

The list below identifies common issues that may cause pitfalls during construction of CFPUA utilities. Other resources for identifying and avoiding pitfalls:

- CFPUA Construction Specifications: <http://www.cfpua.org/225/Construction-Specifications>
- CFPUA Construction Detail Drawings: <http://www.cfpua.org/224/Details>
- CFPUA Pre-Con Checklist and Walk-Thru Checklist
 - Development Manual, Appendix 5A and 5D
- CFPUA Certificate of Occupancy Request Form and Outline
 - Development Manual, Appendix 5H; <http://www.cfpua.org/465/Inspection-Request>

Common Construction Issues

General

1. Schedule final walk-thru inspection:
 - After all testing and CCTV is complete.
 - After preliminary as-built submittal.
 - After road base is installed.
2. Tracing wire:
 - Extra 2' coiled in valve box.
 - Extend along hydrant leg to hydrant and 2' above grade coiled to hydrant.
 - Extend 2' inside water meter box.
 - Splice with specified watertight connectors.
 - Attach wire to pipe using duct tape, do not wrap wire around pipe.
3. Stainless steel identification: 316 is non-magnetic; 304 is slightly magnetic.

Sewer Gravity Mains and Manholes

1. Working on clay (VCP) sewer mains:
 - Minimum of 10' replacement on both sides of a service or manhole.
 - Fittings are to be a minimum of 3' from a joint.
2. Manhole installation:
 - Use type S mortar only for sealing and forming; no hydraulic cement.
 - Use precast concrete adjusting rings or two courses of brick to raise manhole frame a maximum of 12", no risers in frame.
 - Brick shall be ASTM C62 Grade SW or ASTM C32 Grade MS.
3. Pipe connections to manholes:
 - Drop manhole: inside drop required for mains or services entering 30" or more above invert of discharge.
 - Minimum of 6" separation between edge of core and barrel joints (policy, not spec).
 - Coring the manhole cone is not permitted (policy, not spec).
4. Mains and services
 - Wyes are to be installed at a 45-degree angle per detail SD-10, 12 & 19 – any deviation must be approved by CFPUA Project Manager

- Ductile iron pipe (DIP) is inspected for chipped interior coating via CCTV after installation. DIP with chipped or damaged coating will be required to be replaced or lined with a CIPP patch. Handle DIP appropriately. Field apply touch-up coating to damaged or cut ends.
- 5. Sewer video inspection (CCTV):
 - 30 days after installation of mains, 14 days after installation of services.
 - After road subgrade is installed.
 - Notify CFPUA Inspector before beginning.
 - Preliminary as-builts must be submitted before CCTV review can be completed.
 - Rust stains are considered indications of leaking pipe; do not use rust stained pipe.
 - Protruding gaskets are considered defective; may result from pipe cuts that are not square.
 - Follow NASSCO PACP procedures and file format (MPEG video file format).

Water Mains and Appurtenances

1. Pressure test:
 - Use liquid filled gauge with 2 psi increments.
 - If combining CFPUA and Fire Dept test, gauge must read beyond 200 psi.
 - Conduct preliminary pressure test before CFPUA witnessed test.
2. Minimum of 3' between joints, fittings, taps.
3. Valves must have protective epoxy interior coating per AWWA C550 and ANSI/NSF 61.
4. When tying to existing lines, flushing the existing line will help disinfection.
5. Install hydrants between 1' and 18" inside the r/w; center of outlet 18" above finished grade.

Services

1. General service lateral installation:
 - Perpendicular to mains (deflected no more than 2' from perpendicular).
 - Straight line (tracing wire test will reveal services that are not straight).
 - Separations from property line: sewer: 12', water: 5'.
 - Terminate services 18" inside of r/w; if easement abuts r/w, a service can be extended into the easement no more than 5'.
2. Sewer service lateral installation:
 - Glue joints and caps, including cap behind cleanout (l/l will likely result from unglued joints and will be revealed by CCTV inspection; screw cap will be checked for glue).
 - Pipe sections cut slightly too long and forced into place often result in bellies.
 - CFPUA approval required for additional 45-degree vertical bends beyond those shown in standard detail.
 - When using saddle connections, ensure that lip of hole cut in main does not protrude into path of flow, position saddle to leave lip at top of pipe.
3. Manhole taps:
 - Maximum of 3 per manhole.
 - Minimum of 1' horizontal and vertical separation between edge of cores.
 - Coring the manhole cone is not permitted (policy, not spec).

1. Water service lateral installation:

- Angle stop or meter setter centered side to side in box, 3" from road side of box, allows top of meter to be 3" below lid.
- Keep coupon from tap or coupon will need to be recovered by flushing.