



## WATER ENGINEERING CHECKLIST

- Pipe size, lengths, & material:**
  - Identify pipe size, length & material for all new and existing public main and service lines.
  - Zinc coated ductile iron (ZDI) required for all new public water mains.
- Dimensioning:**
  - Dimension water from curbs and within easements (6' from curb North/East and centered within easement).
  - Dimension right-of-way, private and/or public easement widths.
- Identify all valves and fittings:**
  - All valves and fittings must be shown on plan view (notes only will not suffice).
  - Notes must call out valve sizes and fitting sizes.
  - All connection types shall be MJ.
  - All fire hydrant and fire protection services shall be MJxFLG.
- Fire hydrants:**
  - Identify all fire hydrant connections, materials, and fittings.
  - All joints from hydrant to the tee must be mechanically restrained.
- Joint restraints:**
  - Provide mechanical joint restraint lengths.
  - For pipe 12" or larger, restrain ALL joints.
- Earthquake Liquefaction Hazard Zone:**
  - All sites located within the earthquake high hazard zone liquefactions zone are required to mechanically restrain all pipes, joints and fittings no matter the pipe size.
- Utility Conflicts:**
  - Address any potential conflicts with water infrastructure by showing other utilities, structures, trees, driveway locations, etc.
- Utility Main Crossings:**
  - Address all utility crossings with water by identifying vertical and horizontal separation
- Utility Main Crossings Profile:**
  - Show water crossings on sewer and/or stormwater profiles.
  - Profiles for water required on 12" and larger mains.
- Blow-offs:**
  - Call out blow-offs as either standard or temporary per W-14 and W-15
- Air Release Valve:**
  - ARV required at all high points for water main 12" or larger
- Thrust blocks:**
  - Thrust blocks required on tapping tees and connections to existing unrestrained pipe shown on plan view and called out in notes section
- Pipe deflection:**
  - When pipe deflection proposed, show angle or radius, beginning and endpoints per manufacturer's specifications
- Water meter(s):**
  - Identify water meter size (including deduct and/or irrigation meters).
  - Show location on plan view.
  - Each building shall be metered separately.

- Backflow devices:**
  - Identify backflow size and type (must be WA State approved)
  - Show location on plan view – backflow locations must be placed outside near water meter unless otherwise approved by the City of Vancouver Water Quality Group
  - RPBA required on all uses identified under Table 9 of WAC 246-290-490
  - RPBA required on all sites that have access to unapproved auxiliary water supplies (i.e. wells)
- On-site wells:**
  - Identify any existing wells and proposed retention or demolition of well
  - Retained wells may only be used for irrigation and RPBA will be required on the domestic service
- Sample Drawing:**
  - See the following link for a water design sample plan. Designing your civil plans accordingly will assist in reduction of preventable redlines. [typical water drawing.pdf](#)