

Emma Caulwell,  
Waterman Moylan Consulting Engineers,  
Block S,  
Eastpoint Business Park,  
Alfie Byrne Road,  
Dublin 3

22 August 2019

**Re: Design Submission for Brewery Road Apartments, Stillorgan (the “Development”) (the “Design Submission”) / 574765781.**

**Uisce Éireann**  
Bosca OP 448  
Oifig Sheachadta  
na Cathrach Theas  
Cathair Chorcaí

**Irish Water**  
PO Box 448  
South City  
Delivery Office  
Cork City

[www.water.ie](http://www.water.ie)

Dear Emma Caulwell,

Many thanks for your recent Design Submission.

We have reviewed your proposal for the connection(s) at the Development. Based on the information provided, which included the documents outlined in Appendix A to this letter, Irish Water has no objection to your proposals.

This letter does not constitute an offer, in whole or in part, to provide a connection to any Irish Water infrastructure. Before you can connect to our network you must sign a connection agreement with Irish Water. This can be applied for by completing the connection application form at [www.water.ie/connections](http://www.water.ie/connections). Irish Water’s current charges for water and wastewater connections are set out in the Water Charges Plan as approved by the Commission for Regulation of Utilities (CRU) ([https://www.cru.ie/document\\_group/irish-waters-water-charges-plan-2018/](https://www.cru.ie/document_group/irish-waters-water-charges-plan-2018/)).

You the Customer (including any designers/contractors or other related parties appointed by you) is entirely responsible for the design and construction of all water and/or wastewater infrastructure within the Development which is necessary to facilitate connection(s) from the boundary of the Development to Irish Water’s network(s) (the “**Self-Lay Works**”), as reflected in your Design Submission. Acceptance of the Design Submission by Irish Water does not, in any way, render Irish Water liable for any elements of the design and/or construction of the Self-Lay Works.

If you have any further questions, please contact your Irish Water Representative

Name: Marina Bynre  
Phone: 01 8925991  
Email: [mzbyrne@water.ie](mailto:mzbyrne@water.ie)

Yours sincerely,



**Maria O’Dwyer**

**Connections and Developer Services**

## Appendix A

### Document Title & Revision

- 18-093-P100-A Road Levels And Watermain Layout Sheet 1 of 2
- 18-093-P101 Road Levels And Watermain Layout Sheet 2 of 2
- 18-093-P130 Proposed Water Supply Details Sheet 1 of 3
- 18-093-P131 Proposed Water Supply Details Sheet 2 of 3
- 18-093-P133 Proposed Water Supply Details Sheet 3 of 3
- 18-093-P201-A Proposed Drainage Layout Level 01
- 18-093-P232 Public Foul Water Drainage Details Sheet 1 of 2
- 18-093-P233 Public Foul Water Drainage Details Sheet 2 of 2
- 18-093-P234 Public Foul Water Drainage Details

### Standard Details/Code of Practice Exemption:

*This statement of design acceptance is conditional upon entering into a diversion agreement at connection application stage regarding the existing 1200mm watermain indicated underneath Block N.*

For further information, visit [www.water.ie/connections](http://www.water.ie/connections)

*Notwithstanding any matters listed above, the Customer (including any appointed designers/contractors, etc.) is entirely responsible for the design and construction of the Self-Lay Works. Acceptance of the Design Submission by Irish Water will not, in any way, render Irish Water liable for any elements of the design and/or construction of the Self-Lay Works.*



- NOTES:
- DO NOT SCALE. USE FIGURED DIMENSIONS ONLY.
  - THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT ARCHITECTURAL AND ENGINEERING DRAWINGS.
  - WATERMAIN MATERIAL TO BE PE 100 (SDR 11 OR 17) IN COMPLIANCE WITH SECTION 3.9 OF IRISH WATER, 'WATER SUPPLY INFRASTRUCTURE CODE OF PRACTICE'.
  - AIR VALVE AND HYDRANTS COVERS, WHERE LOCATED IN GRASS AREAS, SHALL BE SURROUNDED BY A CONCRETE PLINTH IN COMPLIANCE WITH SECTION 3.18 OF IRISH WATER, 'WATER SUPPLY INFRASTRUCTURE CODE OF PRACTICE'.
  - THRUST BLOCKS TO BE PROVIDED AT EACH BEND ALONG THE COURSE OF THE WATERMAIN IN COMPLIANCE WITH SECTION 4.6 OF IRISH WATER, 'WATER SUPPLY INFRASTRUCTURE CODE OF PRACTICE'.
  - ENSURE DEPTH OF COVER TO WATERMAIN CROWN IS ACHIEVED IN COMPLIANCE WITH SECTION 3.11 OF IRISH WATER, 'WATER SUPPLY INFRASTRUCTURE CODE OF PRACTICE'.
  - WHERE PLANTING OF TREES IS PROPOSED, APPROPRIATE PROTECTION MEASURES WILL BE PROVIDED TO PREVENT ROOT INGRESS.
  - METERS FOR APARTMENTS AND SIMILAR PROPERTIES SHALL BE INSTALLED INTERNALLY WITHIN THE PREMISES IN ACCORDANCE WITH THE BUILDING CONTROL AUTHORITY'S REQUIREMENTS AND SUBJECT TO REVIEW BY IRISH WATER.

**LEGEND:**

- EXISTING WATERMAIN
- 150mm  $\phi$  PROPOSED 150mm  $\phi$  HD PE WATERMAIN
- - - 150mm  $\phi$  PROPOSED 150mm  $\phi$  HD PE WATERMAIN (SLUG)
- SV PROPOSED SLUICE VALVE
- H PROPOSED HYDRANT
- AV PROPOSED AIR VALVE
- ScV PROPOSED SCOUR VALVE
- BWM PROPOSED BULK WATER METER
- BB PROPOSED BOUNDARY BOX
- 70.23 PROPOSED ROAD LEVEL
- 68.12 EXISTING ROAD LEVEL
- EX TREE AND ROOT PROTECTION AREA
- +40 PROPOSED CHAINAGE
- 1:23 PROPOSED FALLS

NOTE: WATERMAIN MATERIAL TO BE PE 100 (SDR 11 OR 17) IN COMPLIANCE WITH SECTION 3.9 OF IRISH WATER, 'WATER SUPPLY INFRASTRUCTURE CODE OF PRACTICE'

NOTE: AIR VALVE AND HYDRANTS COVERS, WHERE LOCATED IN GRASS AREAS, SHALL BE SURROUNDED BY A CONCRETE PLINTH IN COMPLIANCE WITH SECTION 3.18 OF IRISH WATER, 'WATER SUPPLY INFRASTRUCTURE CODE OF PRACTICE'

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A	25/07/19	IRISH WATER SUBMISSION	GB	EC
REV.	DATE	AMENDMENT	DRN	APPD

STATUS **FOR PLANNING ONLY  
NOT FOR CONSTRUCTION**

**Waterman Moylan**  
Engineering Consultants  
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Email: info@waterman-moylan.ie www.waterman-moylan.ie

CLIENT **KW PRS ICV ACTING FOR AND ON BEHALF OF ITS SUB-FUND KW PRS FUND**

ARCHITECT **O'MAHONY PIKE ARCHITECTS**

PROJECT **BREWERY ROAD APARTMENTS, GRANGE DEVELOPMENTS, BLACKROCK, CO. DUBLIN**

TITLE **ROAD LEVELS AND WATERMAIN LAYOUT SHEET 1 OF 2**

DRAWN G.Byrne	DESIGNED EC	APPROVED JG	DATE APRIL '19
SCALE 1:250 @A1	JOB NO. 18-093	DRG. NO. P100	REVISION A

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  - METERS FOR APARTMENTS AND SIMILAR PROPERTIES SHALL BE INSTALLED INTERNALLY WITHIN THE PREMISES IN ACCORDANCE WITH THE BUILDING CONTROL AUTHORITY'S REQUIREMENTS AND SUBJECT TO REVIEW BY IRISH WATER

**LEGEND:**

- EXISTING WATERMAIN
- PROPOSED 150mm $\phi$  HD PE WATERMAIN
- PROPOSED 150mm $\phi$  HD PE WATERMAIN (SLUNG)
- PROPOSED SLUICE VALVE
- PROPOSED HYDRANT
- PROPOSED AIR VALVE
- PROPOSED SCOUR VALVE
- PROPOSED BULK WATER METER
- PROPOSED BOUNDARY BOX
- PROPOSED ROAD LEVEL
- EXISTING ROAD LEVEL
- EX TREE AND ROOT PROTECTION AREA
- PROPOSED CHANGAGE
- PROPOSED FALLS

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REV.	DATE	AMENDMENT	DRN	APPD

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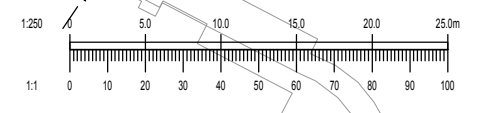
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ARCHITECT **O'MAHONY PIKE ARCHITECTS**

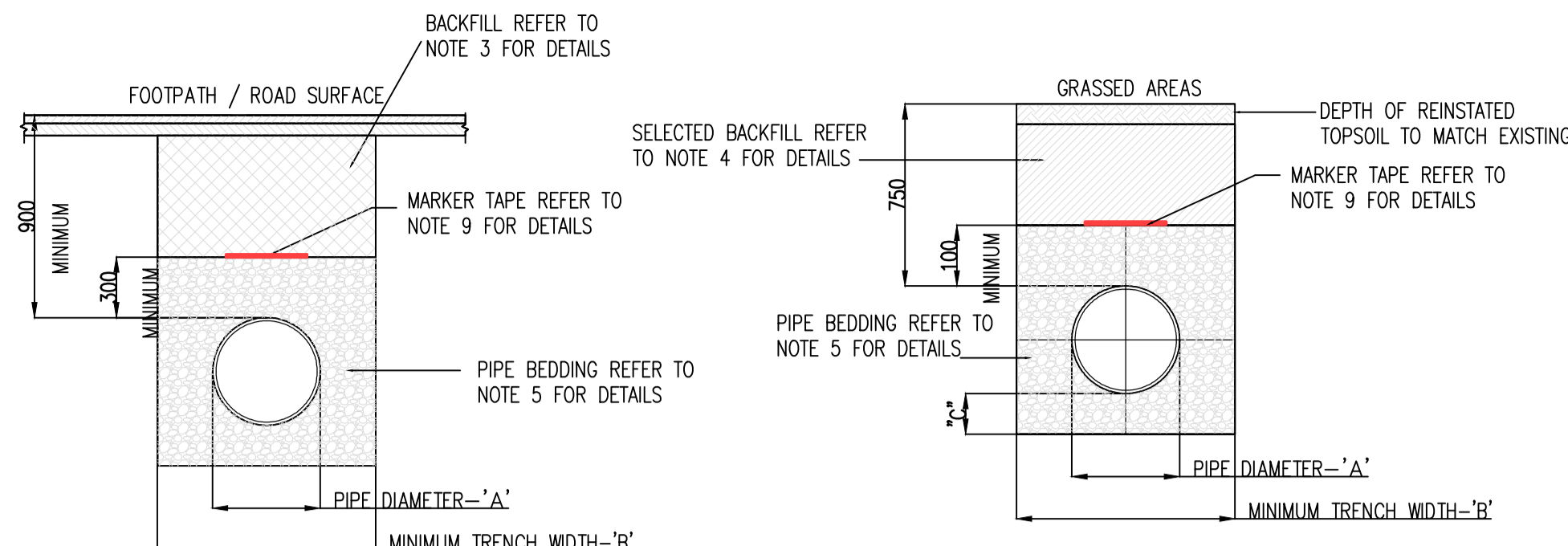
PROJECT **BREWERY ROAD APARTMENTS,  
GRANGE DEVELOPMENTS,  
BLACKROCK,  
CO. DUBLIN**

TITLE **ROAD LEVELS AND WATERMAIN LAYOUT  
SHEET 2 OF 2**

DRAWN <b>G.Byrne</b>	DESIGNED <b>EC</b>	APPROVED <b>JG</b>	DATE <b>APRIL '19</b>
SCALE <b>1:250</b>	JOB NO. <b>18-093</b>	DRG. NO. <b>P101</b>	REVISION



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CROSS SECTION IN ROADWAY

CROSS SECTION IN GRASS AREA

TRENCH BACKFILL AND BEDDING STD-W-13

NOTE: ALL ROAD JOINTS TO BE SAW CUT AND SEALED WITH BITUMEN

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

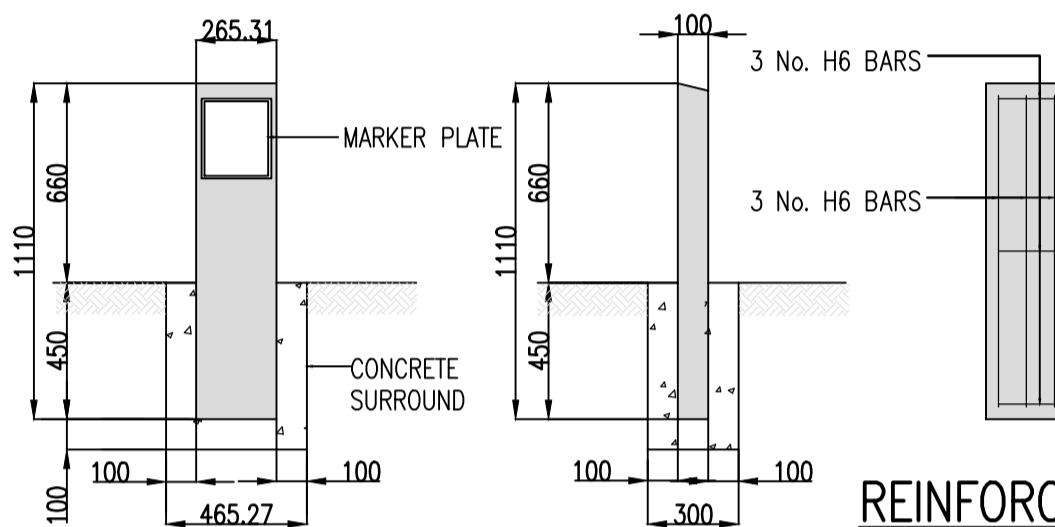
PIPE DIAMETER 'A' (mm)	DEPTH OF BEDDING 'C' (mm)
< 200	150
> 250	200

PIPE BEDDING NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE
2. THE MINIMUM DEPTH OF COVER FROM THE FINISHED GROUND LEVEL TO THE EXTERNAL CROWN OF THE PIPE SHALL BE 750mm FOR SERVICE CONNECTIONS, 900mm FOR WATER MAINS. GREATER DEPTHS OF COVER AND/OR PIPE STRENGTH AND/OR A HIGHER CLASS OF BEDDING MATERIAL MAY BE REQUIRED WHERE HIGH TRAFFIC LOADING IS ANTICIPATED. THE MAXIMUM COVER SHOULD NOT EXCEED 1,200mm WHERE PRACTICABLE.
3. CLAUSE 808 MATERIAL IN ACCORDANCE WITH THE NATIONAL ROADS AUTHORITY SPECIFICATION FOR ROAD WORKS IS TO BE USED AS BACKFILL MATERIAL WHERE THE WATER 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.
4. SELECTED EXCAVATED MATERIAL MAY BE USED IN GREEN-FIELD AREAS ABOVE GRANULAR PIPE SURROUND MATERIAL SUBJECT TO THE APPROVAL OF IRISH WATER.
5. 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 TO IS EN 12620.
6. IN SOFT GROUND CONDITIONS (CBR < 5) THE MATERIAL SHOULD BE EXCAVATED OUT AND DISPOSED OF IN ACCORDANCE WITH THE WASTE MANAGEMENT ACT AND CLAUSE 804 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.
7. PIPES SHALL NOT BE SUPPORTED ON STONES OR ROCKS, OR ANY HARD OBJECT AT ANY POINT ALONG THE TRENCH. ROCK SHALL BE EXCAVATED TO A DEPTH OF 150mm BELOW THE ACTUAL DEPTH OF THE TRENCH WITH THE VOID FILLED WITH CLAUSE 804 MATERIAL IN ACCORDANCE WITH THE NATIONAL ROADS AUTHORITY SPECIFICATION FOR ROAD WORKS. THE GRANULAR MATERIAL SHALL BE LAID ABOVE THIS VOID BACKFILL MATERIAL.
8. SHOULD MINIMUM COVER NOT BE ACHIEVABLE, CONCRETE GRADE C8/10 SHALL BE USED AS BACKFILL MATERIAL.
9. MARKER TAPE TO BE 400mm WIDE BLUE POLYETHYLENE MATERIAL IN ACCORDANCE WITH EN 12163. PLASTIC PIPES SHALL HAVE WARNING TAPE INCORPORATED A REINFORCED BAND BRACING WIRE. SERVICE PIPES SHALL HAVE 200mm WIDE MESH TAPE. MARKER TAPE TO BE LAID AT A DISTANCE OF 350mm FROM SURFACE OF THE ROAD.
10. TRENCH WIDTHS FOR PIPE SIZES < 80mm MY BE < 500mm, SUBJECT TO CONSIDERATION BEING GIVEN TO THE TRENCH DEPTH, HEALTH & SAFETY & CONSTRUCTION ACCESS REQUIREMENTS.
11. NEW ROAD CONSTRUCTION & SURFACE FINISH TO BE TO ROAD AUTHORITY REQUIREMENTS.
12. 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.

MARKER PLATES NOTES

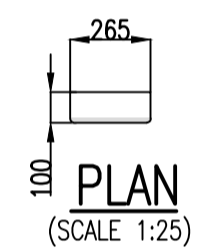
1. WHERE PRACTICAL MARKER PLATES SHALL BE FIXED TO ADJACENT WALLS OR ALTERNATIVELY ATTACHED TO MARKER POSTS.
2. PLATES TO BE FIXED IN POSITION USING WALL PLUGS AND STAINLESS STEEL SCREWS.
3. MARKER PLATES TO BE MANUFACTURED IN ACCORDANCE WITH BS 3251.
4. FOR HYDRANT PLATE ALL CHARACTERS SHOULD BE BLACK AND THE REMAINDER OF THE FRONT FACE SHOULD CONFORM TO COLOUR REFERENCE No. 309 (CANARY YELLOW) OF BS 381C.
5. PIPE DIAMETER ON HYDRANT PLATE TO REFER TO WATERMAIN NOT BRANCH.
6. SLUICE VALVE, AIR VALVE, SCOUR VALVE AND METER PLATES SHOULD BE CAST IRON. ALL CHARACTERS SHOULD BE BLACK ON WHITE PAINT BACKGROUND.
7. CONCRETE SURROUND TO MARKER POST TO BE GRADE C25 / 30 AND IN ACCORDANCE WITH IS EN 206/2013.
8. PLASTIC MARKER POSTS ARE NOT ACCEPTABLE.
9. ALL CONCRETE TO BE IN ACCORDANCE WITH IS EN 206.



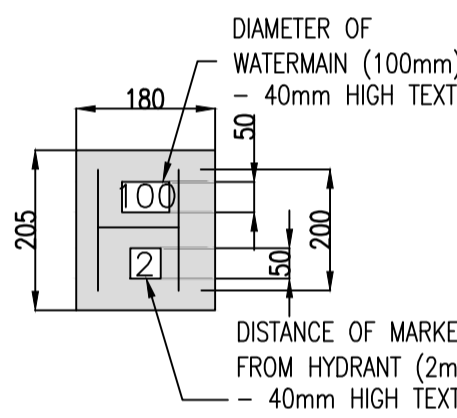
ELEVATION (SCALE 1:25)

SECTION (SCALE 1:25)

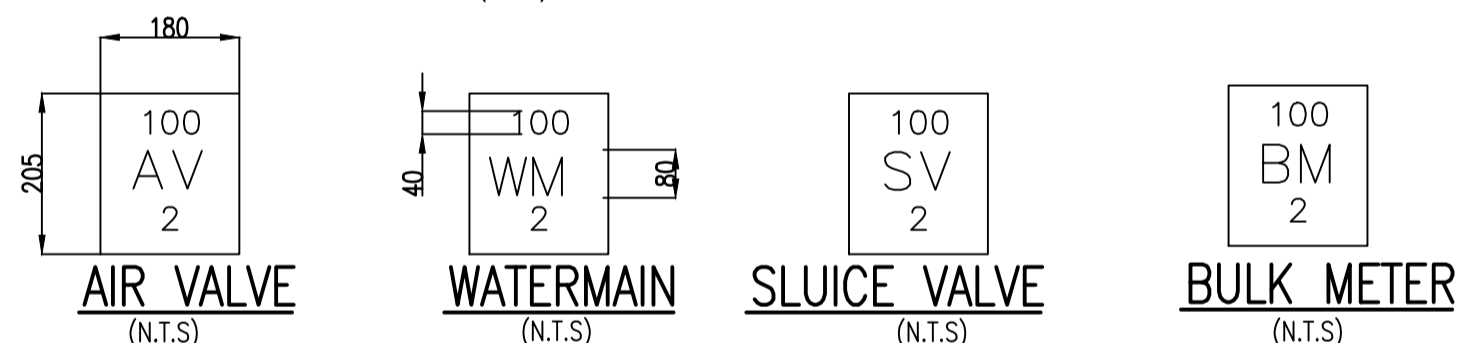
REINFORCEMENT DETAILS (SCALE 1:25)



PLAN (SCALE 1:25)



HYDRANT (N.T.S)

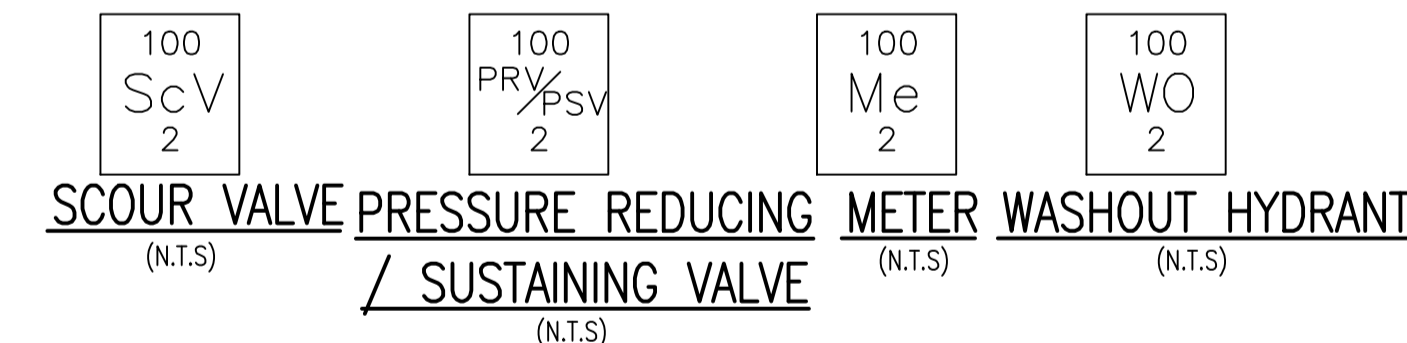


AIR VALVE (N.T.S)

WATERMAIN (N.T.S)

SLUICE VALVE (N.T.S)

BULK METER (N.T.S)



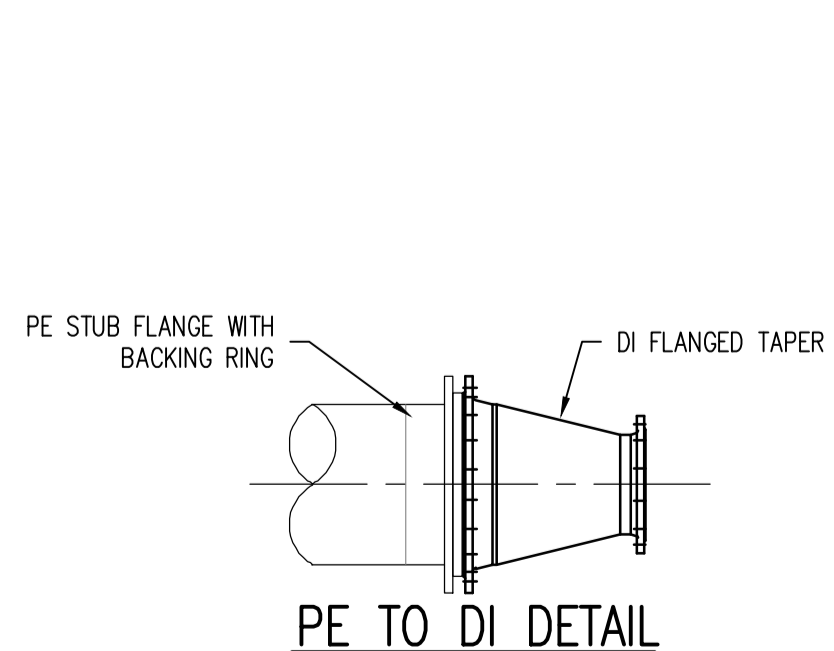
SCOUR VALVE (N.T.S)

PRESSURE REDUCING / SUSTAINING VALVE (N.T.S)

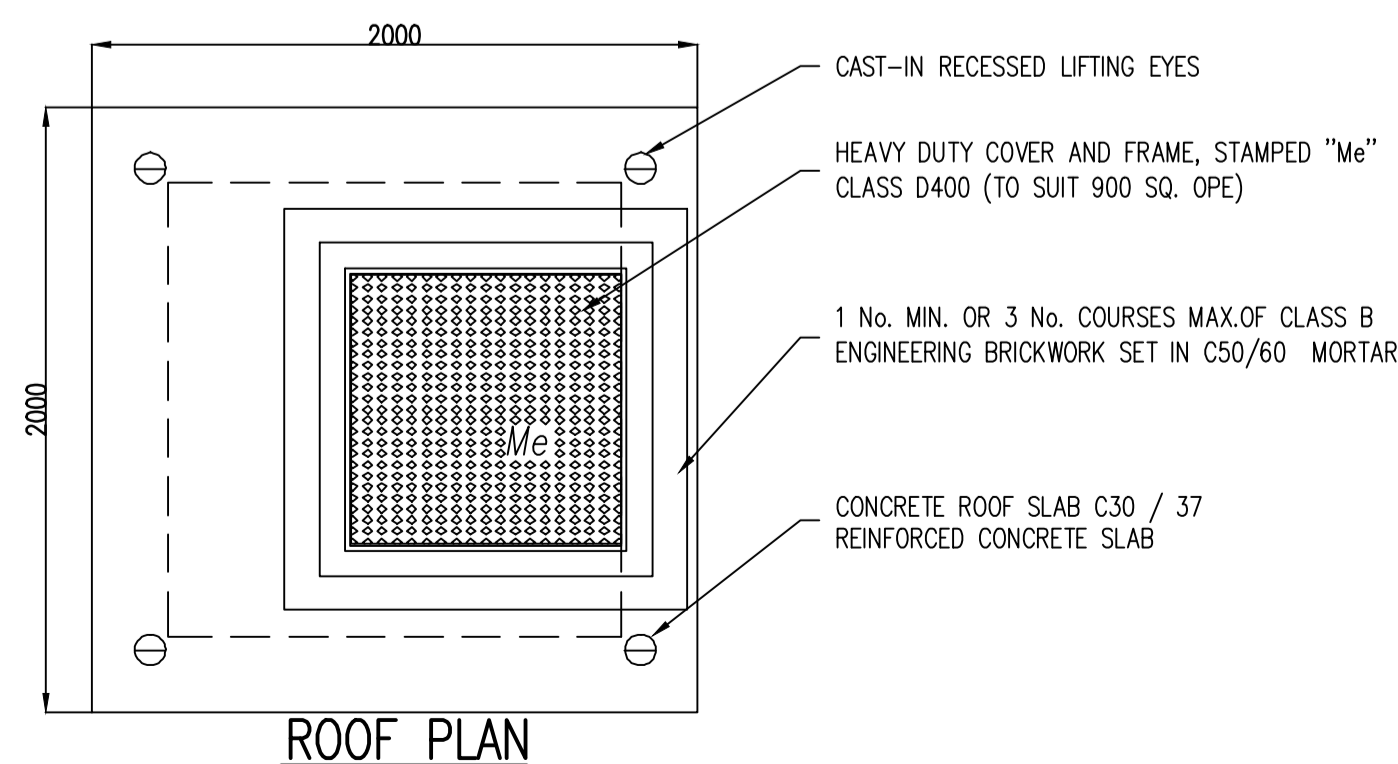
METER (N.T.S)

WASHOUT HYDRANT (N.T.S)

MARKER POST/PLATE DETAILS STD-W-27

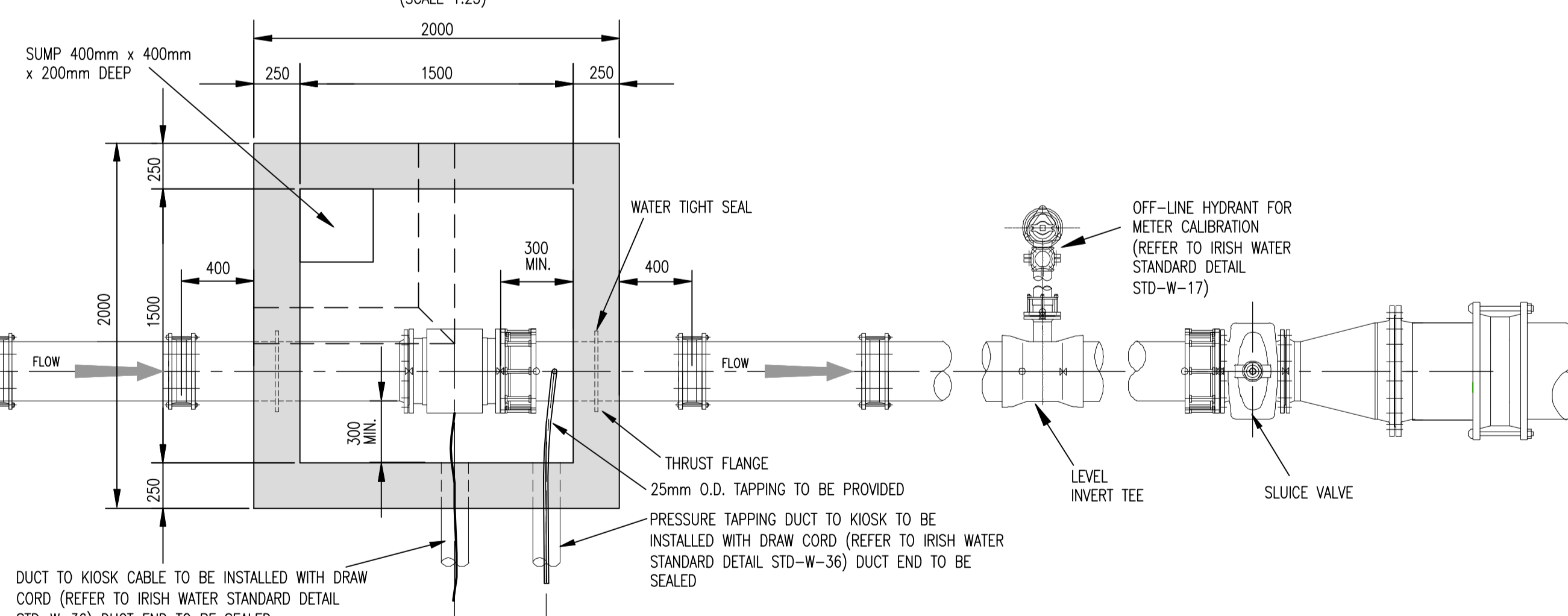


PE TO DI DETAIL



ROOF PLAN

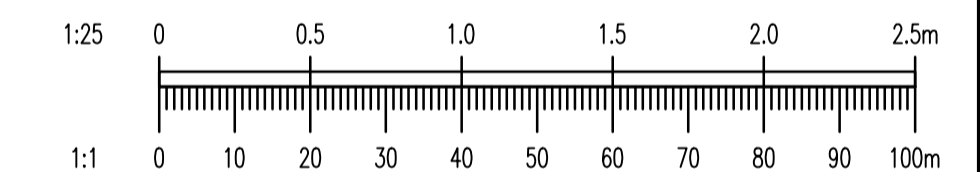
PROPOSED BULK WATER METER PLAN VIEW STD-W-26 (SCALE 1:25)



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 REVIEW, & COMPLIANCE WITH BS 5911, Part 4.
3. CONCRETE FOR FLOW METER CHAMBER TO BE C30/37.
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.
5. METER CHAMBER SHALL BE COVERED WITH APPROVED HEAVY DUTY METAL COVERS TO IS EN 124: 1994 RATING D400. COVER AND FRAME SHALL BE SUITABLE FOR ROAD AND TRAFFIC CONDITIONS AND IS SUBJECT TO THE APPROVAL OF IRISH WATER.
6. 200mm ALL ROUND, 100mm DEEP CONCRETE PLINTH WITH PROTECTIVE STAINLESS STEEL METAL BAND AROUND COVER IN GRASS AREAS.
7. ANTI CORROSION TAPE TO BE PROVIDED AROUND BURIED FLANGES.
8. 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.
9. 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.
10. PIPEWORK TO BE DOWNSIZED TO ACCOMMODATE THE REQUIRED RANGE OF THE FLOW METER. STRAIGHT PIPE LENGTHS UPSTREAM AND DOWNSTREAM OF THE METER TO BE PROVIDED. IF THE METER IS NOT CAPABLE OF ACCURATE NIGHT FLOW MEASUREMENTS A BY-PASS FLOW METER SHALL BE PROVIDED WITH APPROPRIATE VALVES, FITTINGS AND PIPEWORK.
11. ALL CONCRETE TO BE IN ACCORDANCE WITH IS EN 206.
12. ANY SPECIAL ROAD REINSTATEMENT AROUND COVER & FRAME SHALL BE TO ROAD AUTHORITY'S REQUIREMENTS.
13. NEW ROAD CONSTRUCTION & SURFACE FINISH TO BE TO ROAD AUTHORITY REQUIREMENTS.
14. EXISTING ROAD REINSTATEMENT TO COMPLY WITH CURRENT VERSION OF "GUIDELINES FOR MANAGING OPENING IN PUBLIC ROADS" BY THE DEPT. OF TRANSPORT, TOURISM & SPORT, OR TRANSPORT INFRASTRUCTURE IRELAND REQUIREMENTS.

METER DIAMETER 'A' (mm)	INTERNAL CHAMBER DIMENSIONS	COVER DIMENSIONS
50-100	1200 x 1200	750 x 750
101-250	1500 x 1500	900 x 900

- NOTES:
1. DO NOT SCALE. USE FIGURED DIMENSIONS ONLY.
  2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT ARCHITECTURAL AND ENGINEERING DRAWINGS.
  3. WATERMANS SHALL BE LAID IN ACCORDANCE WITH THE LOCAL AUTHORITY SPECIFICATION FOR THE LAYING OF NEW WATERMANS AND BYLAWS WHICH OVER-RIDE THESE NOTES. THE CONSTRUCTION OF THE WATERMAIN SHALL BE IN ACCORDANCE WITH THE BEST CURRENT PRACTICE AND THE LATEST EDITIONS OF THE RELEVANT STANDARDS AND CODES OF PRACTICE.
  4. WATERMANS SHALL NOT BE LAID UNDER WALLS OR AREAS DESIGNATED FOR TREES/SHRUBS/FLOWERS.
  5. PIPES SHALL BE HDPE (BLUE PIPE) UNLESS NOTED OTHERWISE BY AGREEMENT WITH THE LOCAL AUTHORITY. DUCTILE IRON PIPES SHALL BE USED UNDER ROADS OF CLASSIFICATION "DISTRICT DISTRIBUTOR" UPWARDS UNLESS NOTED OTHERWISE.
  6. PIPES SHALL CONFORM TO THE UK WATER INDUSTRY SPECIFICATION OR EQUIVALENT E.U. SPECIFICATION.
  7. DUCTILE IRON PIPES SHALL CONFORM TO CLASS K9 OF EN 545. DUCTILE IRON FITTINGS SHALL BE EITHER K9 OR K12. DUCTILE IRON PIPEWORK SHALL BE COATED INTERNALLY WITH A CENTRIFUGAL APPLIED CEMENT MORTAR LINING CONTAINING A SULPHATE RESISTANT CEMENT AND SHALL BE SEALED WITH AN APPROVED BITUMEN OR EPOXY RESIN SEAL COAT IN ACCORDANCE WITH BS 4722:1988. EXTERNAL PROTECTION SHALL INCLUDE A ZINC COATING TO EN 545 UNDER BITUMEN BASED COATING TO BS 3416:1991.
  8. ALL PIPEWORK SHALL HAVE A 400mm WIDE WATER WARNING MESH, (PLYAGE HR 400 BLUE OLYTHENE WARNING MESH OR SIMILAR) LAID DIRECTLY OVER THE CENTRELINE OF THE PIPELINE AND TIED TO VALVES AT A DEPTH OF 350mm BELOW THE FINISHED GROUND SURFACE. SUPPLY PIPES SHALL HAVE A 200mm WIDE MESH LAID AT THE SAME DEPTH.
  9. WATERMANS SHALL BE LAID UNDER FOOTPATHS PREFERABLY OR GRASS MARGINS WHERE APPROVED. NO PIPE, CONDUIT, CABLE OR OTHER SERVICE SHALL BE LAID LONGITUDINALLY OVER THE LINE OF A WATERMAIN. NO CABINET POLES, JUNCTION BOXES OR CHAMBERS SHALL BE CONSTRUCTED OVER A WATERMAIN.
  10. THE MINIMUM COVER TO A WATERMAIN SHALL BE 750mm, THE MAXIMUM COVER SHALL BE 900mm UNLESS NOTED OTHERWISE.
  11. CONNECTIONS TO THE MAINS WHICH ARE THE PROPERTY OF THE LOCAL AUTHORITY MAY INTERFERE IN ANY WAY WITH THESE MAINS. SUCH CONNECTIONS WILL BE MADE BY THE COUNTY COUNCIL AT THE EXPENSE OF THE PERSONS REQUIRING THEM. THE ESTIMATED COST OF SUCH CONNECTIONS MUST BE LODGED WITH TO THE LOCAL AUTHORITY BEFORE THE WORK IS UNDERTAKEN.
  12. WHERE VALVES ARE USED, THEY SHALL BE BOLTED TO FITTINGS (E.G. TEE-PIECES) DIRECTLY, WITHOUT THE INSERTION OF ANY INTERMEDIATE PIPE LENGTHS.
  13. SLUICE VALVES SHALL COMPLY WITH THE LOCAL AUTHORITY SPECIFICATION FOR SLUICE VALVES. THEY SHALL BE DOUBLE FLANGED, DUCTILE IRON RESILIENT SEAL GATE VALVES FOR WATER DIVISION PURPOSES AND SHALL COMPLY WITH THE RELEVANT REQUIREMENTS OF BS 5163: 1986 TYPE B AND HAVE THE BS KITEMARK. ALL SLUICE VALVES SHALL BE OF THE METAL TONGUED VARIETY AND CONSTRUCTED WITH A RECESSED CHANNEL FOR RECEIVING THE METAL TONGUE ON CLOSING.
  14. HYDRANTS, SLUICE VALVES, AIR VALVES CHAMBERS SHALL BE COVERED WITH APPROVED HEAVY DUTY SURFACE COVERS TO IS 261: 1994. THESE APPROVED METAL COVERS SHALL CONFORM TO THE LOCAL AUTHORITY SPECIFICATION FOR VALVE AND HYDRANT COVERS.
  15. HYDRANT/SLUICE VALVE/FLOW METER INDICATOR PLATES AND BASEBOARDS SHALL COMPLY WITH THE RELEVANT LOCAL AUTHORITY SPECIFICATION. THEY SHALL BE MOUNTED AT THE BOUNDARY OF THE PUBLIC THOROUGHFARE NEAREST TO THE HYDRANT.



REV.	DATE	AMENDMENT	DRN	APPD

STATUS FOR PLANNING ONLY NOT FOR CONSTRUCTION

**Waterman Moylan**  
Engineering Consultants

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CLIENT KW PRS ICVA ACTING FOR AND ON BEHALF OF ITS SUB-FUND KW PRS FUND

ARCHITECT O'MAHONY PIKE ARCHITECTS

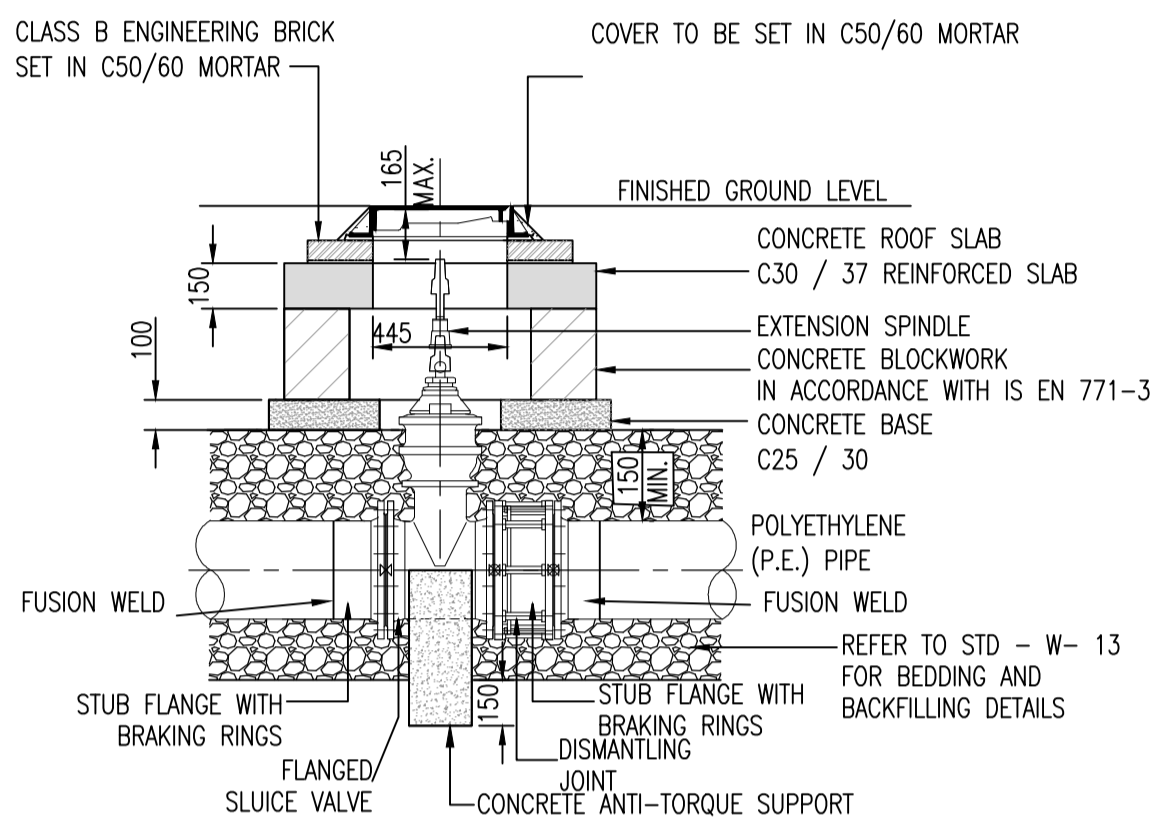
PROJECT BREWERY ROAD APARTMENTS, GRANGE DEVELOPMENTS, BLACKROCK, CO DUBLIN

TITLE PROPOSED WATER SUPPLY DETAILS SHEET 1 OF 3

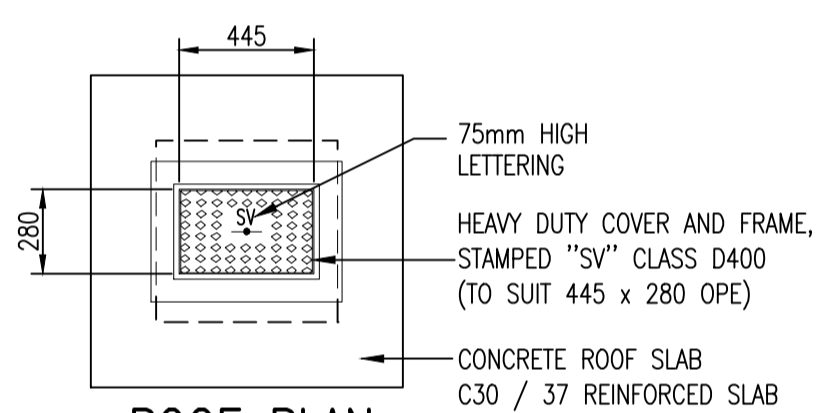
DRAWN C.Byrne	DESIGNED EC	APPROVED JG	DATE APRIL '19
SCALE 1:25 @A1	JOB NO. 18-093	DRG. NO. P130	REVISION

**SLUICE VALVE NOTES:**

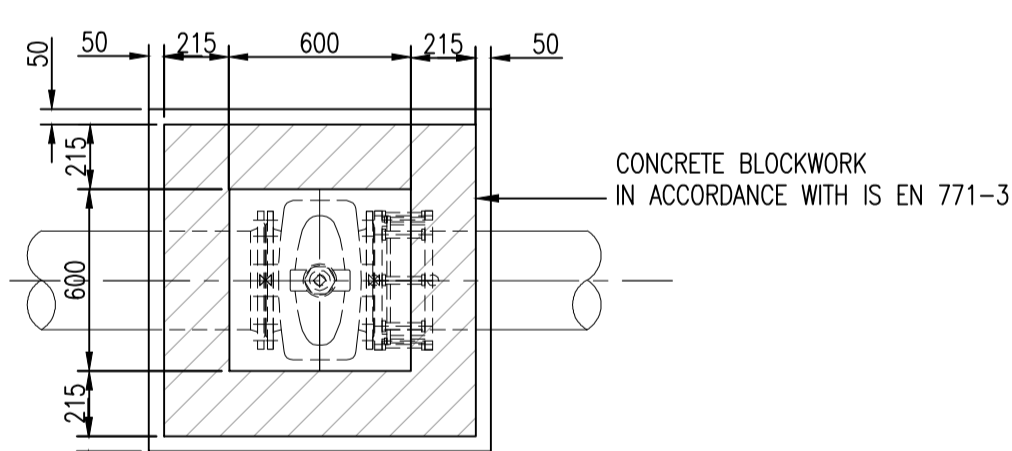
- ALL DIMENSIONS IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
- SLUICE VALVE CHAMBERS SHALL BE COVERED WITH APPROVED HEAVY DUTY METAL COVERS TO IS 261 OR BS 5834. COVER AND FRAME SHALL BE SUITABLE FOR ROAD AND TRAFFIC CONDITIONS AND IS SUBJECT TO REVIEW BY IRISH WATER.
- SLUICE VALVES SHALL BE RESILIENT SEATED AND SHALL COMPLY WITH BS 5163-1, BS 5163-2, IS EN 1074-1, IS EN 1074-2, OR EQUIVALENT E.U. SPECIFICATIONS.
- ALL SLUICE 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. 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 STD-W-13.
- 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 STD-W-28 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.



**SECTION**  
(SCALE 1:25)



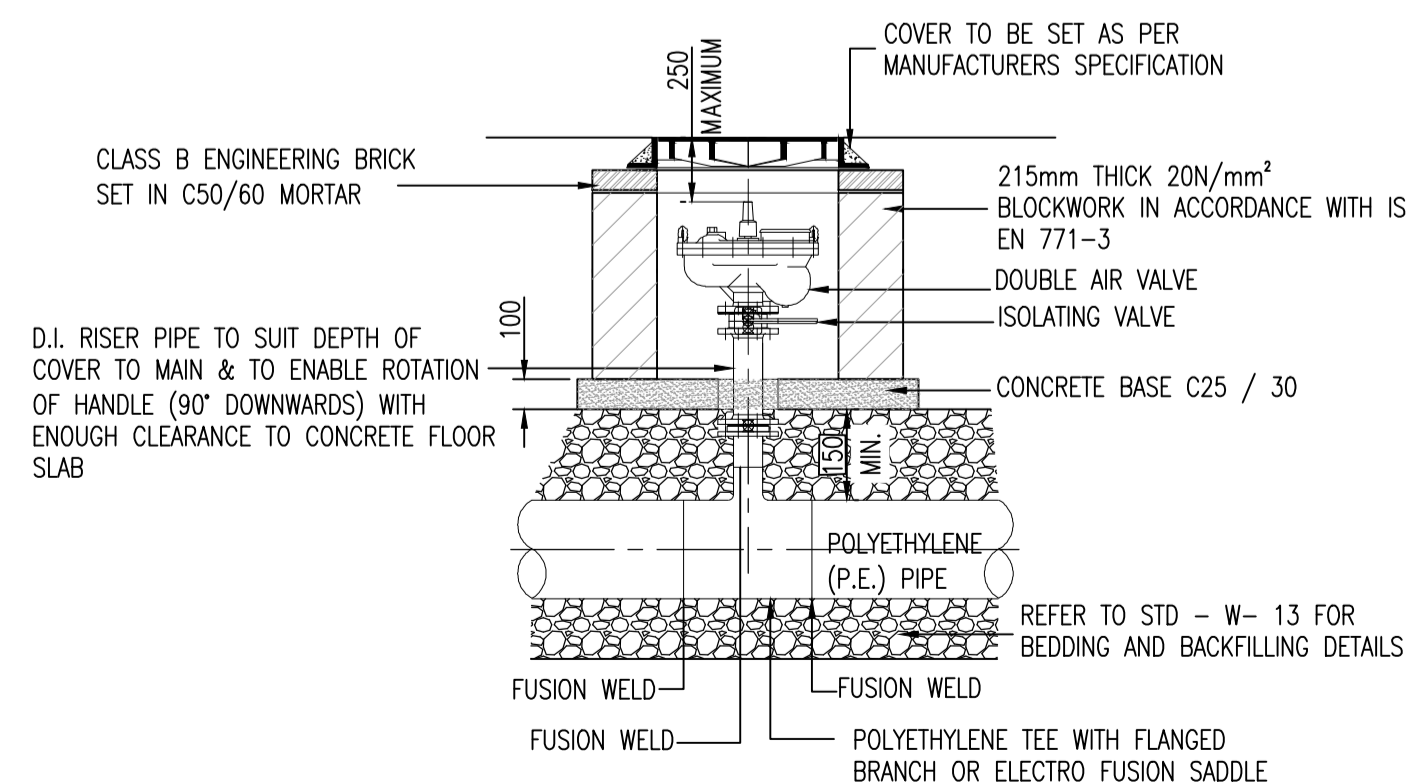
**ROOF PLAN**  
(SCALE 1:25)



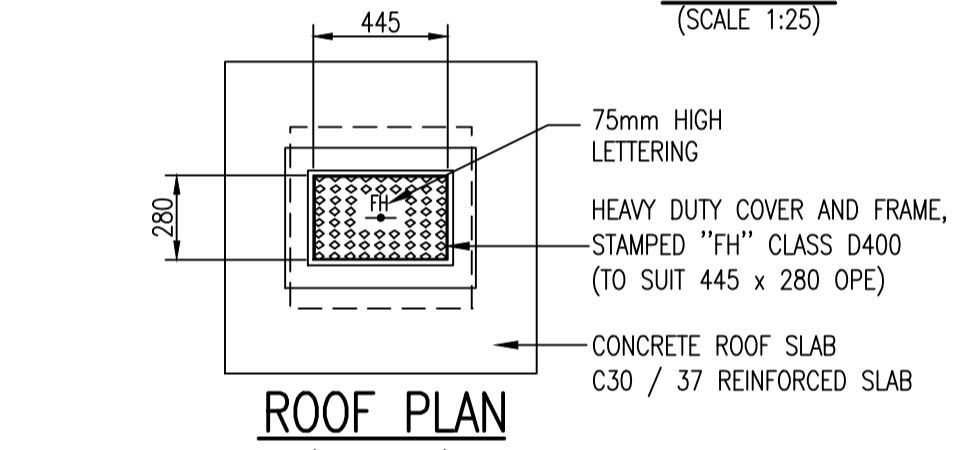
**FLOOR PLAN**  
**SLUICE VALVE CHAMBER**  
**FOR POLYETHYLENE (PE) PIPE**  
**(BLOCKWORK CONSTRUCTION)**  
**STD-W-15**  
(SCALE 1:25)

**AIR VALVE NOTES:**

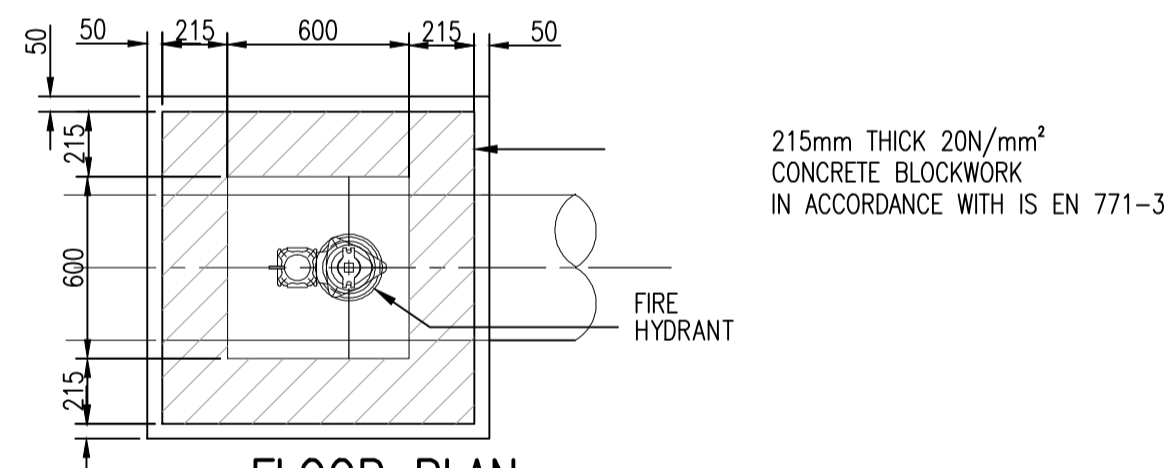
- ALL DIMENSIONS IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
- AIR VALVE CHAMBERS SHALL BE COVERED WITH APPROVED VENTILATED HEAVY DUTY METAL COVERS TO IS EN 124 RATING D400. COVER AND FRAME SHALL BE SUITABLE FOR ROAD AND TRAFFIC CONDITIONS AND IS SUBJECT TO THE APPROVAL OF IRISH WATER.
- AIR VALVES SHALL 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 BOLLLESS BONNET DESIGN, OR A BUTTERFLY VALVE TO IS EN 1074-2.
- SERVICE CONNECTIONS SHALL NOT BE PROVIDED WITHIN 2m OF THE AIR VALVE LOCATION.
- AIRVALVE CHAMBERS TO BE OF PRECAST CONCRETE UNITS OR HIGH DENSITY BLOCKWORK. ALTERNATIVE PROPRIETARY PREFABRICATED CHAMBER UNITS MAY ALSO BE USED, SUBJECT TO APPROVAL FROM IRISH WATER.
- PRECAST CONCRETE CHAMBERS SHALL BE SURROUNDED BY A MINIMUM OF 150mm COMPACTED CLAUSE 808 MATERIAL AS PER STD-W-13.
- DUCTILE IRON PIPES / FITTINGS AND PE PIPES / FITTINGS TO BE IN ACCORDANCE WITH IS EN 545 AND IS EN 12201:2011.
- 200mm ALL AROUND, 100mm DEEP CONCRETE PLINTH WITH PROTECTIVE STAINLESS STEEL METAL BAND AROUND COVERS IN GREEN AREAS.
- THRUST BLOCKS (NOT SHOWN ON DRAWING), TO BE PROVIDED AS PER STANDARD DRAWING STD-W-28 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.



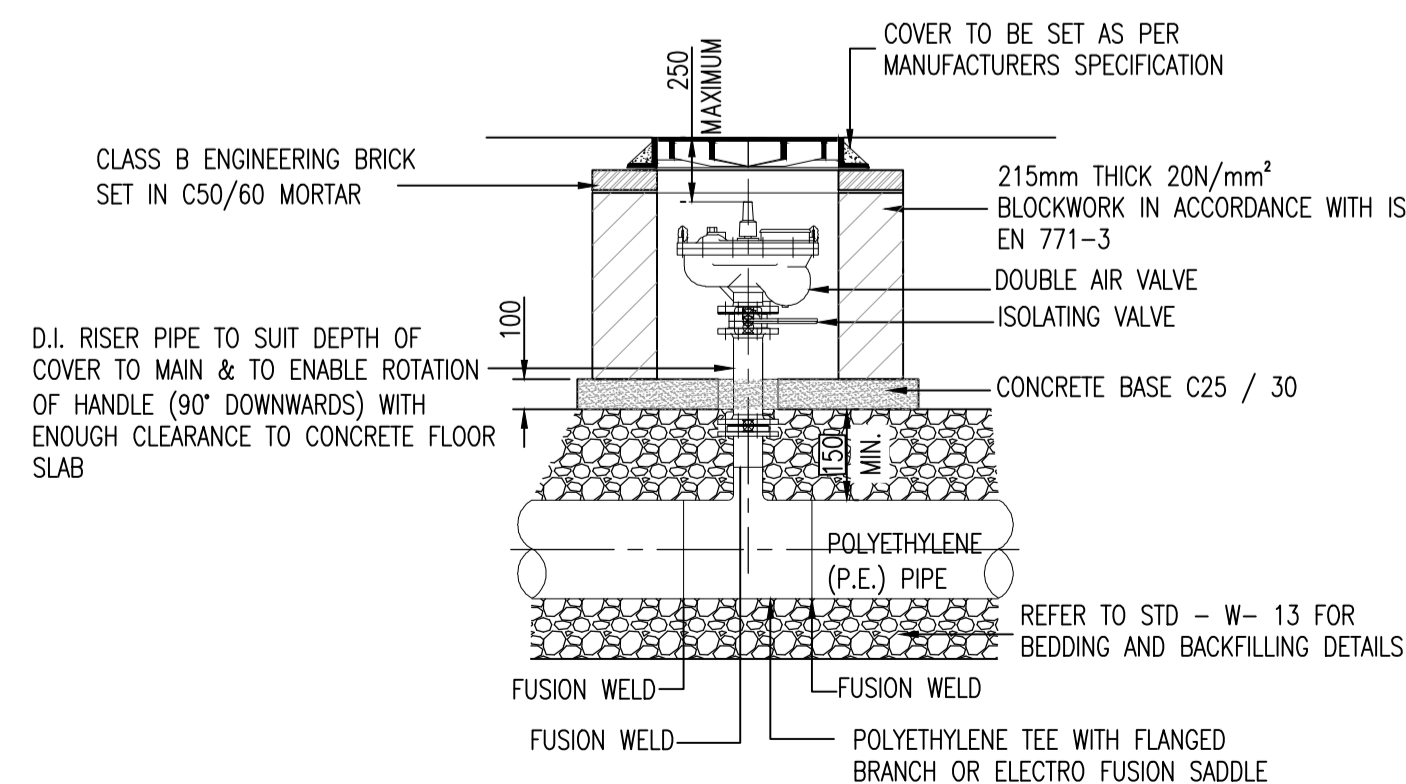
**SECTION**  
(SCALE 1:25)



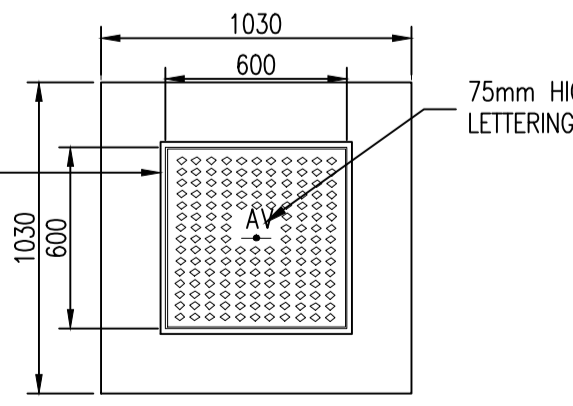
**ROOF PLAN**  
(SCALE 1:25)



**FLOOR PLAN**  
**ON-LINE FIRE HYDRANT CHAMBER**  
**FOR POLYETHYLENE (PE) PIPE**  
**(BLOCKWORK CONSTRUCTION)**  
**STD-W-18**  
(SCALE 1:25)

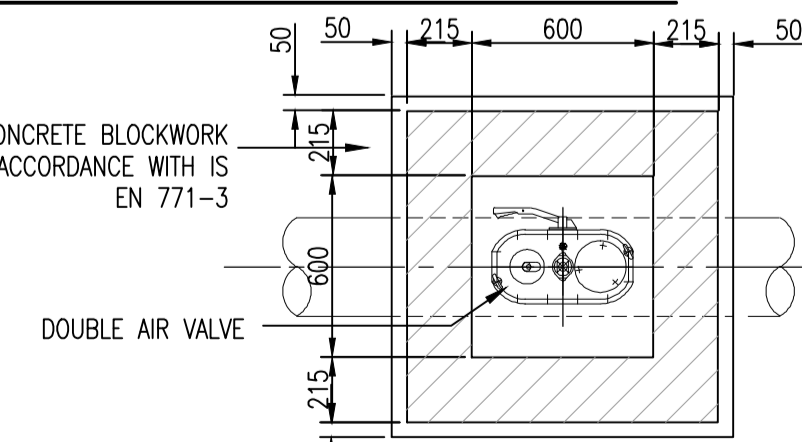


**PROPOSED WATER SUPPLY BOUNDARY BOX DETAILS**

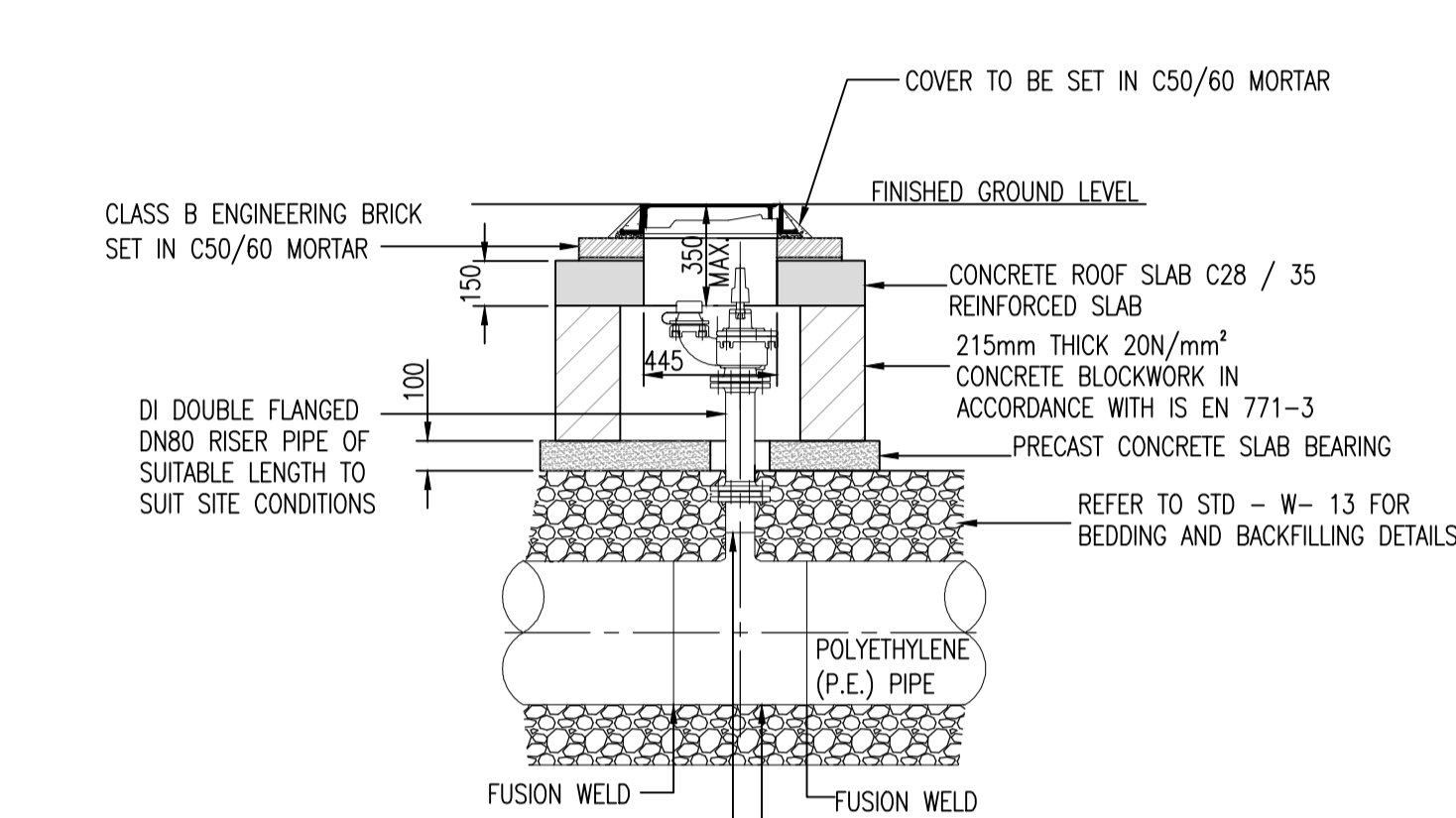


**ROOF PLAN**  
(SCALE 1:25)

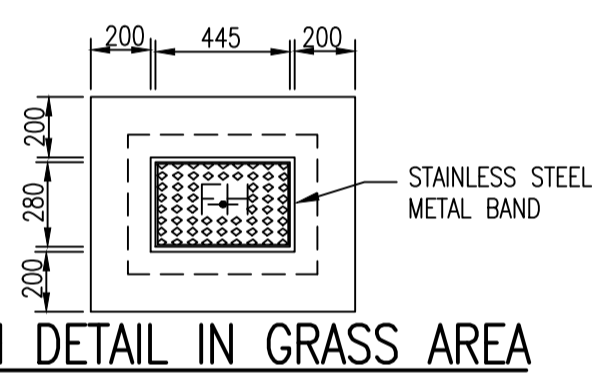
DIAMETER OF MAIN	UP TO 250 (mm)	250 TO 350 (mm)
DIAMETER OF BRANCH	80mm	100mm
BORE OF VALVE INLET	80mm	100mm



**FLOOR PLAN**  
**ON-LINE AIR VALVE FOR**  
**POLYETHYLENE (PE) PIPE**  
**(BLOCKWORK CONSTRUCTION)**  
**STD-W-22**  
(SCALE 1:25)



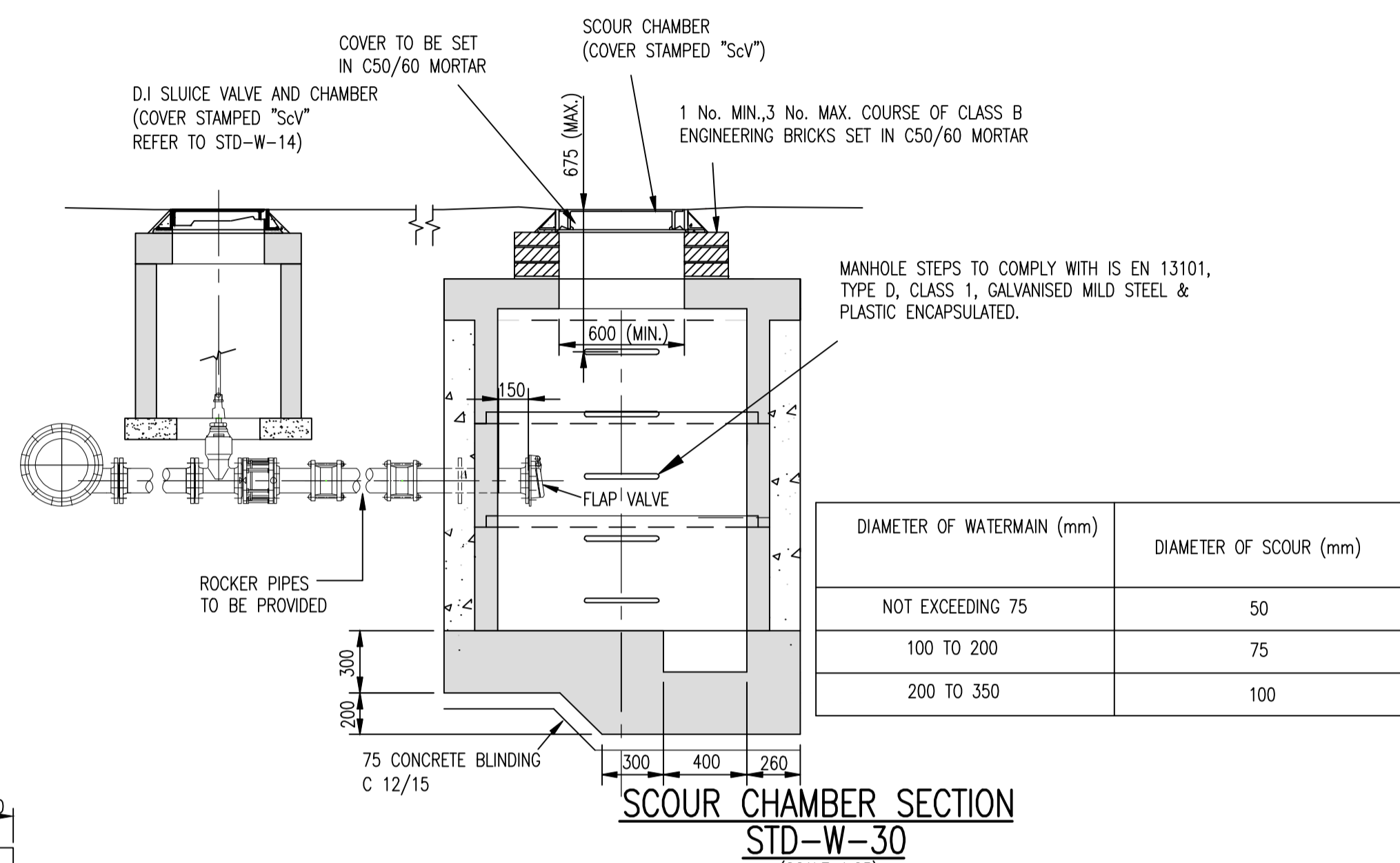
**SECTION**  
(SCALE 1:25)



**PLINTH DETAIL IN GRASS AREA**  
(SCALE 1:25)

**SCOUR VALVE NOTES:**

- ALL DIMENSIONS IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
- STRUCTURAL REINFORCEMENT AND DESIGN 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 REVIEW, & COMPLIANCE WITH BS 5911, Part 4.
- CONCRETE FOR SCOUR CHAMBER AND HEADWALL TO BE C30/37.
- PREFABRICATED CHAMBER AND HEADWALL MAY ALSO BE USED, SUBJECT TO REVIEW FROM IRISH WATER.
- SCOUR 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 IRISH WATER.
- 200mm ALL AROUND, 100mm DEEP CONCRETE PLINTH AROUND COVERS IN GRASS AREAS.
- FINAL DETAIL TO BE REVIEWED BY IRISH WATER AND RELEVANT REGULATORY AUTHORITIES.
- THRUST BLOCKS (NOT SHOWN ON DRAWING), TO BE PROVIDED AS PER STANDARD DRAWING STD-W-28 AT ALL TEES, BENDS, TAPERS, DEAD ENDS AND PIPES AT STEEP SLOPES.
- ANTI CORROSION TAPE TO BE PROVIDED AROUND BURIED FLANGES.
- ALL PIPEWORK 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 FLOATION MEASURES BE REQUIRED THEY SHALL BE SUBJECT TO AGREEMENT.
- ALL CONCRETE TO BE IN ACCORDANCE WITH IS EN 206.
- BACKFILL AND REINSTATEMENT OF RIVER BED AND BANK TO BE SUBJECT TO AGREEMENT WITH IRISH WATER & RELEVANT AUTHORITIES.

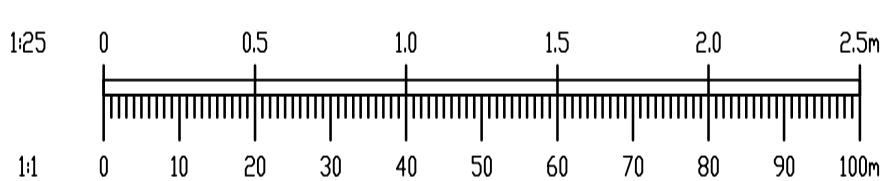
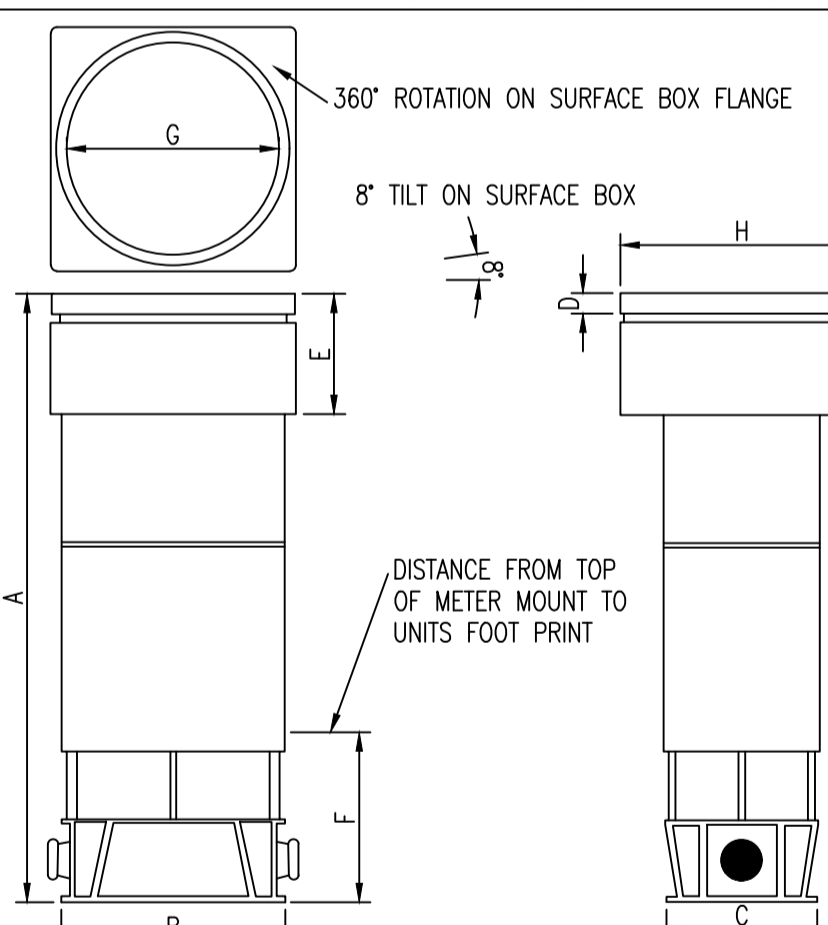


**SCOUR CHAMBER SECTION**  
**STD-W-30**  
(SCALE 1:25)

Dimensions and details

Box Type	A(min)	A(max)	B	C	D	E	F	G	H	Weight
Standard Unit (20mm, 25mm and 32mm connections)	499mm	670mm	208mm	151mm	20mm	112mm	170mm	173mm	225mm	4.5kg
Short Units	310mm	545mm	208mm	151mm	20mm	112mm	170mm	173mm	225mm	3.4kg

Matrix can be supplied to suit imperial pipes including Irish heavy gauge and normal gauge imperial pipes.



REV.	DATE	AMENDMENT	DRN	APPD

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CLIENT **KW PRS ICAV ACTING FOR AND ON BEHALF OF ITS SUB-FUND KW PRS FUND**

ARCHITECT **O'MAHONY PIKE ARCHITECTS**

PROJECT **BREWERY ROAD APARTMENTS, GRANGE DEVELOPMENTS, BLACKROCK, CO DUBLIN**

TITLE **PROPOSED WATER SUPPLY DETAILS SHEET 2 OF 3**

DRAWN <b>G.Byrne</b>	DESIGNED <b>EC</b>	APPROVED <b>JG</b>	DATE <b>APRIL '19</b>
SCALE <b>AS SHOWN @A1</b>	JOB NO. <b>18-093</b>	DRG. NO. <b>P131</b>	REVISION

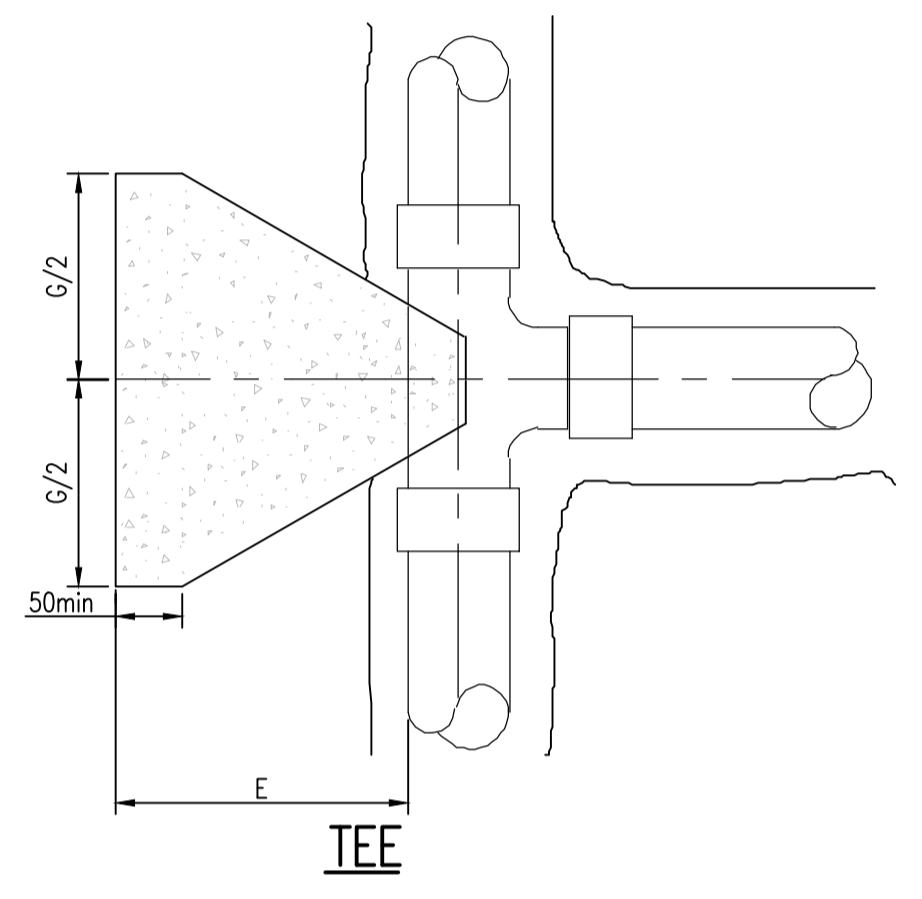
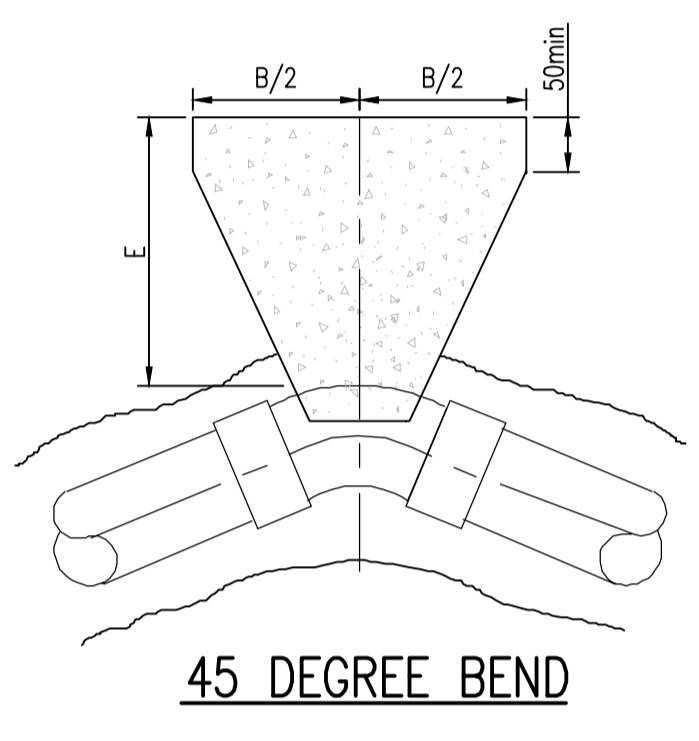
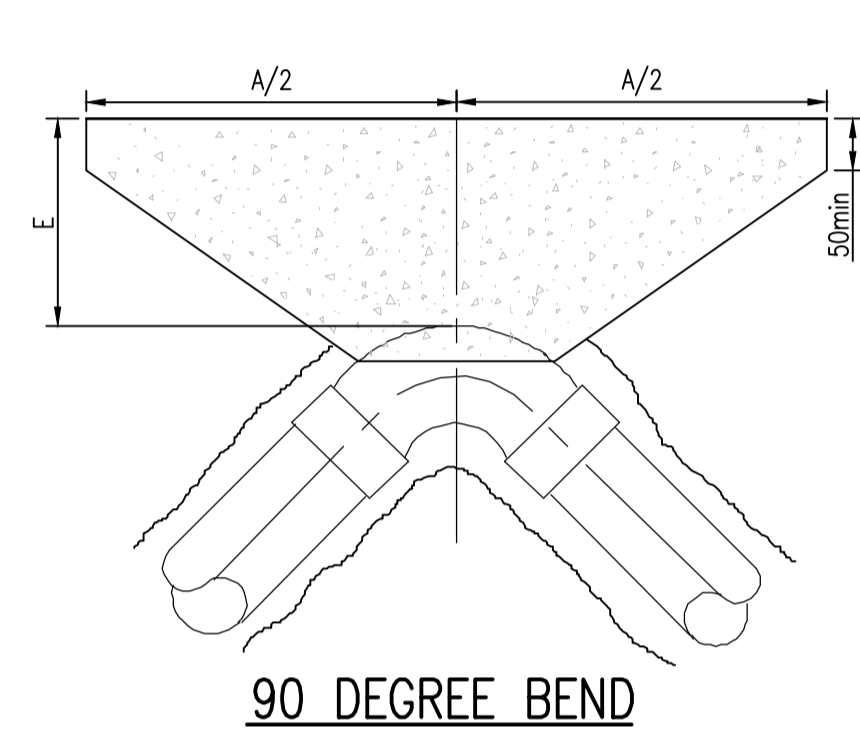


TABLE OF DIMENSIONS FOR STEEPLY INCLINED PIPELINES	
GRADIENT	SPACING
1 IN 2 & STEEPER	5.5m
BELOW 1 IN 2 TO 1 IN 4	11.0m
1 IN 4 TO 1 IN 5	16.6m
1 IN 5 TO 1 IN 6	22.0m

- NOTES:
- DO NOT SCALE. USE FIGURED DIMENSIONS ONLY.
  - THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT ARCHITECTURAL AND ENGINEERING DRAWINGS.
  - WATERMANS SHALL BE LAID IN ACCORDANCE WITH THE LOCAL AUTHORITY / IRISH WATER SPECIFICATION FOR THE LAYING OF NEW WATERMANS AND BYLAWS WHICH OVER-RIDE THESE NOTES. THE CONSTRUCTION OF THE WATERMAIN SHALL BE IN ACCORDANCE WITH THE BEST CURRENT PRACTICE AND THE LATEST EDITIONS OF THE RELEVANT STANDARDS AND CODES OF PRACTICE.
  - WATERMANS SHALL NOT BE LAID UNDER WALLS OR AREAS DESIGNATED FOR TREES/SHRUBS/FLOWERS.
  - PIPES SHALL BE HDPE (BLUE PIPE) UNLESS NOTED OTHERWISE BY AGREEMENT WITH THE LOCAL AUTHORITY. DUCTILE IRON PIPES SHALL BE USED UNDER ROADS OF CLASSIFICATION "DISTRICT DISTRIBUTOR" UPWARDS UNLESS NOTED OTHERWISE.
  - PIPES SHALL CONFORM TO THE UK WATER INDUSTRY SPECIFICATION OR EQUIVALENT E.U. SPECIFICATION.
  - DUCTILE IRON (DI) PIPES SHALL CONFORM TO IS EN 545 AND SHALL HAVE MINIMUM C40 PRESSURE RATING. DUCTILE IRON FITTINGS SHALL HAVE 16 BAR RATING AT LEAST DI PIPEWORK SHALL BE COATED INTERNALLY WITH A BLAST FURNACE CEMENT LINING WHICH COMPRISES WITH THE REQUIREMENTS OF BS 6920. EXTERNAL PROTECTION SHALL INCLUDE AN ALLOY OF 70% ZINC AND ALUMINUM WITH A MINIMUM 15% ALUMINUM WITH OR WITHOUT OTHER MATERIALS HAVING A MASS OF 400g/m<sup>2</sup> COMPLETE WITH A FINISHING LAYER OF BLUE FUSION BONDED EPOXY IN ACCORDANCE WITH IS EN 14901.
  - WATERMANS SHALL BE LAID UNDER FOOTPATHS PREFERABLY OR GRASS MARGINS WHERE APPROVED. NO PIPE, CONDUIT, CABLE OR OTHER SERVICE SHALL BE LAID LONGITUDINALLY OVER THE LINE OF A WATERMAIN. NO CABINET POLES, JUNCTION BOXES OR CHAMBERS SHALL BE CONSTRUCTED OVER A WATERMAIN.
  - THE MINIMUM COVER TO A WATERMAIN SHALL BE 750mm, THE MAXIMUM COVER SHALL BE 900mm UNLESS NOTED OTHERWISE.
  - CONNECTIONS TO THE MAINS WHICH ARE THE PROPERTY OF THE IRISH WATER CAN BE MADE BY THE IRISH WATER ONLY. NO OTHER PERSON MAY INTERFERE IN ANY WAY WITH THESE MAINS. SUCH CONNECTIONS WILL BE MADE BY IRISH WATER AT THE EXPENSE OF THE PERSONS REQUIRING THEM. THE ESTIMATED COST OF SUCH CONNECTIONS MUST BE LODGED WITH IRISH WATER BEFORE THE WORK IS UNDERTAKEN.
  - IT IS THE CONTRACTORS RESPONSIBILITY TO ENSURE THAT ALL WORKS ARE CONSTRUCTED IN ACCORDANCE WITH THE IRISH WATER CODE OF PRACTICE AND STANDARD DETAILS. THE CODE OF PRACTICE AND STANDARD DETAILS ARE AVAILABLE TO DOWNLOAD FROM THE IRISH WATER WEBSITE AT [WWW.WATER.IE/CONNECTIONS/DEVELOPER-SERVICES/](http://WWW.WATER.IE/CONNECTIONS/DEVELOPER-SERVICES/) WHERE THE DETAILS CONTAINED ON THIS DRAWING DIFFER FROM THE IRISH WATER CODE OF PRACTICE OR STANDARD DETAILS THIS MUST BE BROUGHT TO THE ATTENTION OF THE ENGINEER IMMEDIATELY. IRISH WATER STANDARDS WILL TAKE PRECEDENCE.

< 12 BAR TEST PRESSURE

NOM. DIA. (mm)	DIMENSIONS			
	A	B	E	G
100	600	330	200	390
150	950	510	225	660
200	1150	600	300	790
250	1350	750	300	970
300	1580	850	320	1110
350	2100	1150	450	1450
400	2550	1400	500	1800
450	3000	1630	680	2130
500	3590	1950	800	2540
600	4100	2200	850	2880

12 BAR TO 15 BAR TEST PRESSURE

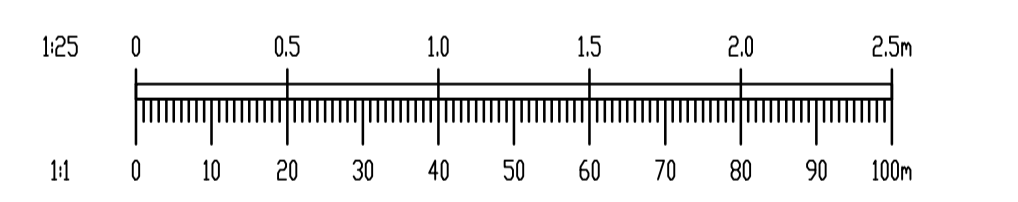
NOM. DIA. (mm)	DIMENSIONS			
	A	B	E	G
100	700	380	200	510
150	1135	620	225	760
200	1400	750	300	980
250	1730	940	320	1210
300	2090	1130	380	1480
350	2600	1410	500	1840
400	2980	1610	750	2110
450	3400	1840	900	2330
500	4080	2210	1000	2880
600	5010*	2710*	1000	3550*

15 BAR TO 18 BAR TEST PRESSURE

NOM. DIA. (mm)	DIMENSIONS			
	A	B	E	G
100	750	400	220	530
150	1250	700	250	890
200	1650	890	320	1170
250	1960	1060	350	1370
300	2300	1200	500	1630
350	2930	1580	750	2070
400	3510	1900	1000	2490
450	3810	2270	1000	2970
500	4340*	2380	1000	3700
600	6370*	3450*	1000	4500*

**WATERMAIN TRUST AND SUPPORT BLOCKS**

- 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 : DRAWING No's. STD-W-13.
- 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 REQUIRE SPECIFIC DESIGN.
- FOR TEST PRESSURES GREATER THAN 18 BAR, THRUST BLOCK DESIGN IS TO BE SUBMITTED TO IRISH WATER FOR APPROVAL.
- THRUST BLOCKS ARE DESIGNED FOR AN AVERAGE BEARING PRESSURE OF 100 kN/m<sup>2</sup> (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.
- 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 MANUFACTURERS REQUIREMENTS.
- POLYETHYLENE PIPES SHALL BE WRAPPED IN PLASTIC SHEETING HAVING A COMPOSITION IN ACCORDANCE WITH BS 6076 BEFORE BEING CAST INTO CONCRETE.
- ALL CONCRETE TO BE IN ACCORDANCE WITH IS EN 206.



REV.	DATE	AMENDMENT	DRN	APPD

STATUS **FOR PLANNING ONLY NOT FOR CONSTRUCTION**

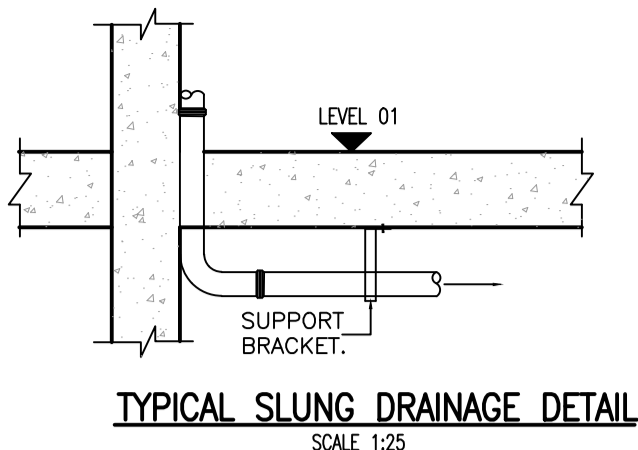
**Waterman Moylan**  
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CLIENT **KW PRS ICAV ACTING FOR AND ON BEHALF OF ITS SUB-FUND KW PRS FUND**  
ARCHITECT **O'MAHONY PIKE ARCHITECTS**

PROJECT **BREWERY ROAD APARTMENTS, GRANGE DEVELOPMENTS, BLACKROCK, CO DUBLIN**

TITLE **PROPOSED WATER SUPPLY DETAILS SHEET 3 OF 3**

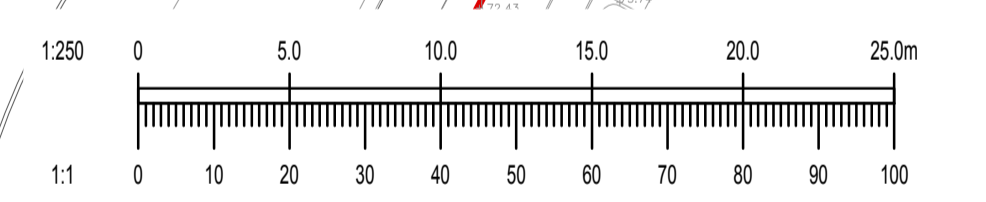
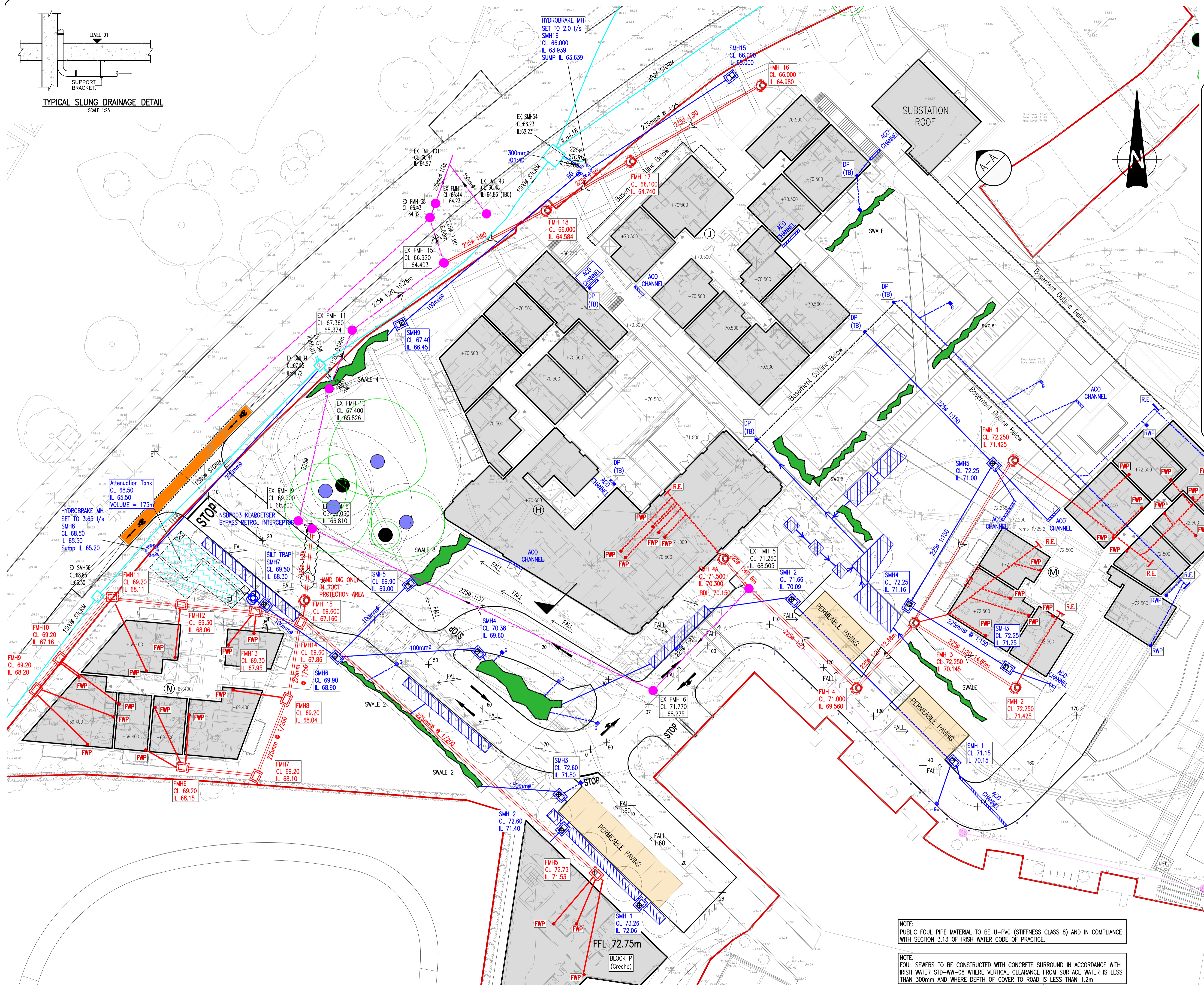
DRAWN <b>G.Byrne</b>	DESIGNED <b>EC</b>	APPROVED <b>JG</b>	DATE <b>APRIL '19</b>
SCALE <b>1:25 @A1</b>	JOB NO. <b>18-093</b>	DRG. NO. <b>P132</b>	REVISION



- NOTES:
- DO NOT SCALE. USE FIGURED DIMENSIONS ONLY.
  - THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT ARCHITECTURAL AND ENGINEERING DRAWINGS.
  - FOR EXTERNAL SURFACE WATER DRAINAGE LAYOUT REFER TO DRAWING LEVEL 02 (18-093-P200)

**LEGEND**

- FMH 4**  
CL 71.000  
IL 69.560  
225# 1:21 22.48m  
PROPOSED FOUL DRAINAGE, SHOWING MANHOLE REFERENCE, PIPE SIZE AND GRADIENT, COVER AND INVERT LEVELS
- 150mm # 1/150**  
PROPOSED FOUL WATER SLUNG DRAINAGE WITH RODDING EYE
- D.P. (T.B.)**  
PROPOSED FOUL WASTE WATER DOWN PIPE (TO BELOW)
- FWP**  
PROPOSED FOUL WASTE WATER DOWN PIPE (AT LEVEL 01)
- D.P. (T.B.)**  
PROPOSED SURFACE WATER DOWN PIPE (TO BELOW)
- SWP**  
PROPOSED SURFACE WATER DOWN PIPE (AT LEVEL 01)
- G**  
PROPOSED GULLY AND 100mm# CONNECTION
- 150mm # 1/150**  
PROPOSED SURFACE WATER SLUNG DRAINAGE WITH RODDING EYE
- SMH4**  
CL-3.700  
L-4.600  
150mm# # 1/150  
PROPOSED SURFACE WATER DRAINAGE, SHOWING MANHOLE REFERENCE, PIPE SIZE AND GRADIENT, COVER AND INVERT LEVELS
- ACO CHANNEL**  
PROPOSED ACO CHANNEL
- EX FMH 37**  
CL 66.92  
IL 66.03  
225mm#  
EXISTING FOUL WATER DRAINAGE
- MSH4**  
CL 66.23  
IL 62.23  
150mm#  
EXISTING SURFACE WATER DRAINAGE
- INDICATES PROPOSED SWALE**
- INDICATES PROPOSED PERMEABLE PAVED AREA**
- INDICATES PROPOSED TREE PIT**



A	22/08/19	IRISH WATER SUBMISSION	GB	EC
REV.	DATE	AMENDMENT	DRN	APPD

STATUS **FOR PLANNING ONLY  
NOT FOR CONSTRUCTION**

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CLIENT **KW PRS ICAV ACTING FOR AND ON BEHALF OF ITS SUB-FUND KW PRS FUND 10**

ARCHITECT **O'MAHONY PIKE ARCHITECTS**

PROJECT **BREWERY ROAD APARTMENTS, GRANGE DEVELOPMENT, BLACKROCK, CO. DUBLIN.**

TITLE **PROPOSED DRAINAGE LAYOUT LEVEL 01**

DRAWN	DESIGNED	APPROVED	DATE
G.Boyle	EC	JG	APRIL '19
SCALE	JOB NO.	DRG. NO.	REVISION
1:250 @A1	18-093	P201	A

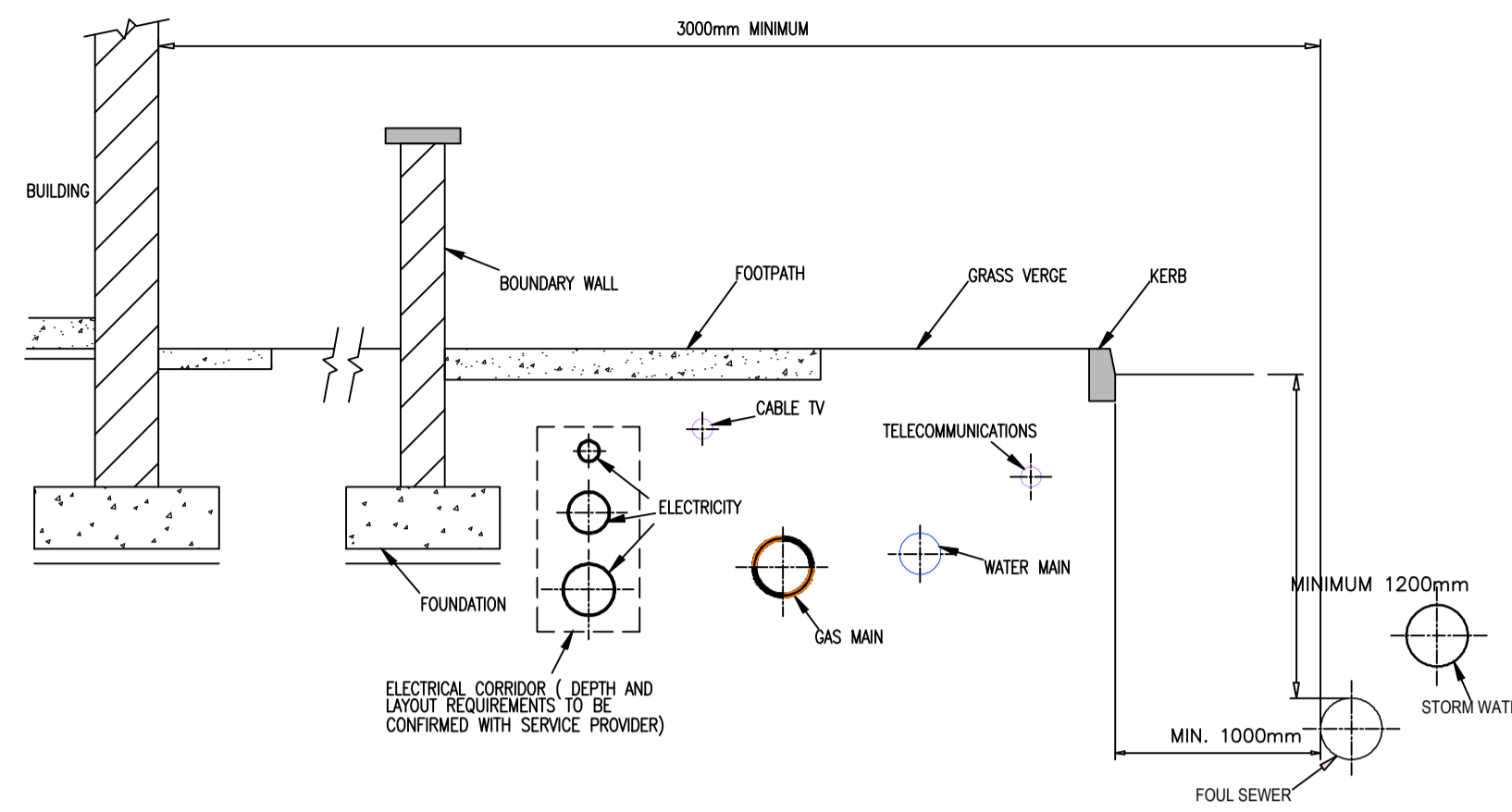
NOTE: PUBLIC FOUL PIPE MATERIAL TO BE U-PVC (STIFFNESS CLASS 8) AND IN COMPLIANCE WITH SECTION 3.13 OF IRISH WATER CODE OF PRACTICE.

NOTE: FOUL SEWERS TO BE CONSTRUCTED WITH CONCRETE SURROUND IN ACCORDANCE WITH IRISH WATER STD-WW-08 WHERE VERTICAL CLEARANCE FROM SURFACE WATER IS LESS THAN 300mm AND WHERE DEPTH OF COVER TO ROAD IS LESS THAN 1.2m





1. THE SEPARATION DISTANCES OUTLINED ARE MINIMUM REQUIREMENTS.
2. 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.
3. 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.).
4. 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 AGREEMENT WILL ISSUE. ALL SUCH WORKS IN THE VICINITY OF ARTERIAL WATER MAINS AND SEWERS (MANS 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.
5. 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.
6. 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.
7. 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.
8. THE EXTERNAL FACES OF MANHOLE SHALL BE AT LEAST 0.5m FROM KERB LINE.
9. WHERE DESIGN DEVIATES FROM TYPICAL DETAILS, THE LAYOUT IS SUBJECT TO REVIEW BY IRISH WATER.



### TYPICAL SERVICE LAYOUT INDICATING SEPARATION DISTANCE STD-WW-05

NTS

**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.

**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 OPTIONS 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 THE WORKS. MATERIAL, PLANT & SPOIL SHALL NOT BE STORED WITHIN THIS ZONE.

THE DISTANCES GIVEN IN TABLE A.1. OF BS 5837 MUST BE FURTHER INFORMED BY THE SPECIES & IN 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 WASTEWATER 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 (i.e. FINAL EXPECTED GROWTH).

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

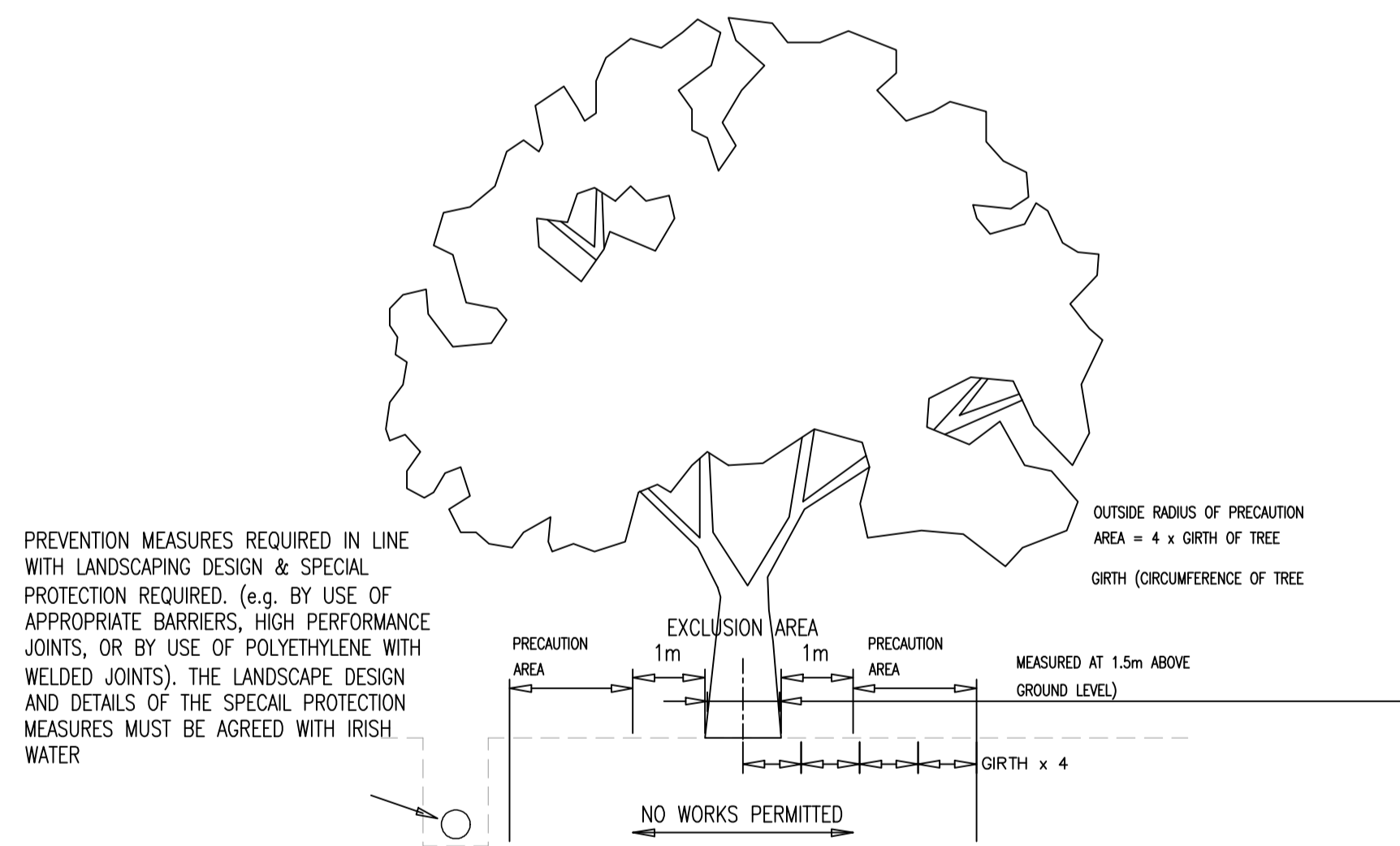
THUS FOR EXAMPLE:

- 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 WASTEWATER INFRASTRUCTURE, ETC. THE TREE/BUSH/SHRUB SHALL NOT BE LOCATED CLOSER TO THE WASTEWATER INFRASTRUCTURE THAN INDICATED ABOVE, EXCEPT WHERE SPECIAL PROTECTION MEASURES ARE PROVIDED. WHERE THERE IS A RISK OF TREE/ROOT INTRUSION, THE WASTEWATER 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 FOR RISING MAINS). THE LANDSCAPE DESIGN AND DETAILS OF THE SPECIAL PROTECTION MEASURES MUST BE AGREED WITH IRISH WATER.

A TREE SHALL NOT BE PLANTED DIRECTLY OVER WASTEWATER PLANTING IS AGREED WITH IRISH WATER AND IN GENERAL ONLY SHALLOW ROOTING SHRUBS SHALL BE PLANTED CLOSE TO 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.



### EXISTING PLANTING RESTRICTION ON WASTEWATER INFRASTRUCTURE WORKS ADJACENT TO TREES STD-WW-06

NTS

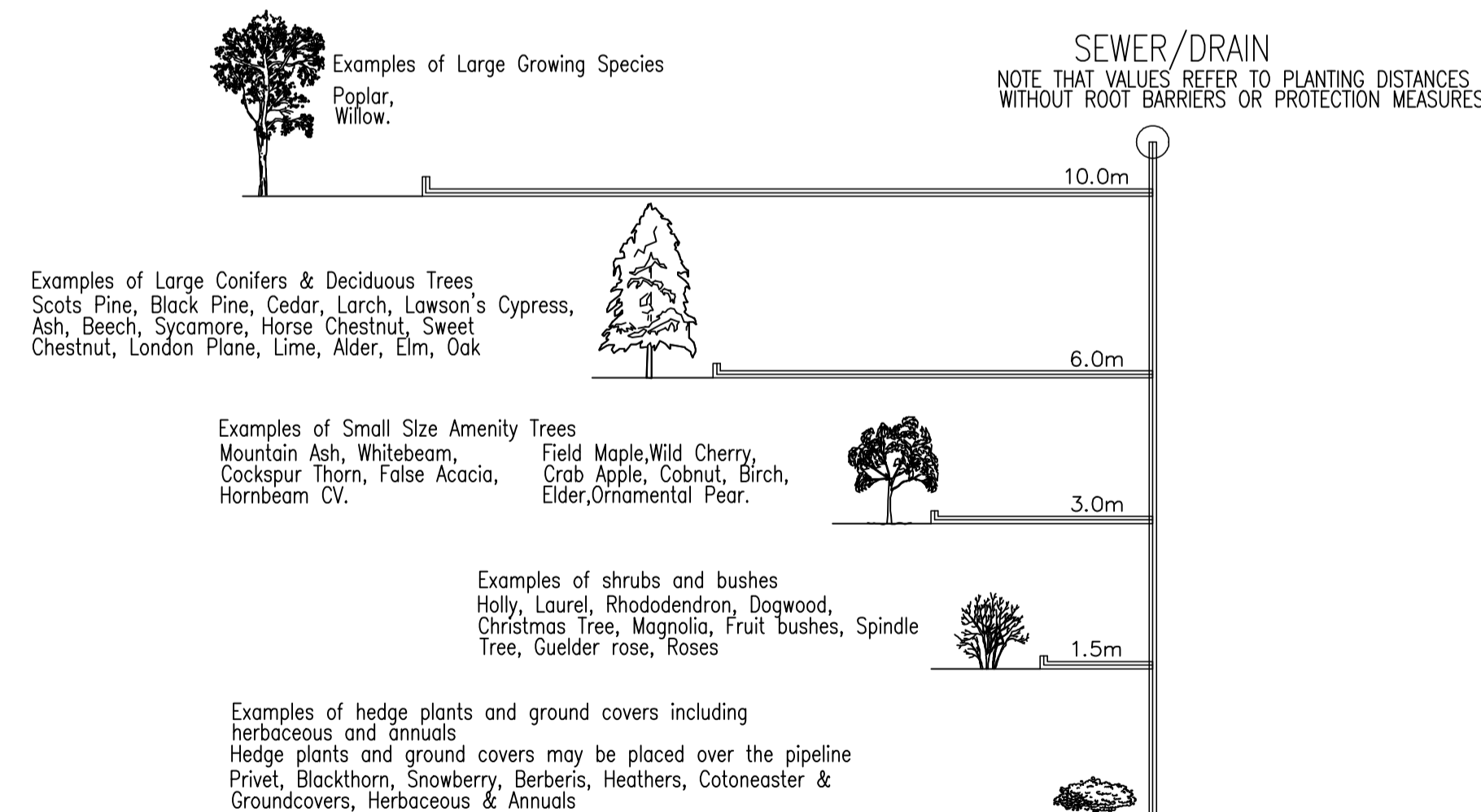


DIAGRAM 2: PLANTING DISTANCES FOR DIFFERENT SPECIES WITHOUT BARRIER PROTECTION

NOTES:

1. ALL DIMENSIONS IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
2. 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 CURTLAGE, IF PRACTICABLE. CONSULT WITH IRISH WATER ON ALTERNATIVE LOCATIONS.
3. 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.
4. 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.
5. COVERS AND FRAMES SHALL BE SUITABLE FOR ROAD AND TRAFFIC CONDITIONS SUBJECT TO APPROVAL FROM IRISH WATER.
6. 200mm ALL AROUND, 100mm DEEP CONCRETE PLINTH WITH PROTECTIVE STAINLESS STEEL METAL BAND AROUND COVERS IN GREEN AREAS.
7. PROPRIETARY PREFABRICATED CHAMBER UNITS MAY ALSO BE USED, SUBJECT TO APPROVAL FROM IRISH WATER.
8. CHAMBERS SHALL BE SURROUNDED BY A MINIMUM OF 150mm COMPACTED CLAUSE 804 OR CLAUSE 808 MATERIAL AS PER STD-WW-07.

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Engineering Consultants

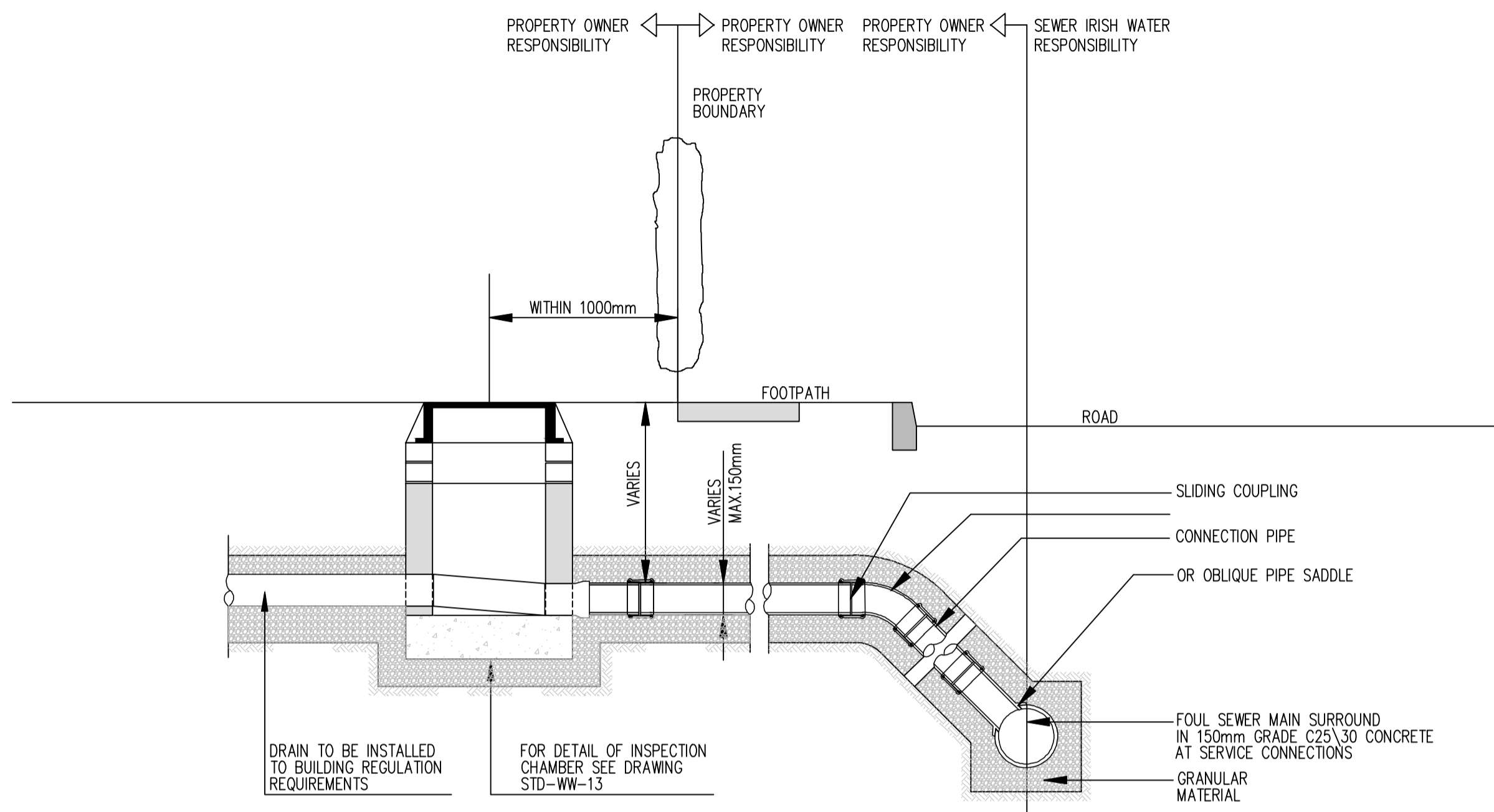
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ARCHITECT **O'MAHONY PIKE ARCHITECTS**

PROJECT **BREWERY ROAD APARTMENTS,  
GRANGE DEVELOPMENTS,  
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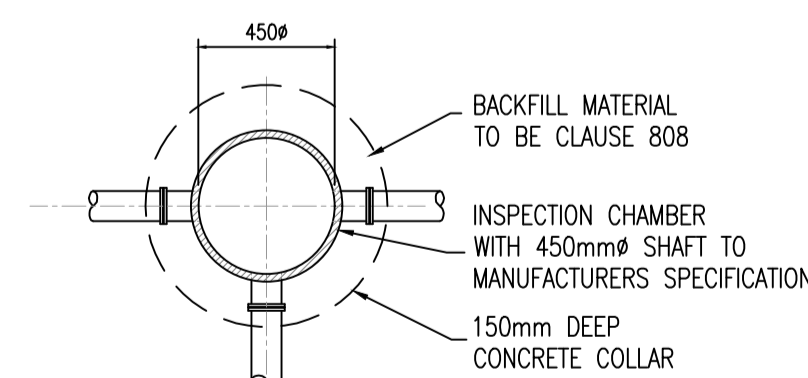
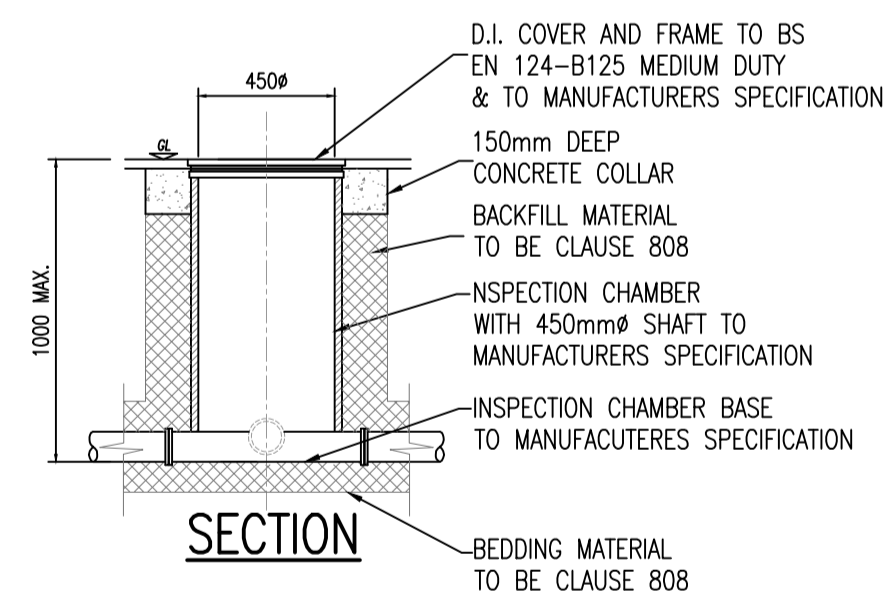
TITLE **PUBLIC FOUL WATER DRAINAGE DETAILS  
SHEET 2 OF 2**

DRAWN	DESIGNED	APPROVED	DATE
C.Byrne	EC	JG	APRIL '19
SCALE	JOB NO.	DRG. NO.	REVISION
AS SHOWN @A1	18-093	P233	

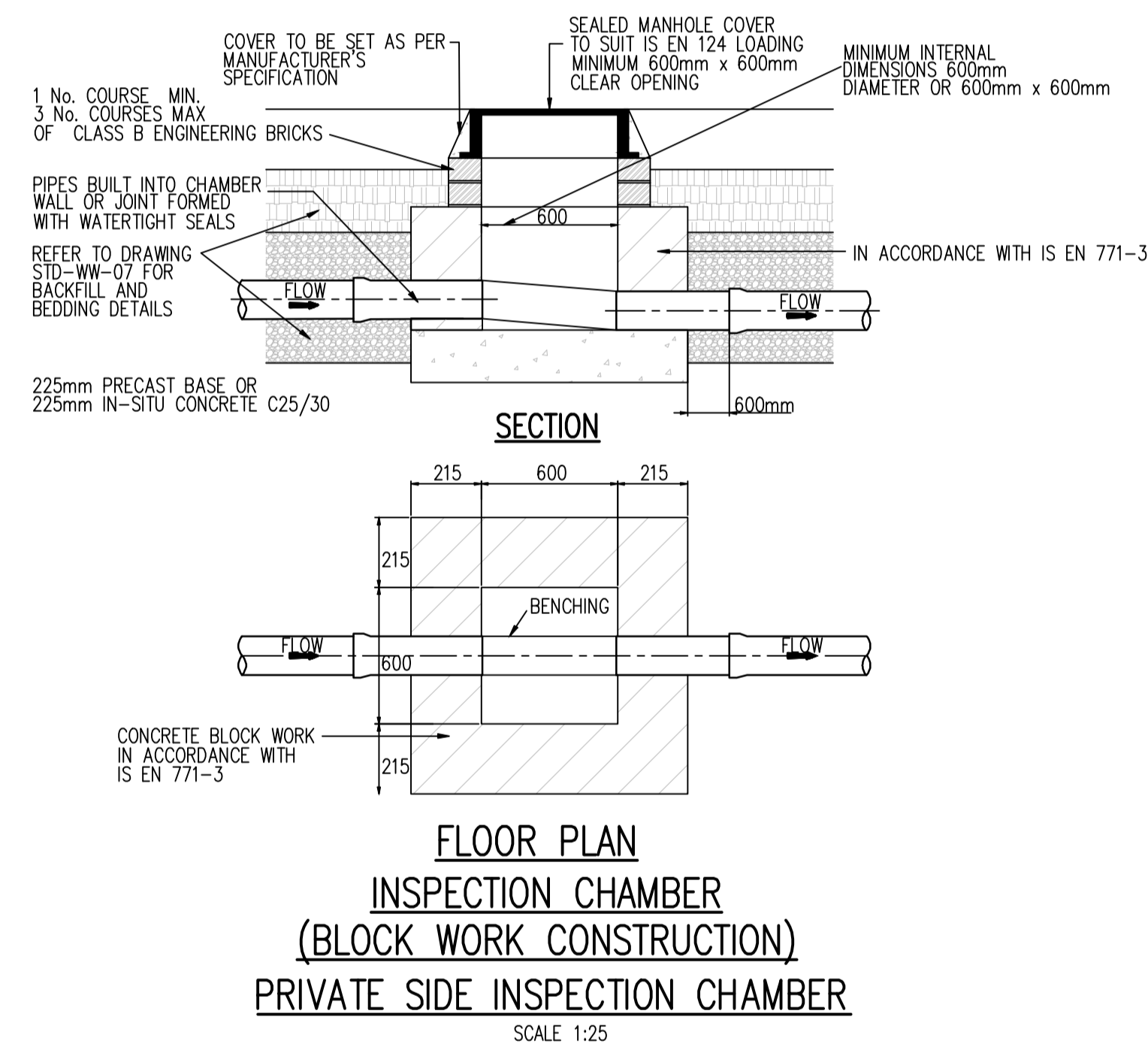
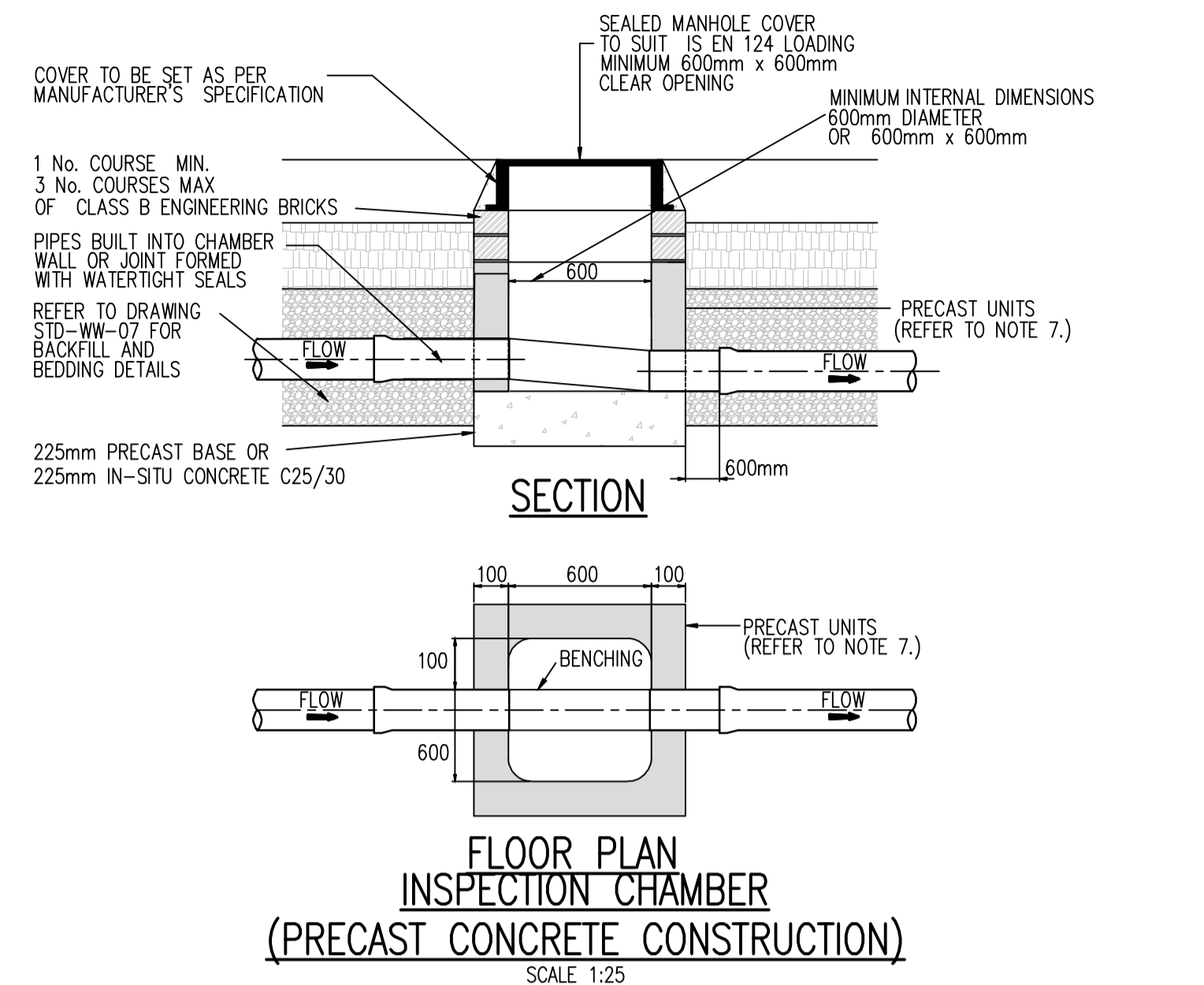


PIPE SIZE (mm)	GRADIENT
100	1 : 60
150 TO 225	1 : 150 MINIMUM

**DRAIN AND SERVICE CONNECTION PIPEWORK**  
SCALE 1:25



**CIRCULAR INSPECTION CHAMBER WHERE INVERT IS 1m OR LESS BUILDING REGULATIONS TGD SECTION H TABLE 9**  
SCALE 1:25

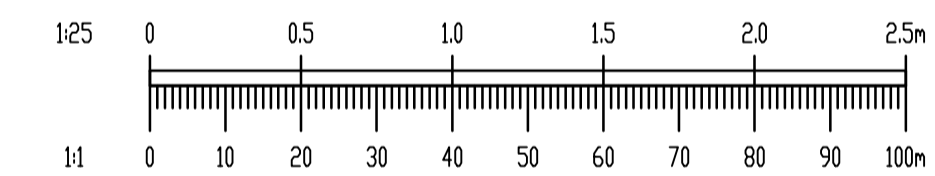


Type	Depth to (m)	Internal Sizes		Cover Sizes	
		length x width (mm x mm)	Circular (mm)	length x width (mm x mm)	Circular (mm)
Rodding eye					
Access Fitting					
small	0.6 or less	150 x 100	150	150 x 100	150
large		300 x 100	-	300 x 100	-
Inspection Chamber	0.6 or less	300 x 300	190*	300 x 300	190*
	1.0 or less	450 x 450	450	450 x 450	450**
Manhole	1.5 or less	1200 x 750	1000	600 x 600	600
	over 1.5	1200 x 750	1200	600 x 600	600
	over 2.7	1200 x 840	1200	600 x 600	600
Shaft	over 2.7	900 x 840	900	600 x 600	600

Note:  
\* For clayware or plastics may be reduced to 430mm in order to provide support for cover and frame  
\*\* Drains up to 150mm

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CLIENT **KW PRS ICAY ACTING FOR AND ON BEHALF OF ITS SUB-FUND KW PRS FUND**

ARCHITECT **O'MAHONY PIKE ARCHITECTS**

PROJECT **BREWERY ROAD APARTMENTS, GRANGE DEVELOPMENTS, BLACKROCK, CO. DUBLIN**

TITLE **PRIVATE FOUL WATER DRAINAGE DETAILS**

DRAWN NG	DESIGNED MI	APPROVED JG	DATE APRIL '19
SCALE AS SHOWN	JOB NO. 18-093	DRG. NO. P234	REVISION