

Irish Water Self Lay Quality Assurance

Toolbox Talk 3 of 8: Manholes & Inspection Chambers

Step 1 – Before You Start

- Ensure safety is considered during the planning and execution of the works. If working on behalf of Irish Water, adhere to Irish Water's HSQE requirements.
- Materials are to be in accordance with the Irish Water Codes of Practice (CoP), and have CE marking
- All equipment should be in good working order and, where applicable, have a relevant calibration certificate and CE marking.
- Before installation of any water or wastewater infrastructure works refer to Irish Water's Codes of Practice and Standard Details which are available, along with the full library of Quality Assurance Toolbox Talks, on the Irish Water website water.ie/connections/

Step 2 – Manholes (Continued)

- Install an elastomeric seal at all PCC joints.
- Surround manholes in Clause 808 material, compacted in layers no more than 200mm, to the underside of the road/footpath structure in accordance with wastewater CoP Section 4.8.
- Install blockwork manholes in accordance with STD-WW-09 and Cast In-situ manholes in accordance with STD-WW-11

Step 2 – Manholes

- Manholes are required at all changes in direction, changes of gradients, changes of pipe type and changes of pipe size on main sewers.
- Manhole inverts require smooth flow channels to accommodate the flow from the inlet pipe(s) to the outlet pipe. Refer to wastewater CoP Section 3.12.6.
- Manholes may be constructed of the following:
 - Precast Concrete (PCC) (NOTE: PCC manholes are only permitted where the water table is low).
 - Cast in-situ.
 - Blockwork.



- Install PCC manholes in accordance with STD-WW-10 (cast in-situ base) & STD-WW-10A (PCC base).
- Surround PCC rings in 150mm grade C20/25 in-situ concrete.
- Proprietary watertight PCC manhole ring systems with a wall thickness >125mm, & a watertight joint sealing system, may be used without concrete surround, subject to the ground water level at the manhole being low and where the manhole is less than 4m deep, subject to review by Irish Water.

Step 3 – Backdrop Manholes

- Backdrop manholes are required where drops across manholes are greater than 600mm. Refer to STD-WW-12 for details.
- Inspection eye rodding point is required for:
 - drops greater than 900mm for pipes 150-450mm diameter
 - drops greater than 1300mm for pipes 500-900mm diameter
- Cascade manholes may be installed where drops across manholes are less than 600mm. Refer to STD-WW-12 for details.

Step 4 – Roof Slabs

- Manhole roofs are to be approved pre-cast concrete roof slabs or cast in-situ concrete roofs and are to be submitted to Irish Water for review.
- The minimum opening in roof slabs are 600mm x 600mm or 600mm diameter. Refer to wastewater CoP Section 3.12.5.



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Step 5 - Manhole Covers

- Provide heavy duty iron covers and frames to IS EN124, class D400 (suitable for road and traffic conditions).
- Set cover frames in cementitious epoxy resin/polyester mortar 30N/mm², supported on 1 to 3 courses of Class B engineering brick set in M30 mortar, flush pointed.
- Install a 200mm all around, 100mm deep concrete plinth around covers in green areas.



Step 6 - Access to Manholes

- Position lids directly above steps with a minimum 450mm landing at the manhole base.
- Align the steps to the widest area of benching.
- The top step should be no greater than 675mm from Finished Ground Level.
- Install step rungs in manholes up to 3 metres above the crown of the sewer.
- Install galvanised mild steel ladders in manholes greater than 3 metres above the crown of the sewer.

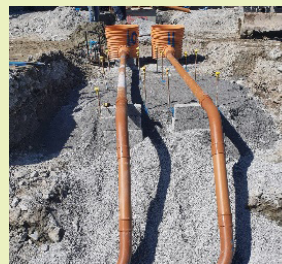


Step 7 - Manhole Testing

- Water retention (exfiltration) and infiltration tests are required on a selection of manholes. Refer to wastewater CoP Section 4.10 for details.
- Exfiltration Test:
 - Fill the manholes with water, and let the water set for a period (usually 1 hour).
 - The maximum allowable drop after 30 minutes is 0.4l/sq. m of internal wetted surface area.
- Infiltration Test:
 - Is carried out after the manhole is backfilled. The water ingress is measured in a 30-minute period.

Step 8 - Inspection Chambers

- Install Inspection Chambers in accordance with IW Standard Details STD-WW-13.
- Locate Inspection Chambers on the private side of each connection within 1 metre of the property boundary.
- Inspection chambers may be constructed of PCC, blockwork or proprietary products (subject to review by Irish Water).
- The typical internal chamber dimensions are 600mm x 600mm or 600mm diameter.
- The maximum depth from ground level to invert is 1.2m.



Step 9 - As-Constructed Records

- Record and maintain:
 - as-constructed Irish National Grid (ING) co-ordinates, cover levels, invert levels and pipe diameters of each manhole.
 - as-constructed ING co-ordinates of each Inspection Chamber.
 - as-constructed details of any bespoke manholes.
- As-constructed records are to be included in the final documents which are submitted to Irish Water prior to connection.