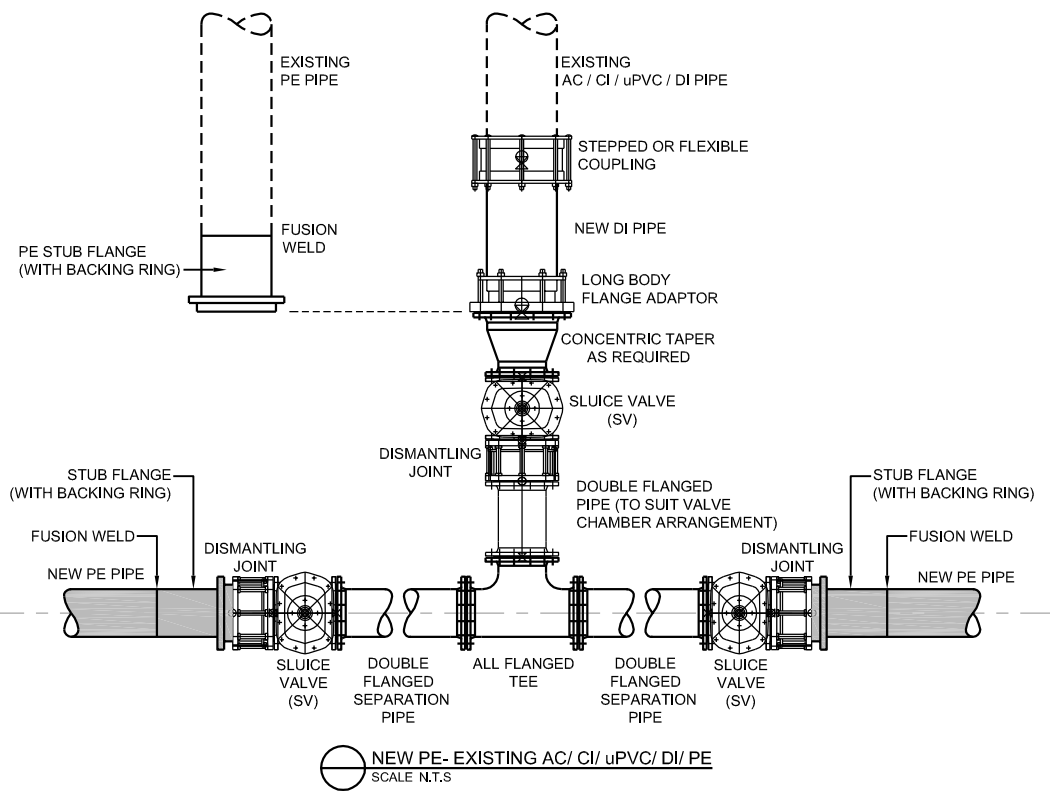
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INFRASTRUCTURE STANDARD DETAILS (W-04)(W-05) SERIES - JAN 2018 DWG

DETAIL NOTES

- NOTES:**
- ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
 - ALL BENDS, TEES, DEAD ENDS, ETC. OF PIPELINES TO BE ADEQUATELY RESTRAINED BY THRUST BLOCKS AS PER DRAWING No. GAR-1SD-002. THRUST BLOCKS NOT SHOWN FOR CLARITY.
 - BUTT FUSION WELDING AND ELECTRO FUSION JOINTING OF PIPES SHALL ONLY BE CARRIED OUT BY TRAINED OPERATIVES IN POSSESSION OF A CURRENT TRAINING CERTIFICATE, USING FULLY AUTOMATIC APPROVED JOINTING MACHINES IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. THE IDENTITY OF THE PE PIPELINE MANUFACTURER SHALL BE MADE KNOWN TO IRISH WATER PRIOR TO COMMENCEMENT OF THE INSTALLATION. CERTIFICATION AND TESTING (INCLUDING INDEPENDENT THIRD PARTY CERTIFICATION) SHALL BE PROVIDED TO CONFIRM QUALITY ASSURANCE COMPLIANCE. EACH JOINT SHALL BE CLEARLY MARKED WITH THE JOINT LOGGED AUTOMATICALLY ON THE JOINTING MACHINE. A PRINTOUT OF THE JOINT DETAILS, WITH A GPS LOCATION OF EACH JOINT, SHALL BE PROVIDED AND RETAINED FOR QUALITY ASSURANCE PURPOSES.
 - CONNECTING TO EXISTING MAINS IS TO BE CARRIED OUT BY IRISH WATER OR AN APPROVED IRISH WATER AGENT.
 - WHEN EXISTING AC WATERMAINS ARE PRESENT A SPECIFIC METHOD STATEMENT SHALL BE SUBMITTED TO IRISH WATER PRIOR TO WORKS TAKING PLACE AND SUBJECT TO WRITTEN APPROVAL. DETAILING THE PROTECTION TO BE PUT IN PLACE TO EXISTING MAINS, METHOD OF REMOVAL OF EXISTING AC, METHOD OF DISPOSAL OF EXISTING AC AND METHOD OF CONNECTION TO EXISTING AC.
 - PIPE MATERIAL REFERENCES AS FOLLOWS:
 - AC - ASBESTOS CEMENT
 - DI - DUCTILE IRON
 - CI - CAST IRON
 - PE - POLYETHYLENE
 - uPVC - UNPLASTICISED POLY VINYL CHLORIDE
 - ST - STEEL
 - OTHER - REFERS TO ALL EXISTING PIPE MATERIALS OTHER THAN PE (TYPICALLY AC, DI, CI, uPVC & ST)
 - VALVE CHAMBERS TO BE IN ACCORDANCE WITH GAR-1SD-306 (DI) AND GAR-1SD-002 (PE). CHAMBERS NOT SHOWN FOR CLARITY.
 - ALL THRUST FLANGES TO BE ADEQUATELY RESTRAINED BY THRUST BLOCKS AS PER DRAWING No. GAR-1SD-002. THRUST BLOCKS NOT SHOWN FOR CLARITY.
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 - VALVES SHALL BE ARRANGED IN SUCH A MANNER TO ALLOW FOR NETWORK TO BE MANAGED TO ENSURE THAT NO MORE THAN 40 PROPERTIES LOSE WATER FROM A BURST ON THE SYSTEM AT ANY ONE TIME.



GENERAL PIPE CONNECTIONS (3 of 7)(W-06)
SCALE N.T.S.

GENERAL PIPE CONNECTIONS (4 of 7)(W-07)
SCALE N.T.S.

Sheet Title:
INFRASTRUCTURE STANDARD DETAILS
(W-06)(W-07)

Sheet No. **GAR-1SD-303** Rev. **A**

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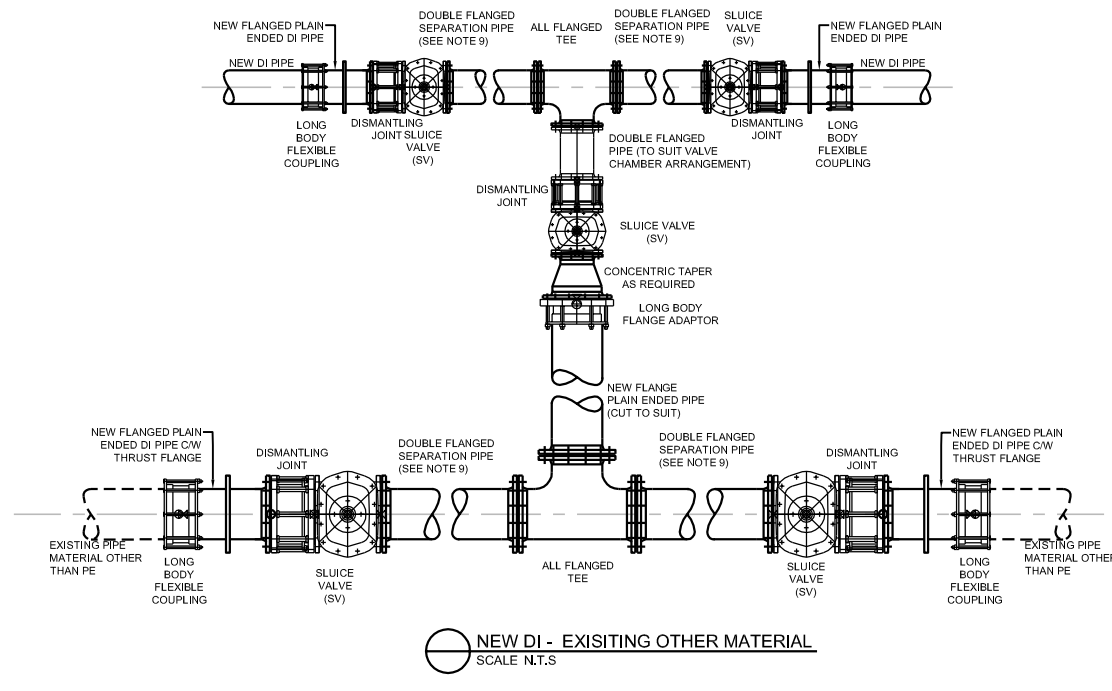
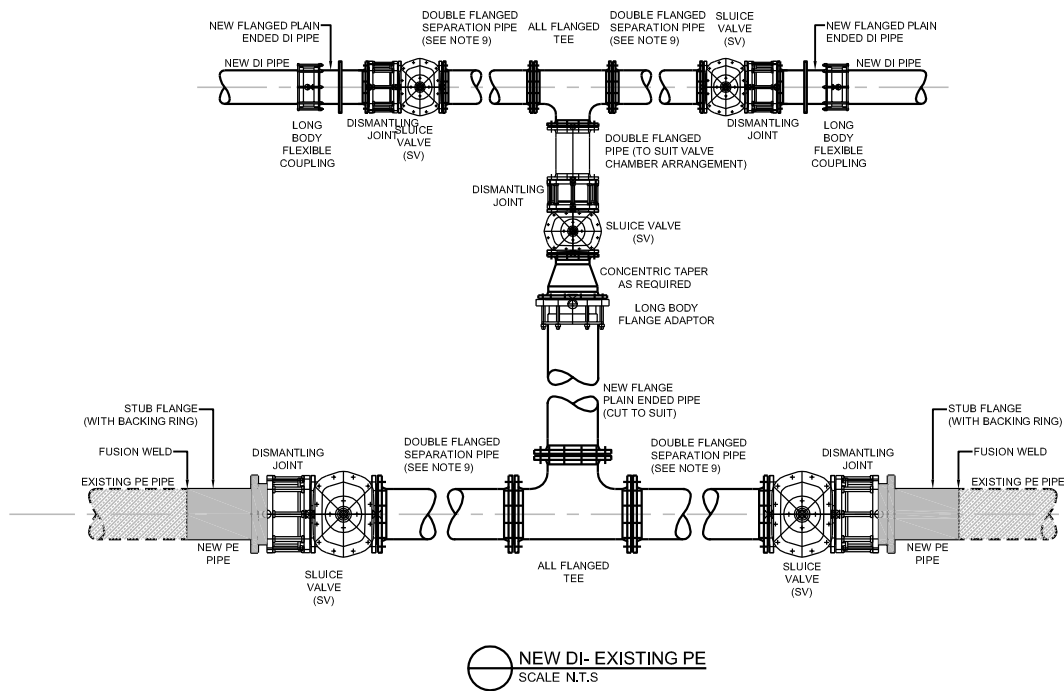
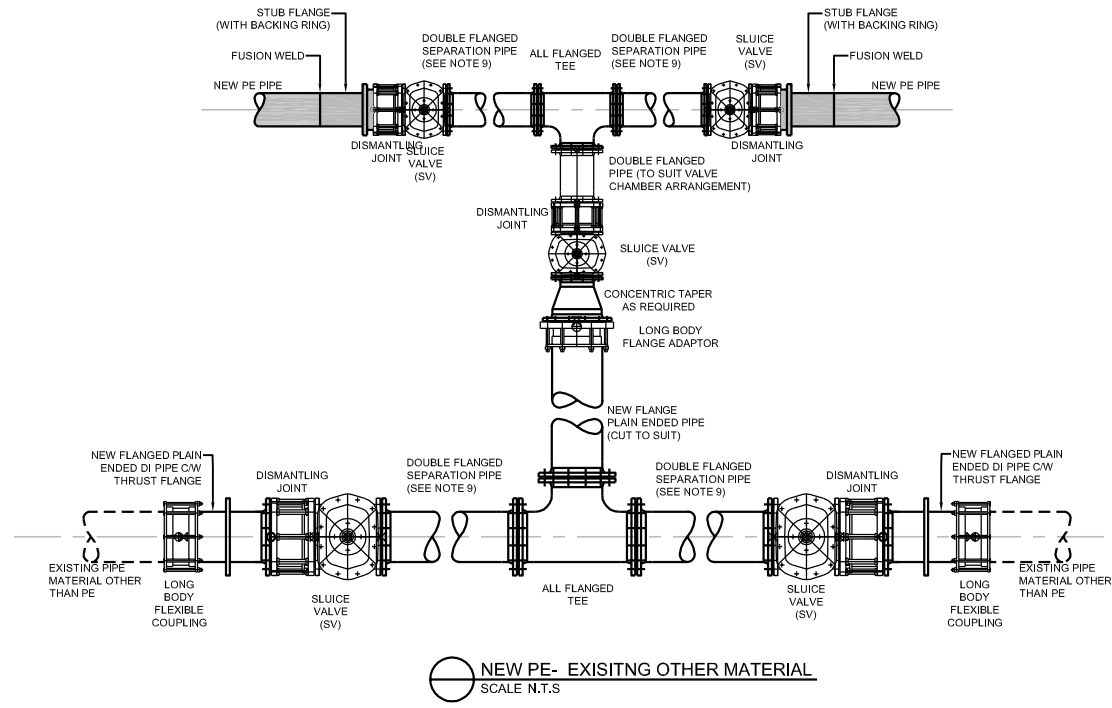
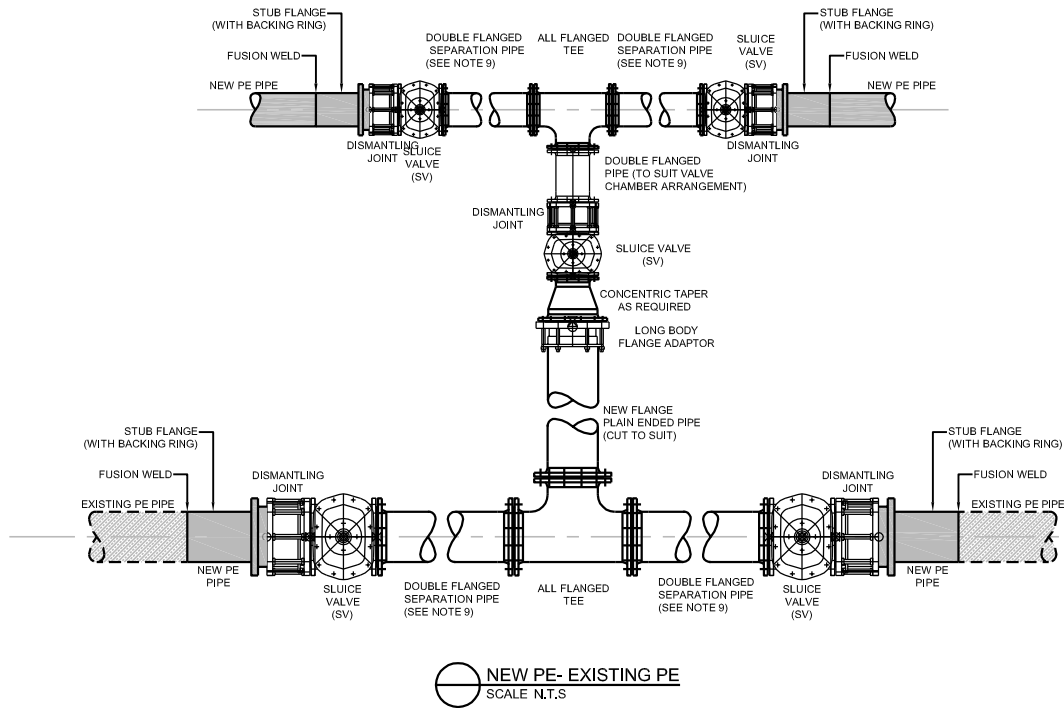
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WATER SUPPLY SERVICES STANDARD INFRASTRUCTURE DETAILING SERIES POTABLE WATER/GAR-1SD-303 SERIES - JAN 2018 DWG

DETAIL NOTES

- ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
- ALL BENDS, TEES, DEAD ENDS, ETC. OF PIPELINES TO BE ADEQUATELY RESTRAINED BY THRUST BLOCKS AS PER DRAWING No. GAR-ISD-002. THRUST BLOCKS NOT SHOWN FOR CLARITY.
- BUTT FUSION WELDING AND ELECTRO FUSION JOINTING OF PIPES SHALL ONLY BE CARRIED OUT BY TRAINED OPERATIVES IN POSSESSION OF A CURRENT TRAINING CERTIFICATE, USING FULLY AUTOMATIC APPROVED JOINTING MACHINE/RIGS IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. THE IDENTITY OF THE PIPELINE MANUFACTURER SHALL BE MADE KNOWN TO IRISH WATER PRIOR TO COMMENCEMENT OF THE INSTALLATION. CERTIFICATION AND TESTING (INCLUDING INDEPENDENT THIRD PARTY CERTIFICATION) SHALL BE PROVIDED TO CONFIRM QUALITY ASSURANCE COMPLIANCE. EACH JOINT SHALL BE CLEARLY MARKED WITH THE JOINT LOGGED AUTOMATICALLY ON THE JOINTING MACHINE. A PRINTOUT OF THE JOINT DETAILS, WITH A GPS LOCATION OF EACH JOINT, SHALL BE PROVIDED AND RETAINED FOR QUALITY ASSURANCE PURPOSES.
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 - OTHER - REFERS TO ALL EXISTING PIPE MATERIALS OTHER THAN PE (TYPICALLY AC, DI, CI, uPVC & ST)
- SLUICE VALVE CHAMBERS TO BE IN ACCORDANCE WITH GAR-ISD-306 (DI) AND GAR-ISD-307 (PE), CHAMBERS NOT SHOWN FOR CLARITY.
- ALL THRUST FLANGES TO BE ADEQUATELY RESTRAINED BY THRUST BLOCKS AS PER DRAWING No. GAR-ISD-002. THRUST BLOCKS NOT SHOWN FOR CLARITY.
- DOUBLE FLANGED SEPARATION PIPE, UP TO 5m IN LENGTH, MAY BE REQUIRED TO ALLOW SEPARATION DISTANCE BETWEEN VALVE CHAMBERS



GENERAL PIPE CONNECTIONS (5 of 7)(W-08)
SCALE N.T.S

Sheet Title:
INFRASTRUCTURE STANDARD DETAILS (W-08)

Sheet No. **GAR-ISD-304** Rev. **A**



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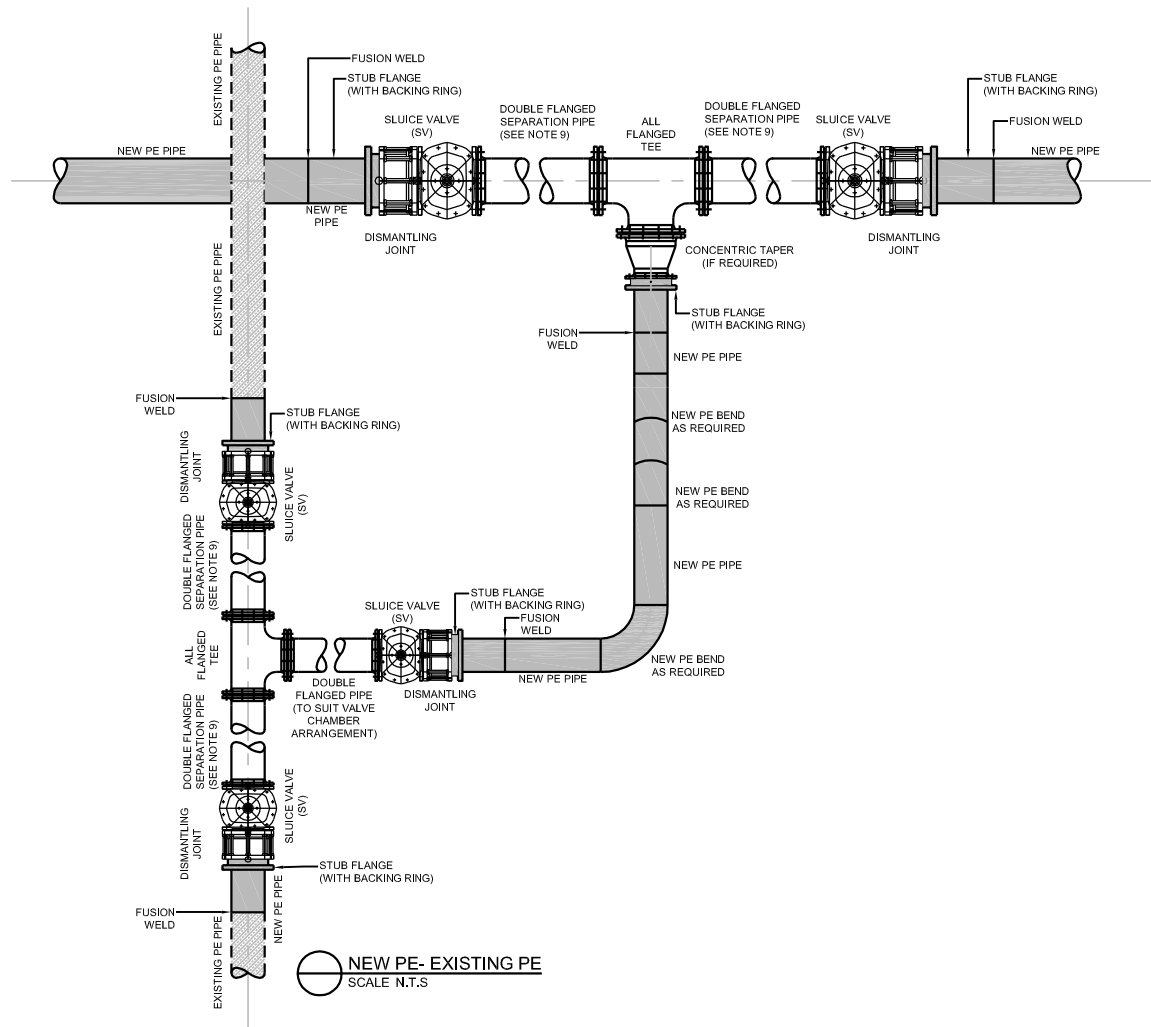
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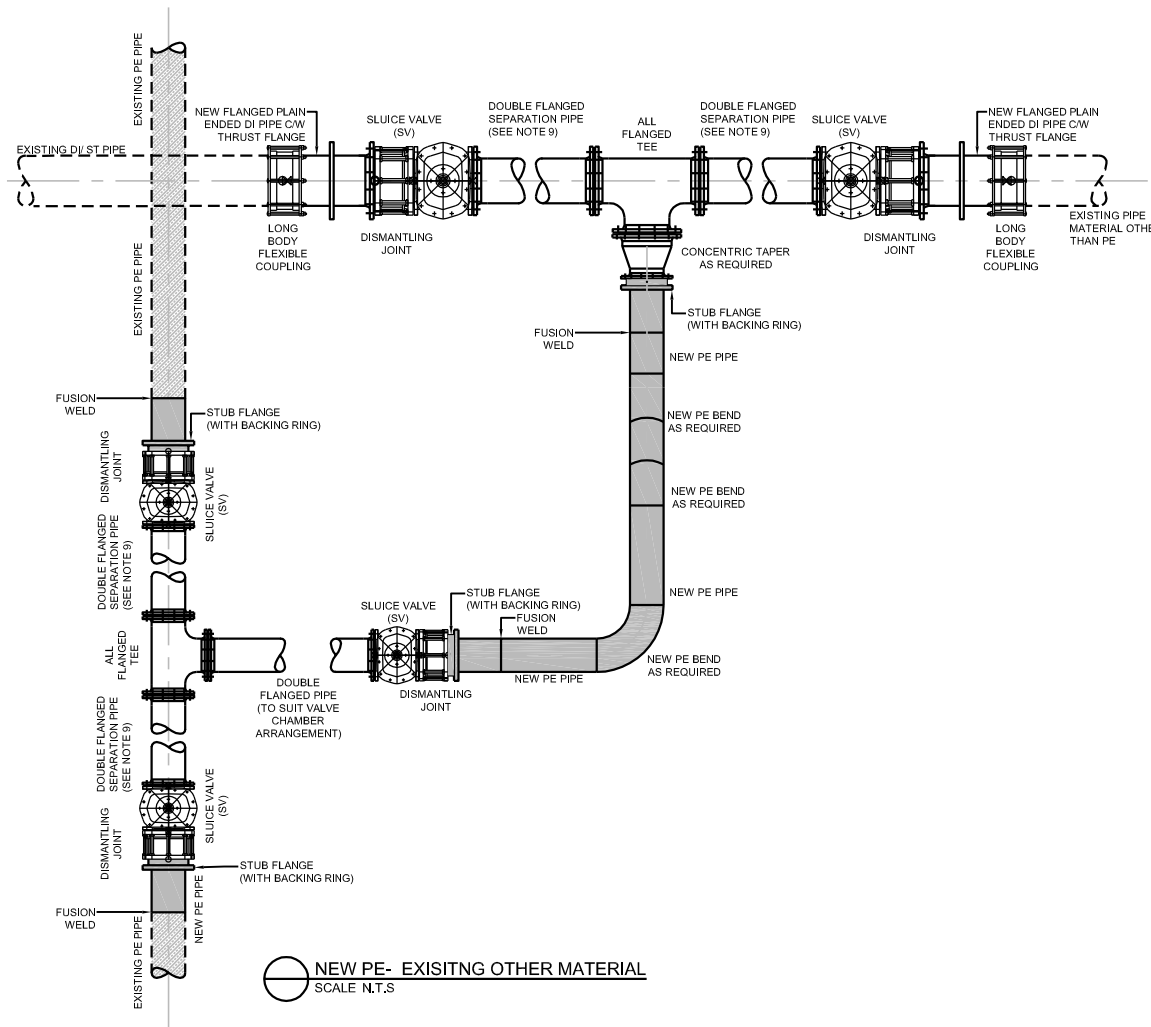
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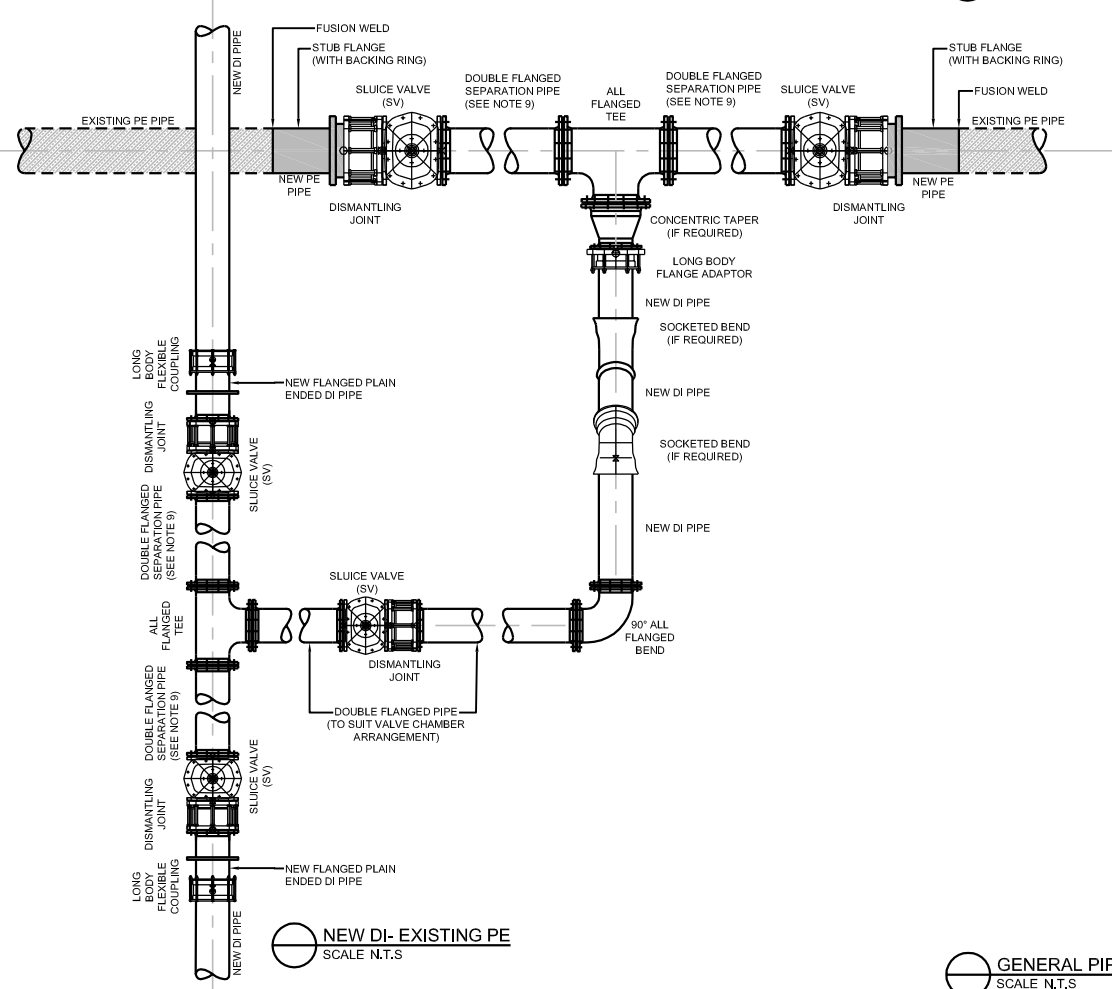


NEW PE- EXISTING PE
SCALE N.T.S

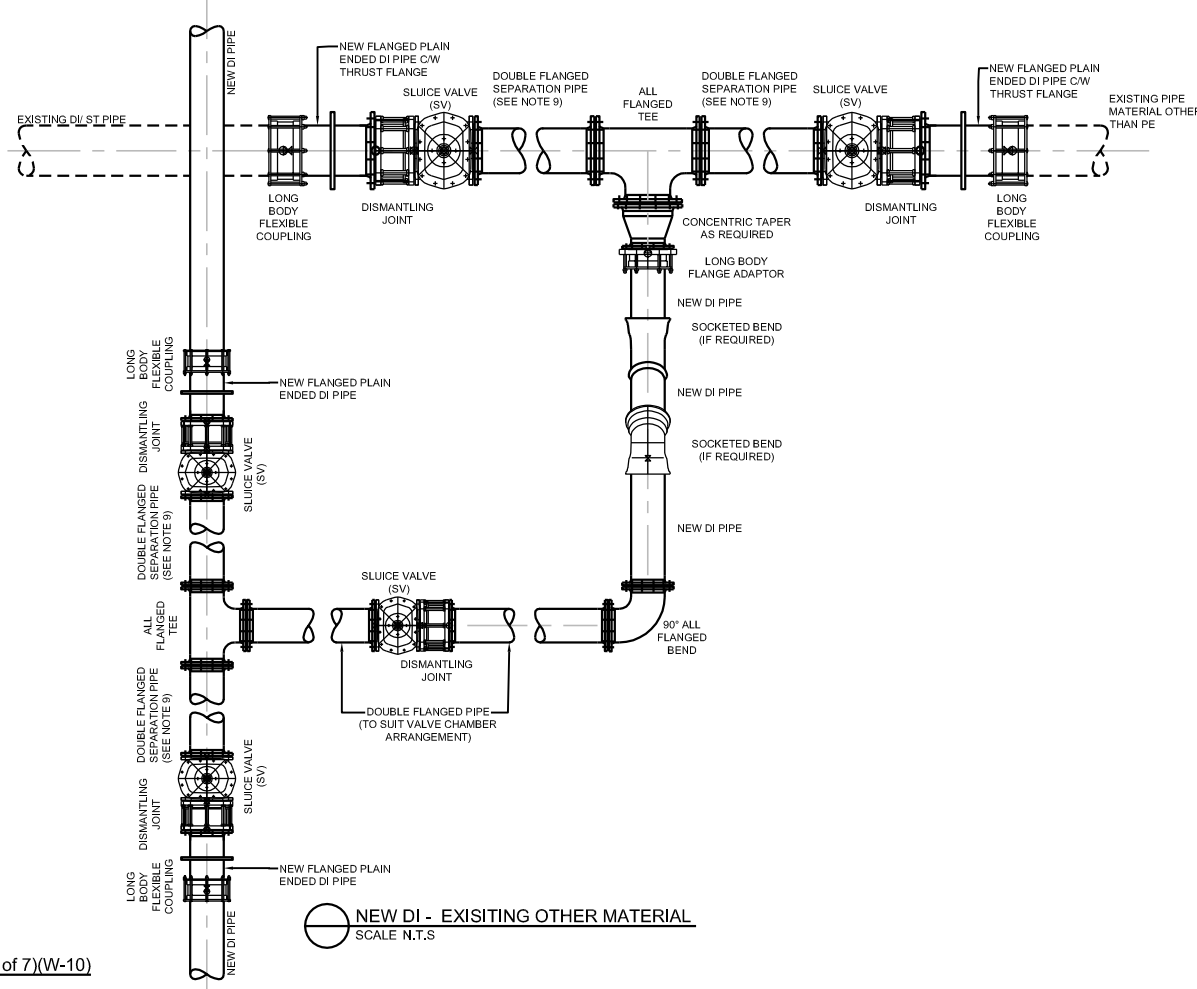


NEW PE- EXISTING OTHER MATERIAL
SCALE N.T.S

GENERAL PIPE CONNECTIONS (6 of 7)(W-09)
SCALE N.T.S



NEW DI- EXISTING PE
SCALE N.T.S



NEW DI - EXISTING OTHER MATERIAL
SCALE N.T.S

GENERAL PIPE CONNECTIONS (7 of 7)(W-10)
SCALE N.T.S

- DETAIL NOTES**
- ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
 - ALL BENDS, TEES, DEAD ENDS, ETC. OF PIPELINES TO BE ADEQUATELY RESTRAINED BY THRUST BLOCKS AS PER DRAWING No. GAR-SD-002. THRUST BLOCKS NOT SHOWN FOR CLARITY.
 - BUTT FUSION WELDING AND ELECTRO FUSION JOINTING OF PIPES SHALL ONLY BE CARRIED OUT BY TRAINED OPERATIVES IN POSSESSION OF A CURRENT TRAINING CERTIFICATE, USING FULLY AUTOMATIC APPROVED JOINTING MACHINE/RIGS IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. THE IDENTITY OF THE PE PIPELINE MANUFACTURER SHALL BE MADE KNOWN TO IRISH WATER PRIOR TO COMMENCEMENT OF THE INSTALLATION. CERTIFICATION AND TESTING (INCLUDING INDEPENDENT THIRD PARTY CERTIFICATION) SHALL BE PROVIDED TO CONFIRM QUALITY ASSURANCE COMPLIANCE, EACH JOINT SHALL BE CLEARLY MARKED WITH THE JOINT LOGGED AUTOMATICALLY ON THE JOINTING MACHINE. A PRINTOUT OF THE JOINT DETAILS, WITH A GPS LOCATION OF EACH JOINT, SHALL BE PROVIDED AND RETAINED FOR QUALITY ASSURANCE PURPOSES.
 - CONNECTING TO EXISTING MAINS IS TO BE CARRIED OUT BY IRISH WATER OR AN APPROVED IRISH WATER AGENT.
 - WHEN EXISTING AC WATERMANS ARE PRESENT A SPECIFIC METHOD STATEMENT SHALL BE SUBMITTED TO IRISH WATER PRIOR TO WORKS TAKING PLACE AND SUBJECT TO WRITTEN APPROVAL. DETAILING THE PROTECTION TO BE PUT IN PLACE TO EXISTING MAINS, METHOD OF REMOVAL OF EXISTING AC, METHOD OF DISPOSAL OF EXISTING AC AND METHOD OF CONNECTION TO EXISTING AC.
 - PIPE MATERIAL REFERENCES AS FOLLOWS:
AC - ASBESTOS CEMENT
DI - DUCTILE IRON
CI - CAST IRON
PE - POLYETHYLENE
uPVC - UNPLASTICISED POLY VINYL CHLORIDE
ST - STEEL
OTHER - REFERS TO ALL EXISTING PIPE MATERIALS OTHER THAN PE (TYPICALLY AC, DI, CI, uPVC & ST)
 - SLUIICE VALVE CHAMBERS TO BE IN ACCORDANCE WITH GAR-SD-306 (DI) AND GAR-SD-307 (PE), CHAMBERS NOT SHOWN FOR CLARITY.
 - ALL THRUST FLANGES TO BE ADEQUATELY RESTRAINED BY THRUST BLOCKS AS PER DRAWING No. GAR-SD-002. THRUST BLOCKS NOT SHOWN FOR CLARITY.
 - DOUBLE FLANGED SEPARATION PIPE, UP TO 5m IN LENGTH, MAY BE REQUIRED TO ALLOW SEPARATION DISTANCE BETWEEN VALVE CHAMBERS

Sheet Title:
**INFRASTRUCTURE STANDARD DETAILS
(W-09)(W-10)**

Sheet No. **GAR-SD-305** Rev. **A**

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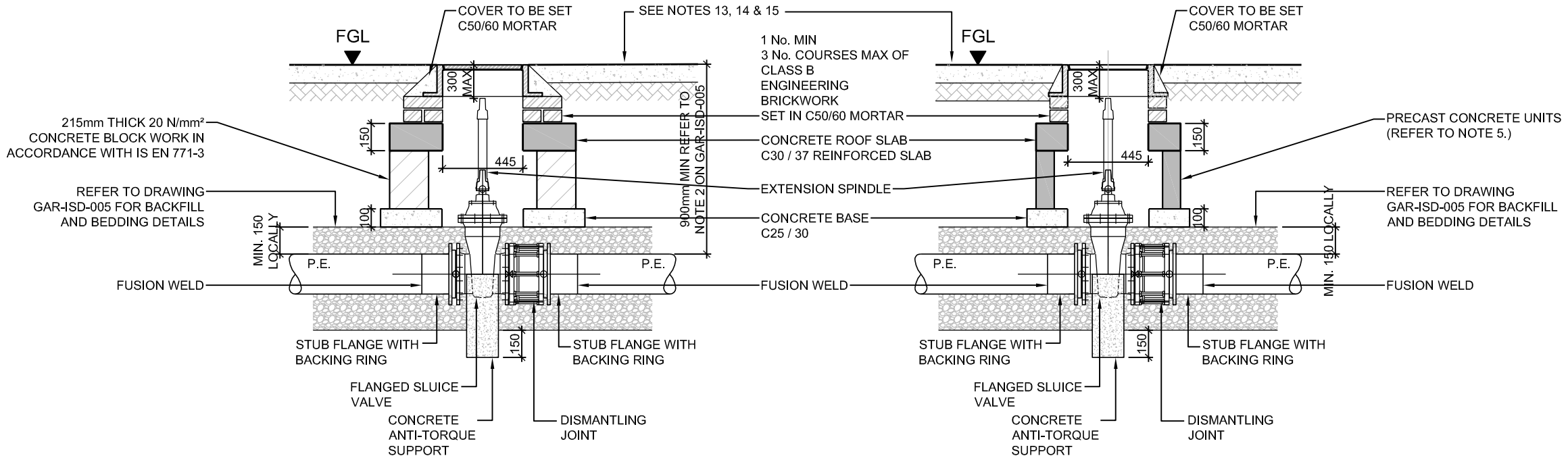
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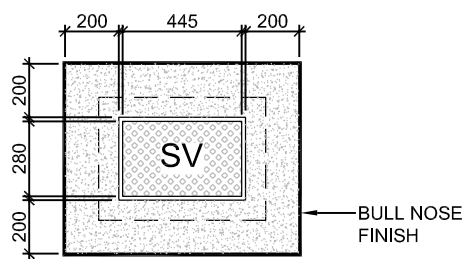
DETAIL NOTES

- ALL DIMENSIONS IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
- SLUIVE VALVE CHAMBERS SHALL BE COVERED WITH APPROVED HEAVY DUTY METAL COVERS TO IS 261 AND BS 5834, COVER AND FRAME SHALL BE SUITABLE FOR ROAD AND TRAFFIC CONDITIONS AND IS SUBJECT TO THE APPROVAL OF IRISH WATER.
- SLUIVE VALVES SHALL BE RESILIENT AND SHALL COMPLY WITH BS 5163-1, BS5163-2, IS EN 1074-1, IS EN 1074-2, OR EQUIVALENT E.U. SPECIFICATIONS
- ALL SLUIVE VALVES SHALL BE ANTI-CLOCKWISE CLOSING.
- VALVE CHAMBER TO BE CONSTRUCTED OF PRECAST CONCRETE UNITS OR HIGH DENSITY BLOCKWORK. ALTERNATIVELY PROPRIETARY PREFABRICATED CHAMBER UNITS MAY ALSO BE USED, SUBJECT TO REVIEW BY IRISH WATER. ROOF SLABS SHALL BE DESIGNED TO CARRY ALL LIVE LOADS & DEAD LOADS, & CONSIST OF A REINFORCED CONCRETE SLAB OF IN-SITU CONCRETE, GRADE C30/37, WITH A MINIMUM THICKNESS OF 150mm. ALTERNATIVELY, PRE-CAST CONCRETE ROOFS MAY BE USED, SUBJECT TO IRISH WATER REVIEW, & COMPLIANCE WITH BS 5911, Part 4.
- CONCRETE CHAMBERS SHALL BE SURROUNDED BY A MINIMUM OF 150mm COMPACTED CLAUSE 808 MATERIAL AS PER GAR-SD-004.
- DUCTILE IRON PIPES AND FITTINGS TO BE IN ACCORDANCE WITH IS EN 545, PE PIPES AND FITTINGS TO BE IN ACCORDANCE WITH IS EN 12201:2011.
- 200mm ALL AROUND, 100mm DEEP CONCRETE PLINTH AROUND COVERS IN GREEN AREAS.
- THRUST BLOCKS (NOT SHOWN ON DRAWING), TO BE PROVIDED AS PER STANDARD DRAWING GAR-SD-002 AT ALL TEES, BENDS, TAPERS, DEAD ENDS AND PIPES AT STEEP SLOPES.
- ANTI-CORROSION TAPE TO BE PROVIDED AROUND BURIED FLANGES.
- ALL CONCRETE TO BE IN ACCORDANCE WITH IS EN 206.
- 450 x 450mm INTERNAL DIMENSION CHAMBERS MAY BE PROVIDED SUBJECT TO REVIEW BY IW, SUCH CHAMBERS SHALL BE PROVIDED WITH GRADE "A" HEAVY DUTY COVER & FRAME & STAMPED "SV".
- ANY SPECIAL ROAD REINSTATEMENT AROUND COVER & FRAME SHALL BE TO ROAD AUTHORITY'S 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.

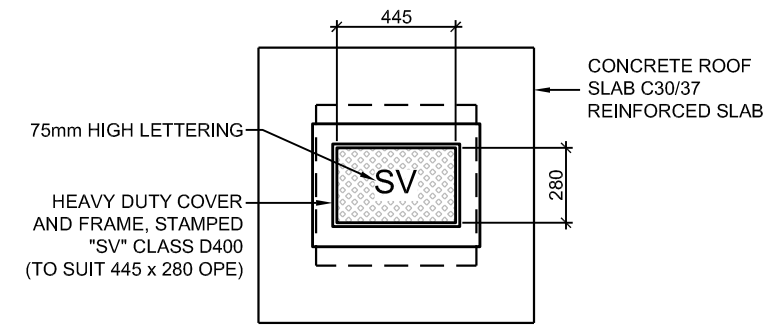


BLOCKWORK SECTION
SCALE N.T.S.

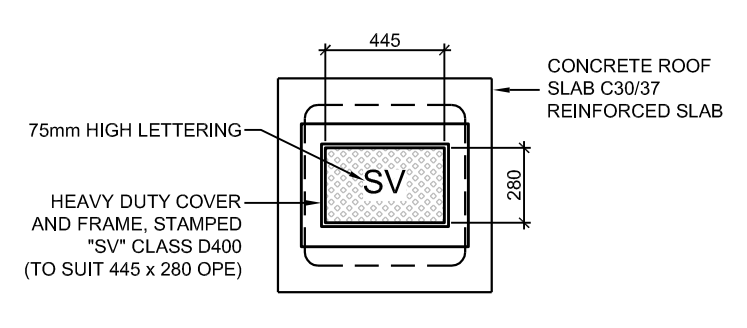
PRECAST SECTION
SCALE N.T.S.



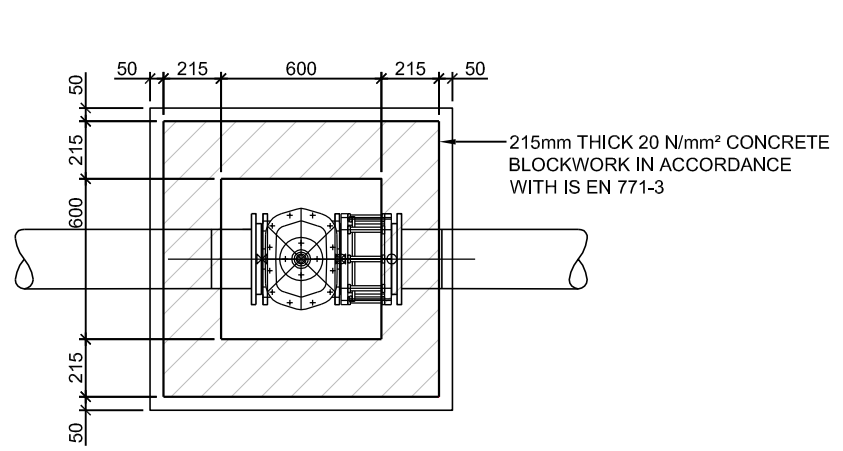
PLINTH DETAIL IN GRASS AREAS
SCALE N.T.S.



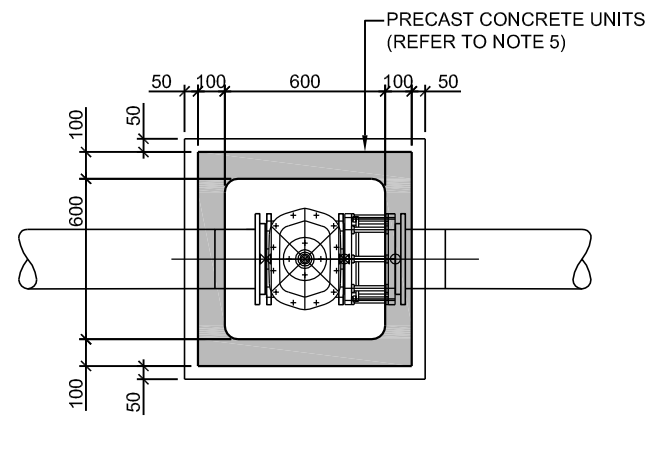
ROOF PLAN
SCALE N.T.S.



ROOF PLAN
SCALE N.T.S.



SLUIWE VALVE CHAMBER BLOCKWORK CONSTRUCTION
SCALE N.T.S.



SLUIWE VALVE CHAMBER PRECAST CONCRETE CONSTRUCTION
SCALE N.T.S.

SLUIWE VALVE DETAILS FOR WATER MAINS POLYETHYLENE (P.E.) PIPE (<350mm DIA.) (2 of 2) (W-15)
SCALE N.T.S.

Sheet Title:
INFRASTRUCTURE STANDARD DETAILS (W-15)

Sheet No. **GAR-SD-307** Rev. **A**

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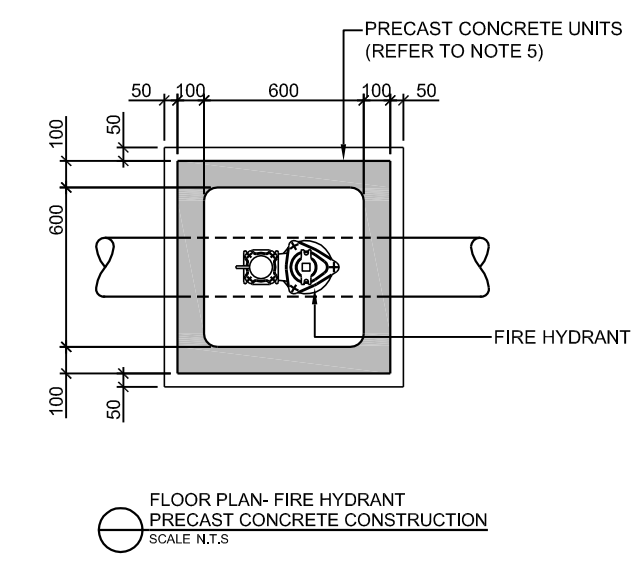
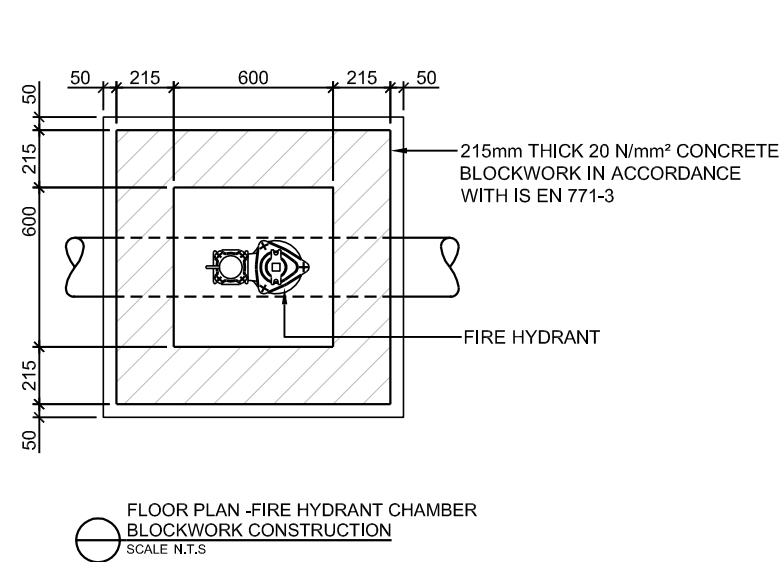
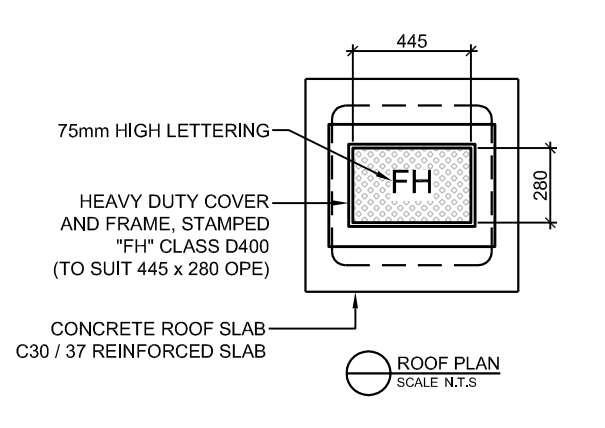
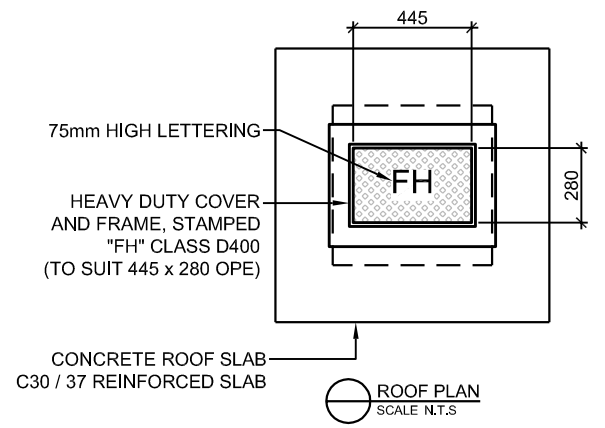
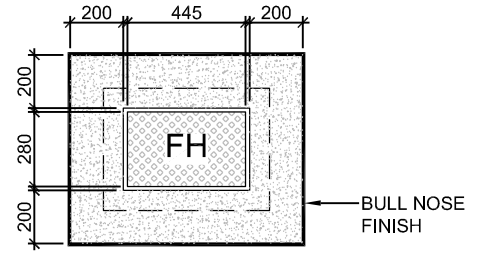
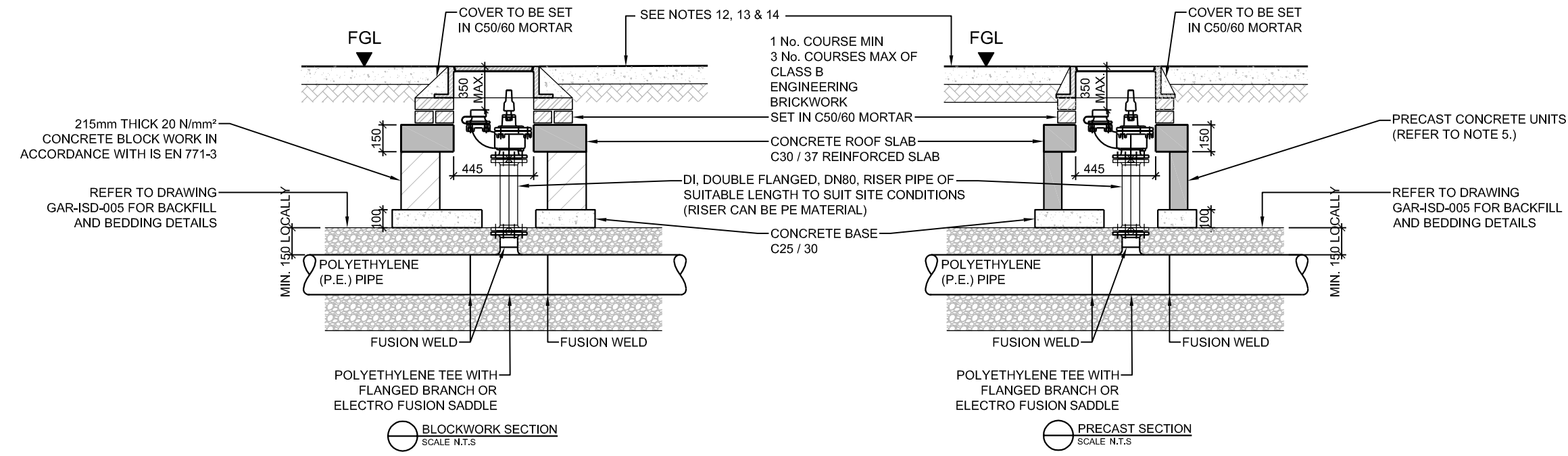
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DETAIL NOTES

- ALL DIMENSIONS IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
- HYDRANT CHAMBERS SHALL BE COVERED WITH APPROVED HEAVY DUTY METAL COVERS TO IS 261 AND BS 5834 COVER AND FRAME SHALL BE SUITABLE FOR ROAD AND TRAFFIC CONDITIONS AND IS SUBJECT TO REVIEW BY IRISH WATER.
- ALL HYDRANTS, SURFACE BOX FRAMES & COVERS SHALL COMPLY WITH THE RELEVANT PROVISIONS OF IS EN 14339, IS EN 1074-6 & BS 750. FIRE HYDRANTS SHALL BE TYPE 2. THE HYDRANT INLET SHALL BE 80mm DIAMETER WITH PN16
- ALL HYDRANTS SHALL BE CLOCKWISE CLOSING.
- HYDRANT CHAMBER TO BE CONSTRUCTED OF PRECAST CONCRETE UNITS OR HIGH DENSITY BLOCKWORK. ALTERNATIVELY PROPRIETARY PREFABRICATED CHAMBER UNITS MAY ALSO BE USED, SUBJECT TO REVIEW BY IRISH WATER. ROOF SLABS SHALL BE DESIGNED TO CARRY ALL LIVE LOADS & DEAD LOADS, & CONSIST OF A REINFORCED CONCRETE SLAB OR IN-SITU CONCRETE, GRADE C30/37, WITH A MINIMUM THICKNESS OF 150mm. ALTERNATIVELY, PRE-CAST CONCRETE ROOFS MAY BE USED, SUBJECT TO IRISH WATER REVIEW, & COMPLIANCE WITH BS 5911, Part 4.
- CONCRETE CHAMBERS SHALL BE SURROUNDED BY A MINIMUM OF 150mm COMPACTED CLAUSE 808 MATERIAL AS PER GAR-ISD-004.
- DUCTILE IRON PIPES AND FITTINGS TO BE IN ACCORDANCE WITH IS EN 545, PE PIPES AND FITTINGS TO BE IN ACCORDANCE WITH IS EN 12201:2011.
- 200mm ALL AROUND, 100mm DEEP CONCRETE PLINTH AROUND COVERS IN GREEN AREAS.
- THRUST BLOCKS (NOT SHOWN ON DRAWING), TO BE PROVIDED AS PER STANDARD DRAWING GAR-ISD-002 AT ALL TEES, BENDS, TAPERS, DEAD ENDS AND PIPES AT STEEP SLOPES.
- ANTI-CORROSION TAPE TO BE PROVIDED AROUND BURIED FLANGES.
- ALL CONCRETE TO BE IN ACCORDANCE WITH IS EN 206.
- ANY SPECIAL ROAD REINSTATEMENT AROUND COVER & FRAME SHALL BE TO ROAD AUTHORITY'S 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.



ON-LINE HYDRANT FOR POLYETHYLENE PIPE (3 of 4)(W-18)
SCALE N.T.S.

Sheet Title: INFRASTRUCTURE STANDARD DETAILS (W-18)	
Sheet No. GAR-ISD-310	Rev. A

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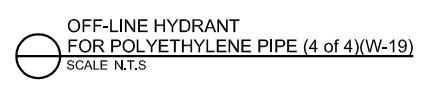
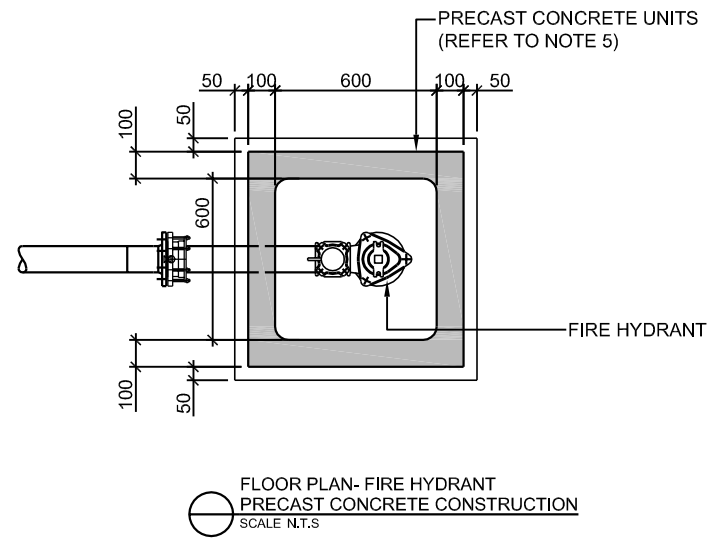
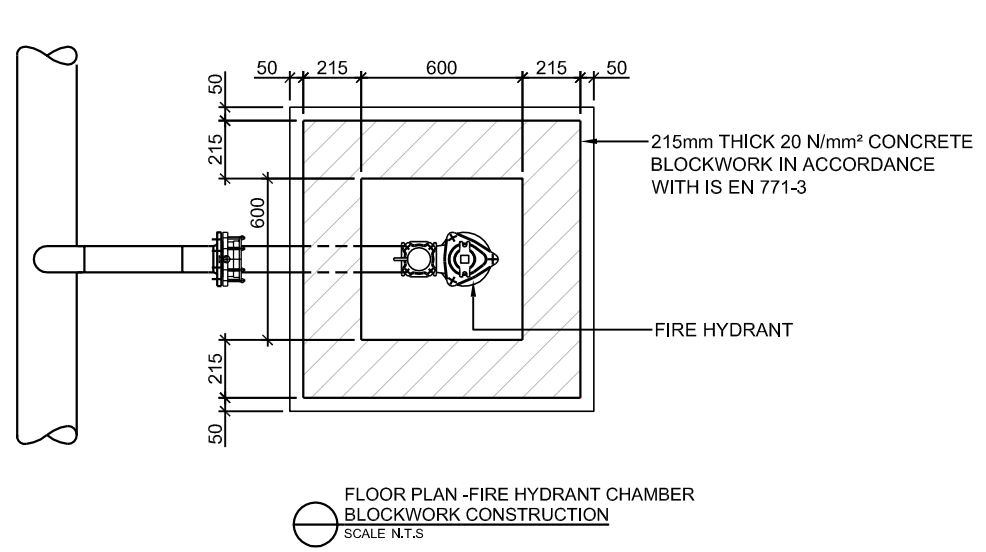
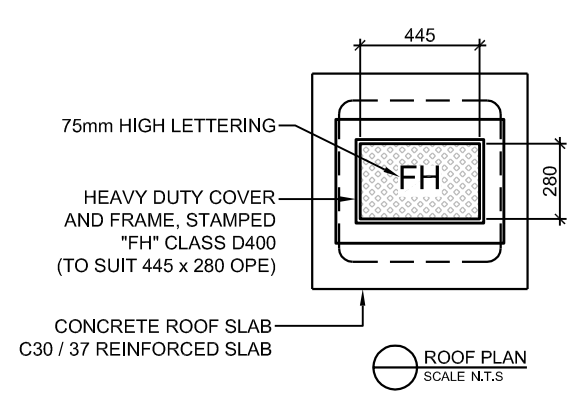
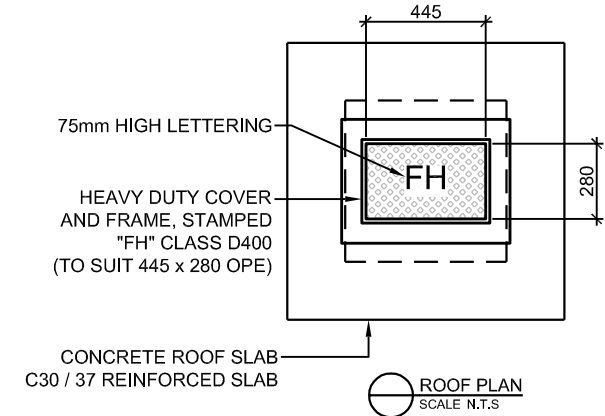
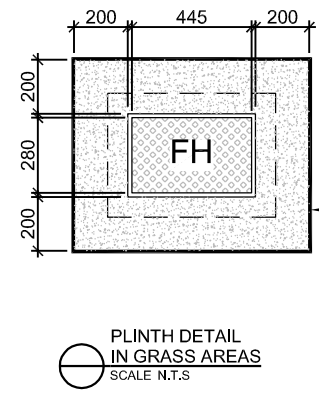
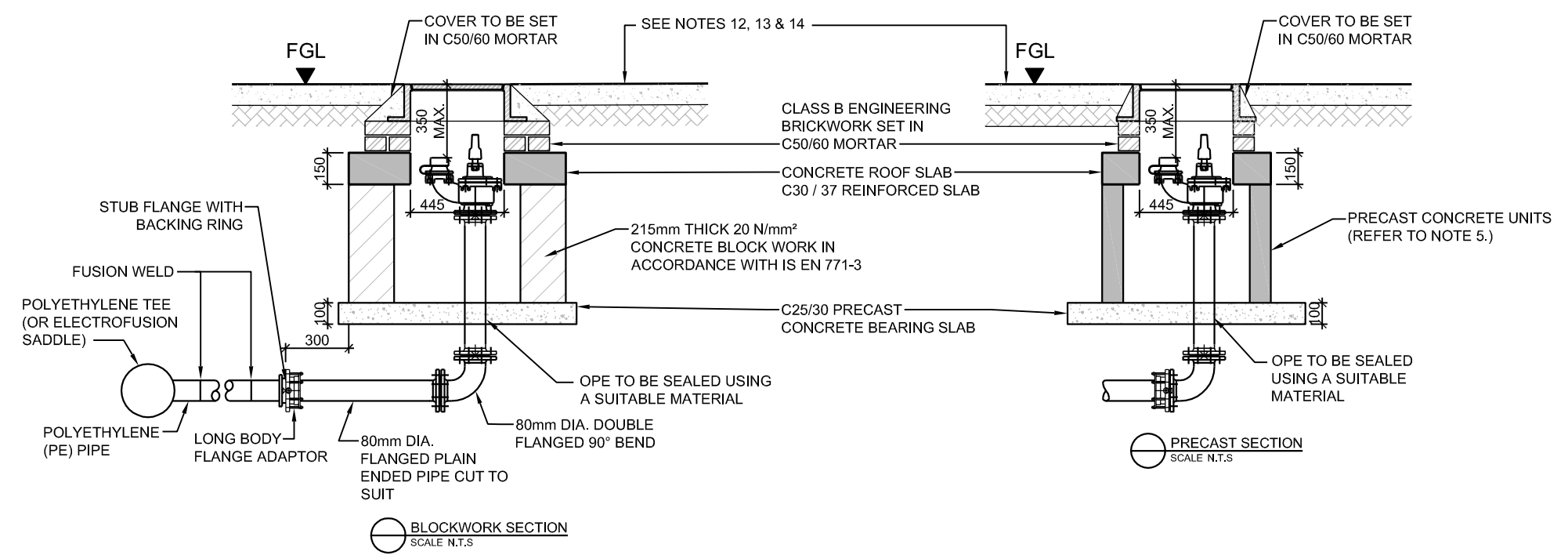
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DETAIL NOTES

- ALL DIMENSIONS IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
- HYDRANT CHAMBERS SHALL BE COVERED WITH APPROVED HEAVY DUTY METAL COVERS TO IS 261 AND BS 5834. COVER AND FRAME SHALL BE SUITABLE FOR ROAD AND TRAFFIC CONDITIONS AND IS SUBJECT FOR REVIEW BY IRISH WATER.
- ALL HYDRANTS, SURFACE BOX FRAMES & COVERS SHALL COMPLY WITH THE RELEVANT PROVISIONS OF IS EN 14339, IS EN 1074-6 & BS 750. FIRE HYDRANTS SHALL BE TYPE 2. THE HYDRANT INLET SHALL BE 80mm DIAMETER WITH PN16
- ALL HYDRANTS SHALL BE CLOCKWISE CLOSING.
- HYDRANT CHAMBER TO BE CONSTRUCTED OF PRECAST CONCRETE UNITS OR HIGH DENSITY BLOCKWORK. ALTERNATIVELY PROPRIETARY PREFABRICATED CHAMBER UNITS MAY ALSO BE USED, SUBJECT TO REVIEW BY IRISH WATER. ROOF SLABS SHALL BE DESIGNED TO CARRY ALL LIVE LOADS & DEAD LOADS, & CONSIST OF A REINFORCED CONCRETE SLAB OF IN-SITU CONCRETE, GRADE C30/37, WITH A MINIMUM THICKNESS OF 150mm. ALTERNATIVELY, PRE-CAST CONCRETE ROOFS MAY BE USED, SUBJECT TO IRISH WATER REVIEW, & COMPLIANCE WITH BS 5011, Part 4.
- CONCRETE CHAMBERS SHALL BE SURROUNDED BY A MINIMUM OF 150mm COMPACTED CLAUSE 808 MATERIAL AS PER GAR-ISD-004.
- DUCTILE IRON PIPES AND FITTINGS TO BE IN ACCORDANCE WITH IS EN 545.
- 200mm ALL AROUND, 100mm DEEP CONCRETE PLINTH AROUND COVERS IN GRASS AREAS.
- THRUST BLOCKS (NOT SHOWN ON DRAWING), TO BE PROVIDED AS PER STANDARD DRAWING GAR-ISD-002 AT ALL TEES, BENDS, TAPERS, DEAD ENDS AND PIPES AT STEEP SLOPES.
- ANTI-CORROSION TAPE TO BE PROVIDED AROUND BURIED FLANGES.
- ALL CONCRETE TO BE IN ACCORDANCE WITH IS EN 206.
- ANY SPECIAL ROAD REINSTATEMENT AROUND COVER & FRAME SHALL BE TO ROAD AUTHORITY'S 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.



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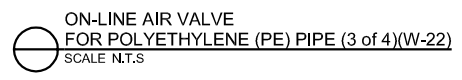
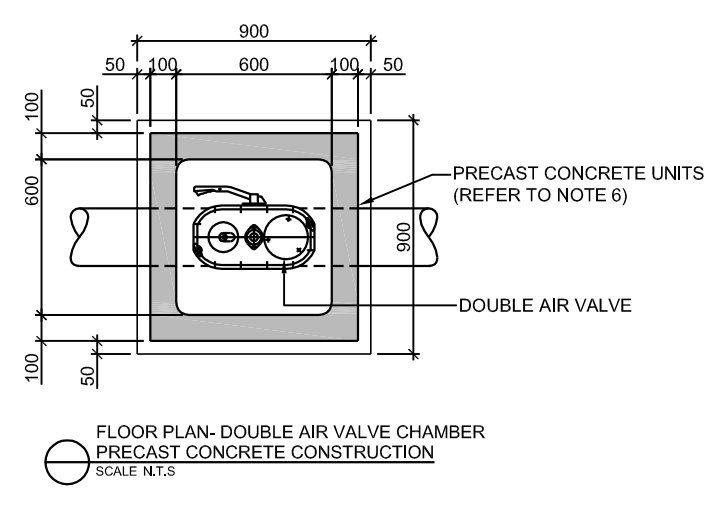
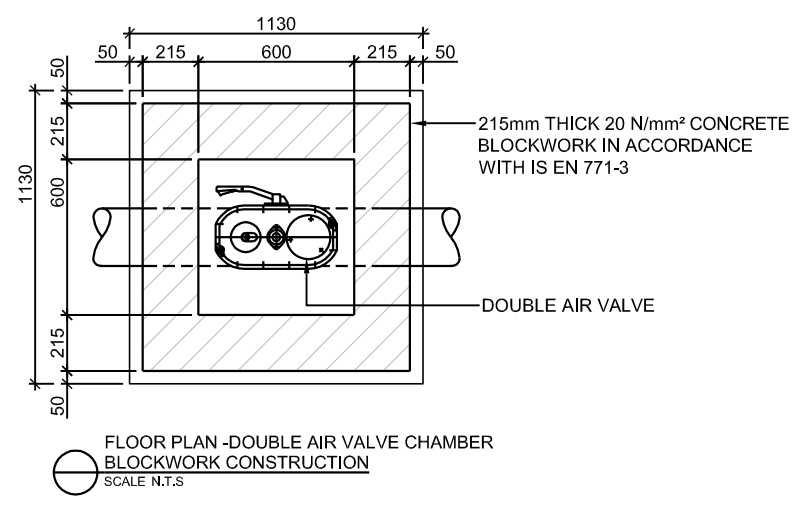
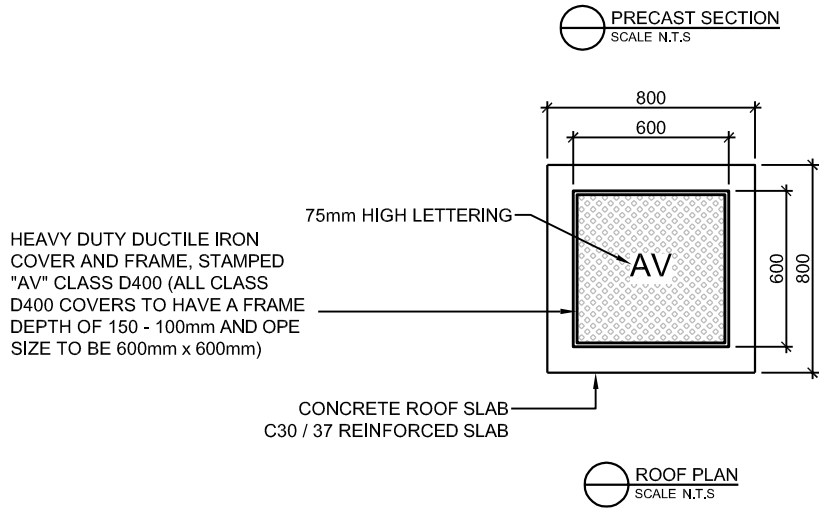
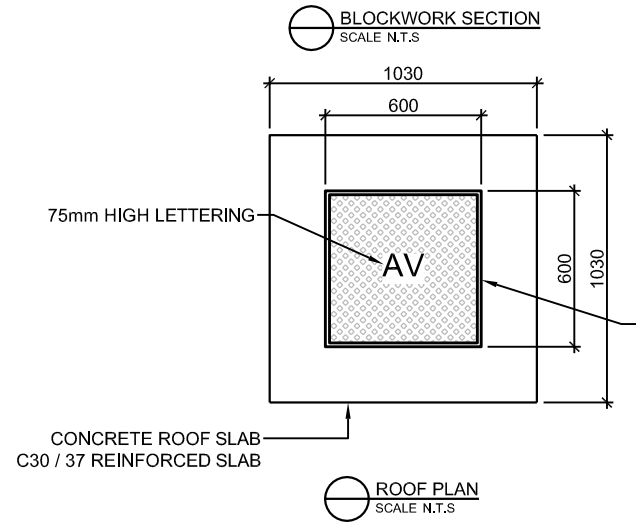
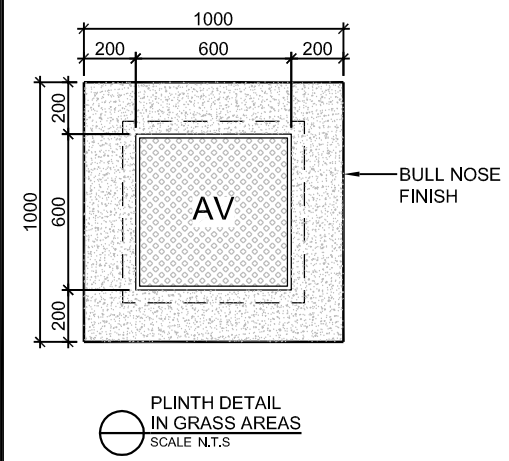
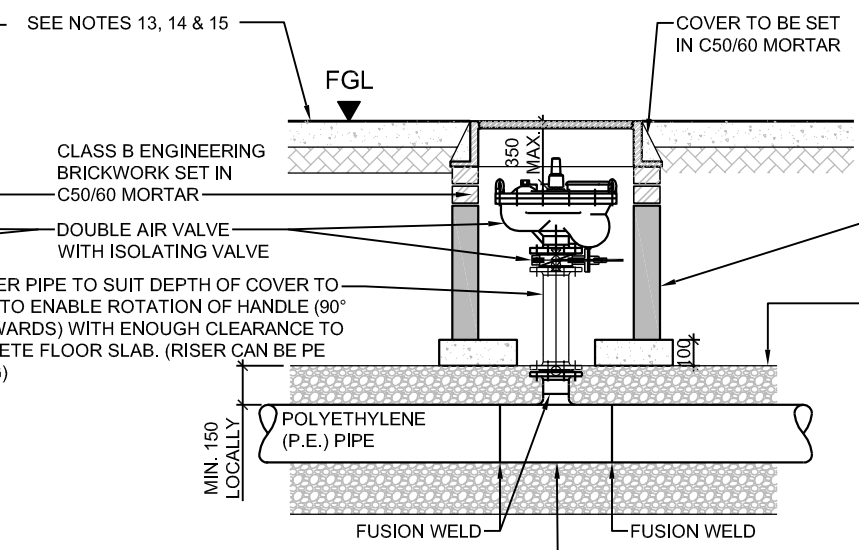
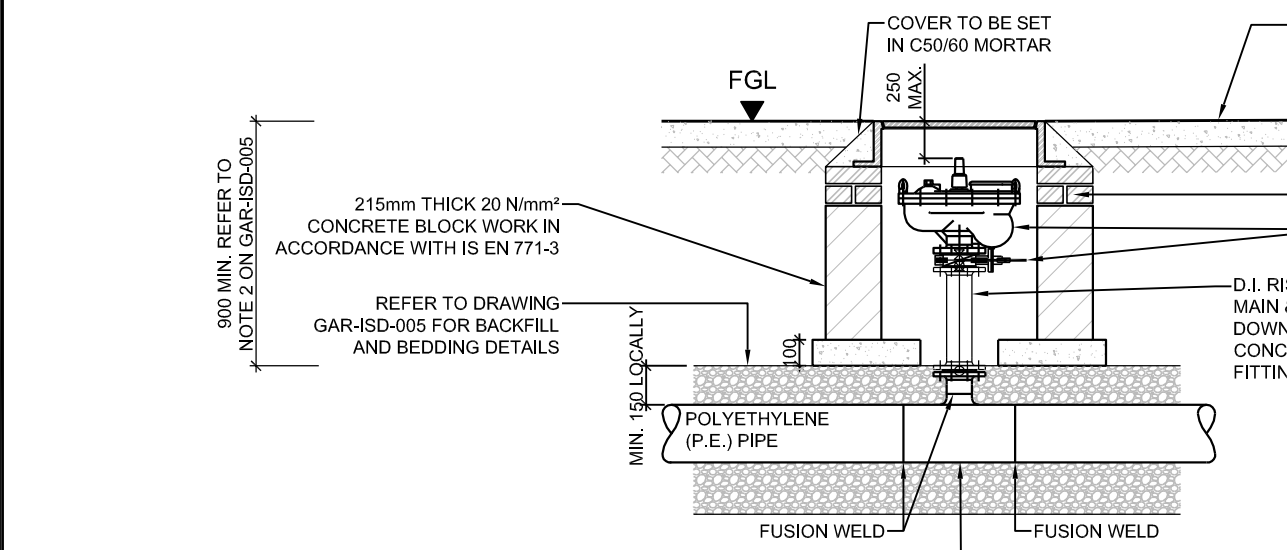
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DETAIL NOTES

- ALL DIMENSIONS IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
- AIR VALVE CHAMBERS SHALL BE COVERED WITH APPROVED VENTILATED HEAVY DUTY METAL COVERS TO IS EN 124 RATING D400. COVER AND FRAME SHALL BE SUITABLE FOR ROAD AND TRAFFIC CONDITIONS AND IS SUBJECT TO REVIEW BY IRISH WATER.
- AIR VALVES SHALL COMPLY WITH THE REQUIREMENTS OF IS EN 1074-4. AIR VALVES SHALL BE DOUBLE ORIFICE TYPE AND SHALL INCLUDE AN ISOLATING VALVE. THE ISOLATING VALVE SHALL BE EITHER A GATE VALVE CONFORMING TO IS EN 1074-2 & SHALL BE OF A BOLTLESS BONNET DESIGN, OR A BUTTERFLY VALVE TO IS EN 1074-2.
- SERVICE CONNECTIONS SHALL NOT BE PROVIDED WITHIN 2m OF THE AIR VALVE LOCATION.
- AIR VALVE CHAMBERS TO BE OF PRECAST CONCRETE UNITS OR HIGH DENSITY BLOCKWORK. ALTERNATIVE PROPRIETARY PREFABRICATED CHAMBER UNITS MAY ALSO BE USED, SUBJECT TO REVIEW BY IRISH WATER.
- PRECAST CONCRETE CHAMBERS SHALL BE SURROUNDED BY A MINIMUM OF 150mm COMPACTED CLAUSE 808 MATERIAL AS PER GAR-isd-004.
- DUCTILE IRON PIPES AND FITTINGS TO BE IN ACCORDANCE WITH IS EN 545.
- 200mm ALL AROUND, 100mm DEEP CONCRETE PLINTH AROUND COVERS IN GREEN AREAS.
- THRUST BLOCKS (NOT SHOWN ON DRAWING) TO BE PROVIDED AS PER STANDARD DRAWING GAR-isd-002 AT ALL TEES, BENDS, TAPERS, DEAD ENDS AND PIPES AT STEEP SLOPES.
- ANTI CORROSION TAPE TO BE PROVIDED AROUND BURIED FLANGES.
- THE LOCATION OF THE AIR VALVE SHALL BE THE SUBJECT OF PARTICULAR AGREEMENT WITH IRISH WATER TO ENSURE THAT THE RISK OF CONTAMINATION THROUGH THE VALVE IS ELIMINATED.
- ALL CONCRETE TO BE IN ACCORDANCE WITH IS EN 206.
- ANY SPECIAL ROAD REINSTATEMENT AROUND COVER & FRAME SHALL BE TO ROAD AUTHORITY'S 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.



DIAMETER OF MAIN	UP TO 250 (mm)	250 TO 350 (mm)
DIAMETER OF BRANCH	80mm	100mm
BORE OF VALVE INLET	80mm	100mm

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Sheet Title:
INFRASTRUCTURE STANDARD DETAILS (W-22)

Sheet No. **GAR-ISC-314** Rev. **A**

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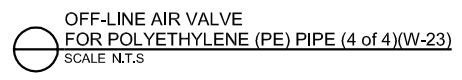
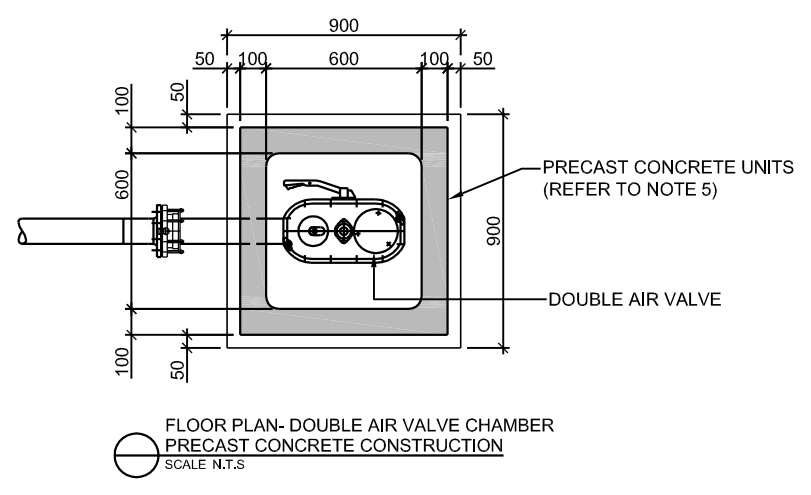
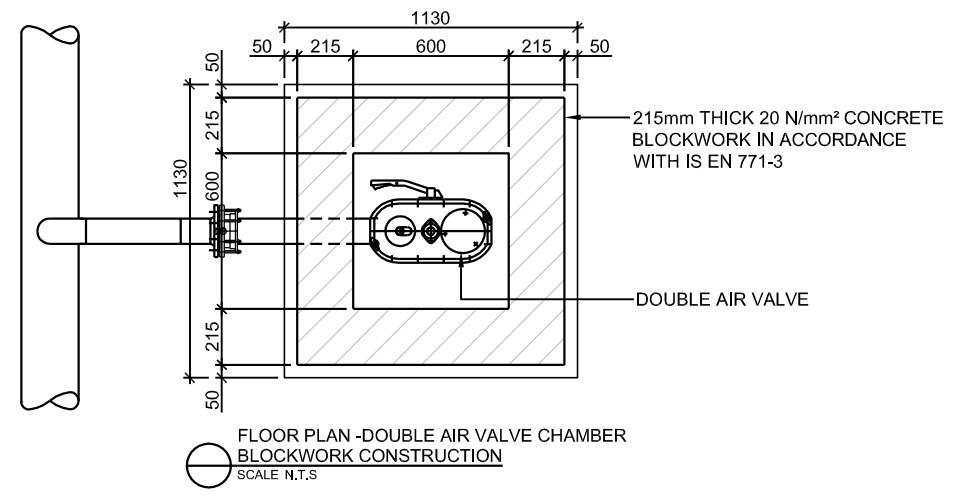
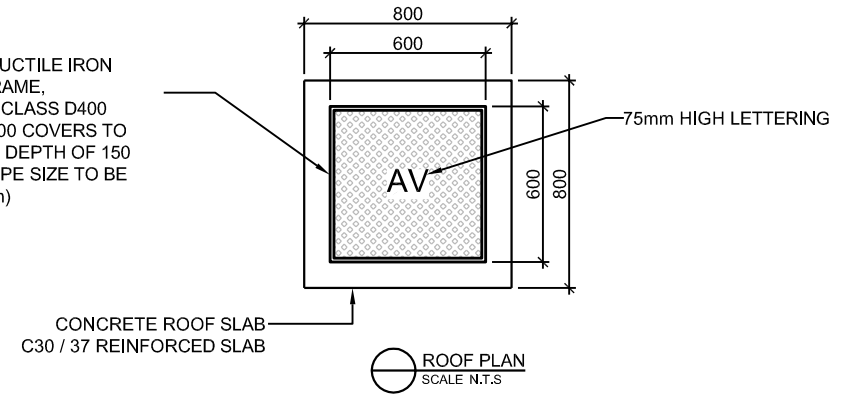
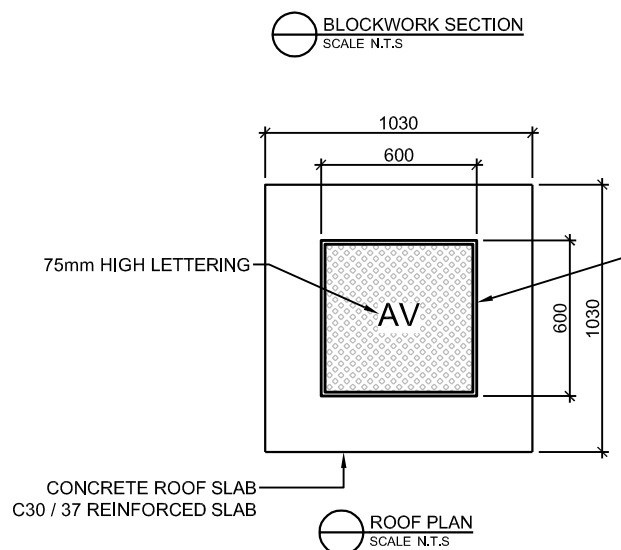
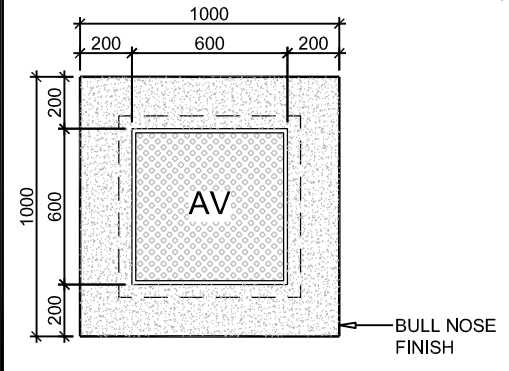
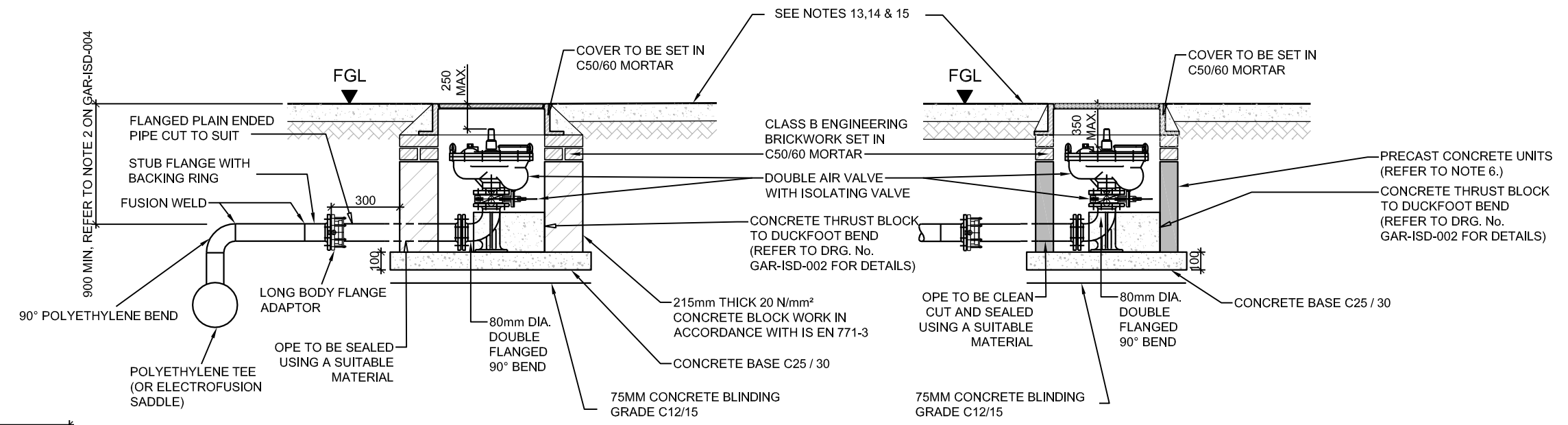
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DETAIL NOTES

- ALL DIMENSIONS IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
- AIR VALVE CHAMBERS SHALL BE COVERED WITH VENTILATED HEAVY DUTY METAL COVERS TO IS EN 124 RATING D400. COVER AND FRAME SHALL BE SUITABLE FOR ROAD AND TRAFFIC CONDITIONS AND IS SUBJECT TO REVIEW BY IRISH WATER.
- AIR VALVES SHALL COMPLY WITH THE REQUIREMENTS OF IS EN 1074-4. AIR VALVES SHALL BE DOUBLE ORIFICE TYPE AND SHALL INCLUDE AN ISOLATING VALVE. THE ISOLATING VALVE SHALL BE EITHER A GATE VALVE CONFORMING TO IS EN 1074-2 & SHALL BE OF A BOLTLESS BONNET DESIGN, OR A BUTTERFLY VALVE TO IS EN 1074-2.
- SERVICE CONNECTIONS SHALL NOT BE PROVIDED WITHIN 2m OF THE AIR VALVE LOCATION.
- AIR VALVE CHAMBERS TO BE OF PRECAST CONCRETE UNITS OR HIGH DENSITY BLOCKWORK. ALTERNATIVE PROPRIETARY PREFABRICATED CHAMBER UNITS MAY ALSO BE USED, SUBJECT TO REVIEW BY IRISH WATER.
- PRECAST CONCRETE CHAMBERS SHALL BE SURROUNDED BY A MINIMUM OF 150mm COMPACTED CLAUSE 808 MATERIAL AS PER GAR-ISD-004.
- DUCTILE IRON PIPES AND FITTINGS TO BE IN ACCORDANCE WITH IS EN 545.
- 200mm ALL AROUND, 100mm DEEP CONCRETE PLINTH AROUND COVERS IN GREEN AREAS.
- THRUST BLOCKS (NOT SHOWN ON DRAWING), TO BE PROVIDED AS PER STANDARD DRAWING GAR-ISD-002 AT ALL TEES, BENDS, TAPERS, DEAD ENDS AND PIPES AT STEEP SLOPES.
- ANTI CORROSION TAPE TO BE PROVIDED AROUND BURIED FLANGES.
- THE LOCATION OF THE AIR VALVE SHALL BE THE SUBJECT OF PARTICULAR AGREEMENT WITH IRISH WATER TO ENSURE THAT THE RISK OF CONTAMINATION THROUGH THE VALVE IS ELIMINATED.
- ALL CONCRETE TO BE IN ACCORDANCE WITH IS EN 206.
- ANY SPECIAL ROAD REINSTATEMENT AROUND COVER & FRAME SHALL BE TO ROAD AUTHORITY'S 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.



DIAMETER OF MAIN	UP TO 250 (mm)	250 TO 350 (mm)
DIAMETER OF BRANCH	80mm	100mm
BORE OF VALVE INLET	80mm	100mm

Sheet Title:
INFRASTRUCTURE STANDARD DETAILS (W-23)

Sheet No. **GAR-ISD-315** Rev. **A**

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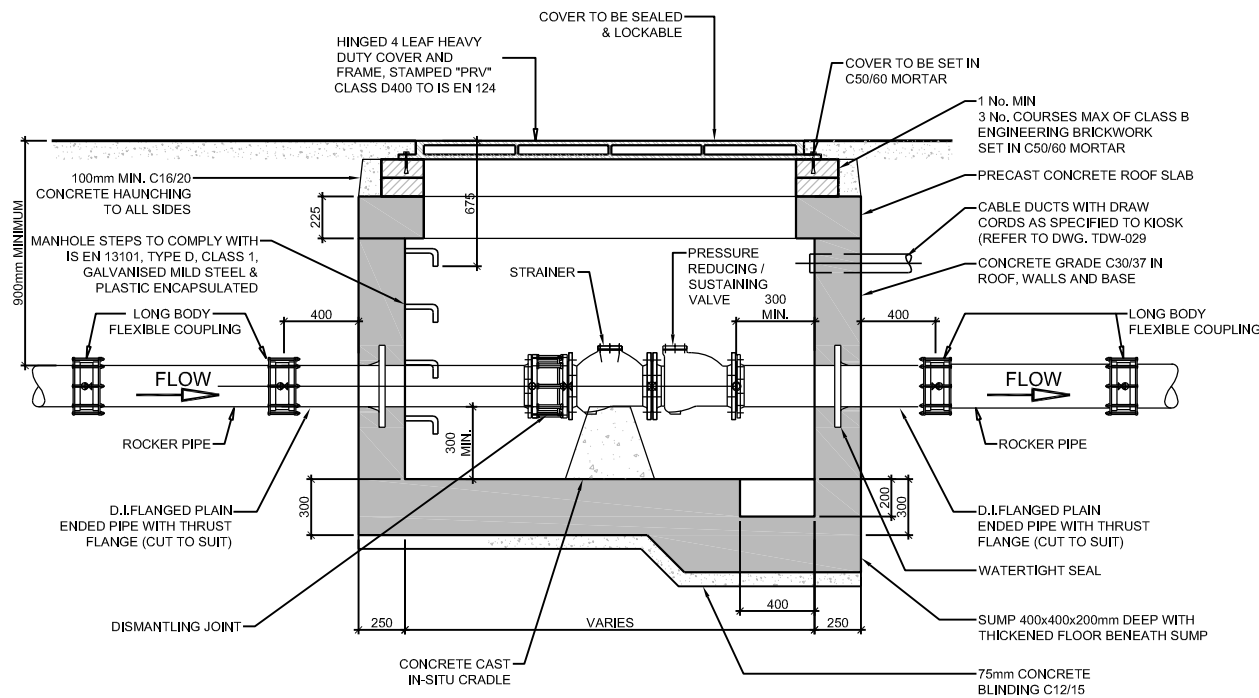
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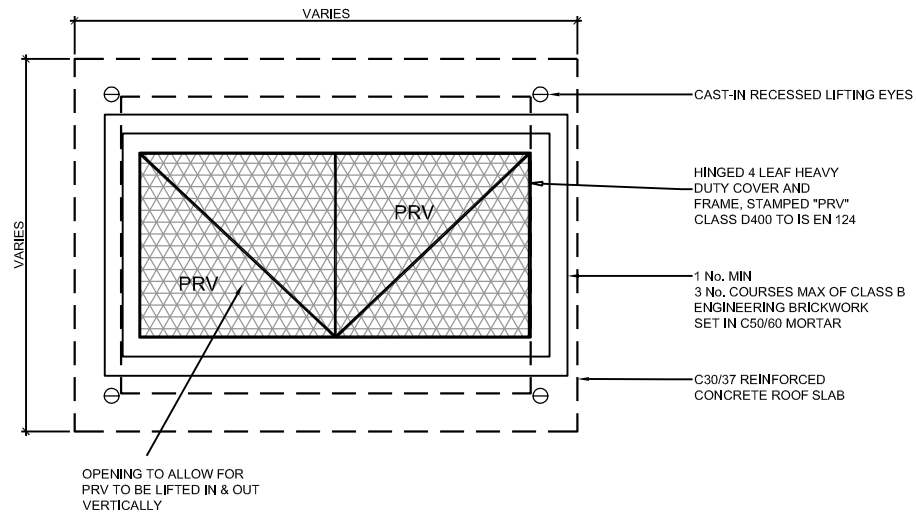
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WATERGAS/INFRASTRUCTURE STANDARD INFRASTRUCTURE DETAILS/300 SERIES/POTABLE WATER/GAR-ISD-300 SERIES - JAN 2018 DWG

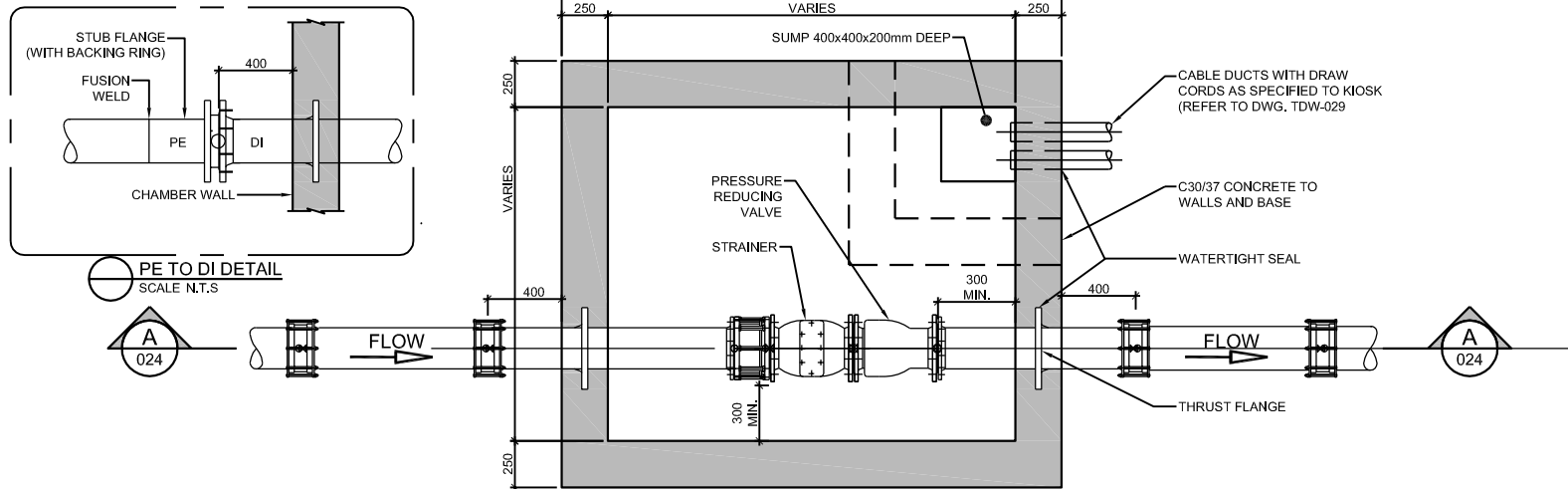


SECTION A-A THRU
P.R.V. / P.S.V. VALVE CHAMBER
SCALE N.T.S.



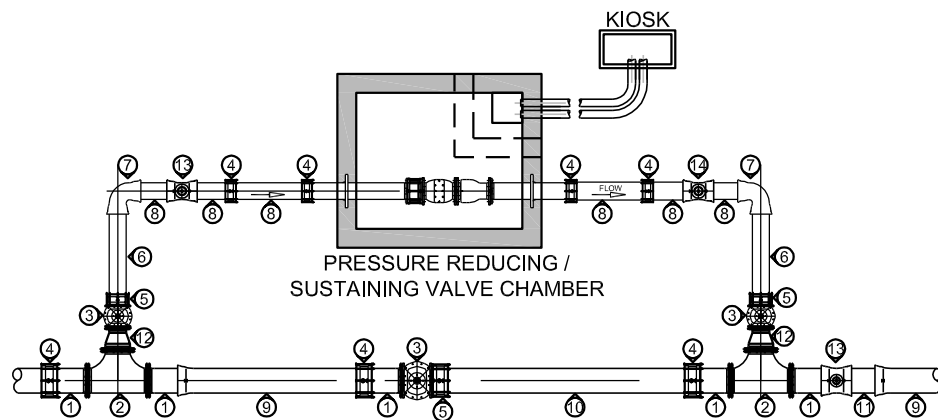
ROOF PLAN OF P.R.V. / P.S.V. VALVE CHAMBER
SCALE N.T.S.

PRV DIAMETER 'A' (mm)	INTERNAL CHAMBER DIMENSIONS	COVER DIMENSIONS
50 - 100	1500 X 1200	1200 X 600
101 - 250	2200 X 1500	1800 X 900



PLAN OF P.R.V. / P.S.V. VALVE CHAMBER
SCALE N.T.S.

PRESSURE REDUCING / SUSTAINING VALVE
(P.R.V. / P.S.V.) CHAMBER (W-24)
SCALE N.T.S.



TYPICAL BYPASS ARRANGEMENT
SCALE N.T.S.

DETAIL NOTES

- ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
- STRUCTURAL DESIGN AND REINFORCEMENT DETAIL TO BE PROVIDED BY THE DEVELOPER AND SUBMITTED TO IRISH WATER FOR REVIEW.
- CONCRETE FOR PRESSURE REDUCING / SUSTAINING CHAMBER TO BE C30/37. ROOF SLABS SHALL BE DESIGNED TO CARRY ALL LIVE LOADS & DEAD LOADS, & CONSIST OF A REINFORCED CONCRETE SLAB OF IN-SITU CONCRETE, GRADE C30/37, WITH A MINIMUM THICKNESS OF 225mm. ALTERNATIVELY, PRE-CAST CONCRETE ROOFS MAY BE USED, SUBJECT TO IRISH WATER REVIEW, & COMPLIANCE WITH BS 5911, Part 4.
- PRECAST UNITS COMPLETED WITH RUBBER SEALING GASKET BETWEEN UNITS, COMPLYING WITH THE REQUIREMENTS OF IS EN 1917 AND BS 5911-PART 3. COMPLETE WITH 150mm CONCRETE SURROUND MAY BE USED AS AN ACCEPTABLE ALTERNATIVE. CONCRETE SURROUND TO BE GRADE C16/20 IN ACCORDANCE WITH IS EN 206.
- PRESSURE REDUCING VALVES REQUIRE A MINIMUM LENGTH OF PIPE EQUIVALENT TO 5 TIMES THE DIAMETER, ON EACH SIDE OF THE VALVE TO BE COMPLETELY FREE OF FITTINGS, VALVES, REDUCERS ETC. OR TO PRV/PSV MANUFACTURER'S REQUIREMENTS.
- P.R.V. / P.S.V. CHAMBER SHALL BE COVERED WITH APPROVED HEAVY DUTY METAL COVERS TO IS EN 124 RATING D400. COVER AND FRAME SHALL BE SUITABLE FOR ROAD AND TRAFFIC CONDITIONS AND IS SUBJECT TO REVIEW BY IRISH WATER.
- 200mm ALL ROUND, 100mm DEEP CONCRETE PLINTH AROUND COVERS IN GRASS AREAS.
- ANTI CORROSION TAPE TO BE PROVIDED AROUND BURIED FLANGES.
- THRUST BLOCKS (NOT SHOWN ON DRAWING), TO BE PROVIDED AS PER STANDARD DRAWING GAR-ISD-002 AT ALL TEES, BENDS, TAPERS, DEAD ENDS AND PIPES AT STEEP SLOPES.
- DUCTILE IRON PIPES AND FITTINGS TO BE IN ACCORDANCE WITH IS EN 545, PE PIPES AND FITTINGS TO BE IN ACCORDANCE WITH IS EN 12201:2011
- ALL CHAMBERS TO BE CHECKED FOR UPLIFT BY THE DEVELOPER, BASED ON GROUND CONDITIONS WITHIN THE SITE, SHOULD ANTI FLOTATION MEASURES BE REQUIRED THEY SHALL BE SUBJECT TO REVIEW BY IRISH WATER.
- ALL CONCRETE TO BE IN ACCORDANCE WITH IS EN 206.
- PIPEWORK TO BE DOWNSIZED IF REQUIRED TO ACCOMMODATE THE REQUIRED RANGE OF PRESSURE REDUCTION.
- ANY SPECIAL ROAD REINSTATEMENT AROUND COVER & FRAME SHALL BE TO ROAD AUTHORITY'S 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.

MARK NUMBER	DESCRIPTION
1	FLANGED PLAIN ENDED PIPE (STANDARD)
2	ALL FLANGED TEE
3 (DIA VARIES)	SLUICE VALVE
4 (DIA VARIES)	LONG BODY FLEXIBLE COUPLING
5 (DIA VARIES)	DISMANTLING JOINT
6	PLAIN ENDED PIPE (CUT TO SUIT)
7	90° SOCKETED BEND
8	PLAIN ENDED PIPE (CUT TO SUIT)
9	SPIGOT & SOCKET PIPE (STANDARD)
10	PLAIN ENDED PIPE (CUT TO SUIT)
11 (DIA VARIES)	PLAIN ENDED PIPE (CUT TO SUIT)
12	DOUBLE FLANGED TAPER (WHERE REQUIRED)
13	SOCKETED TEE WITH FLANGED BRANCH & HYDRANT
14	TEE WITH AIR VALVE

Sheet Title:
INFRASTRUCTURE STANDARD DETAILS (W-24)

Sheet No. **GAR-ISD-316** Rev. **A**

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