CITY OF PALO ALTO

DEVELOPMENT SERVICES – BUILDING INSPECTION

SEWER REPLACEMENT

INSPECTION CODE: 224

SCOPE: RESIDENTIAL AND COMMERCIAL

APPLICABLE CODES: 2019 CBC, CRC, CPC, CMC, CEC, CALGreen, CEnC, and PAMC

The information provided in this document is general and intended as a guide only. Each project is unique and additional requirements may be enforced as deemed appropriate.

IMPORTANT

- ☐ Failure to complete items below prior to inspection may result in a re-inspection fee.

- ☐ Locate underground utilities before digging. Call Underground Service Alert (USA) at least 48 hours before digging begins. Call 811.

WATER GAS & WASTE WATER (WGW) RESPONSIBILITIES

- ☐ Property line cleanout is to be installed by City of Palo Alto Utilities or under their direction. Contact Water Gas & Waste Water 650-496-6917. (See figure CPA 051)

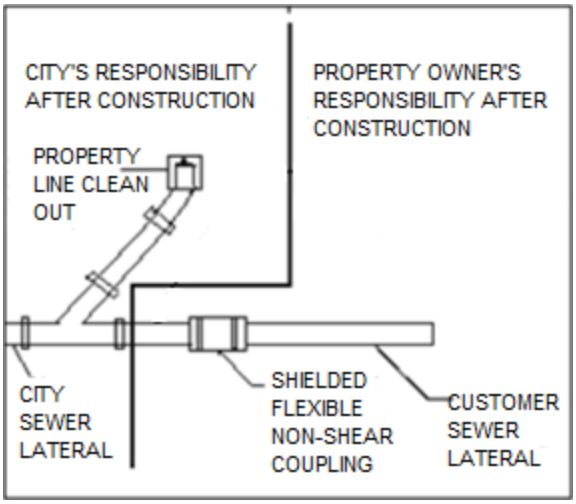


Figure CPA 051—Water Gas Waster Water Responsibility

PUBLIC WORKS PERMIT

- ☐ A Public Works Street Work Permit is required if work is to be performed in the City right-of-way such as underground work including pipe bursting of sewer lateral, sidewalk replacement, driveway installation or other work, saw cutting and repair of the City sidewalk.

- ☐ The Building permit will not be signed off until the street work permit is complete.

SEPTIC TANKS

- ☐ All septic tanks require separate permits and inspections by Santa Clara County Department of Environmental Health. All permitted work shall be signed off prior to City of Palo Alto final inspection.

INSPECTION

MATERIALS

- ☐ Approved underground piping and fitting materials: Drainage piping and fittings shall be of cast iron, schedule 40 ABS DWV, schedule 40 PVC DWV, vitrified clay pipe, or other approved materials per CPC Table 701.2. (CPC 701.2, CPC 701.3, CPC 715.1)

- ☐ Copper, copper alloys, lead and lead alloys, including brass, shall not be used in sewer lines connectors, or seals coming in contact with sewage except for domestic waste sink traps and short lengths of associated connected pipes where alternate materials are not practical. (PAMC 16.09.180 (6))

- ☐ Common inspection failure: The use of unlisted, non-approved transition fittings for joining unlike materials. Fittings shall be listed and labeled. Label shall indicate materials approved to be joined.

GENERAL REQUIREMENTS

- ☐ See Figure CPA Figure 055—Sewer Replacement Diagram

- ☐ An independent system is required for each detached structure. Accessory structure building drains shall not tie into the main structure building drain. See figure CPA 060. (CPC 311.1)

- ☐ Sequence inspections:

    1. Verify trench depth, water or air test, clean-outs, backwater valve, approved/listed pipe and fittings.
    2. Final: Verify, if applicable, other City Department sign-offs, clean-out box and lid, proper backfill and compaction, job site and street clean of debris.

- ☐ Cleanout shall be approved type WYE, combo fittings, or approved two-way cleanout such as head-to-head double combos. (CPC 707.2)

- ☐ Verify building cleanout is within 2’ of the building, terminating at grade level. (CPC 719.1, CPC 719.2)

- ☐ Additional cleanouts are required at property lines, end of line, horizontal change of direction exceeding 135 degrees, and at intervals not exceeding 100’ in length. (CPC 719.1)

- ☐ Cleanouts shall be installed so that it opens to allow cleaning in the direction of flow. (CPC 719.4)

☐ Easily obstructed fittings such as, “Kelly”, or ABS two-way fittings, are prohibited. See Figure CPA 054.

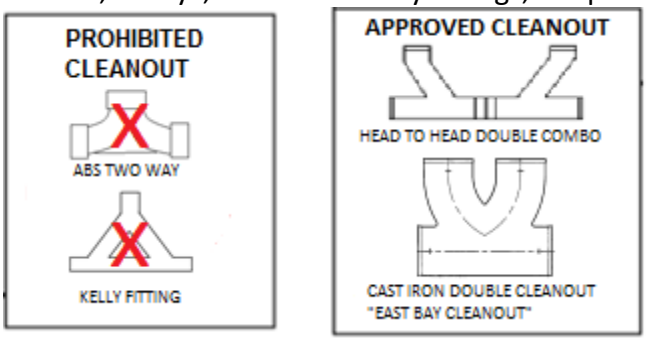


Figure CPA 53—Prohibited Cleanouts

☐ Sewer piping and cleanouts shall be accessible for inspection. (CPC 719.3)

☐ Shielded flexible non-shear couplings are required.

☐ Trenches deeper than the building footing and paralleling the same must be at least 45 degrees from the bottom exterior edge of the footing. See figure CPA 054. (CPC 314.1)

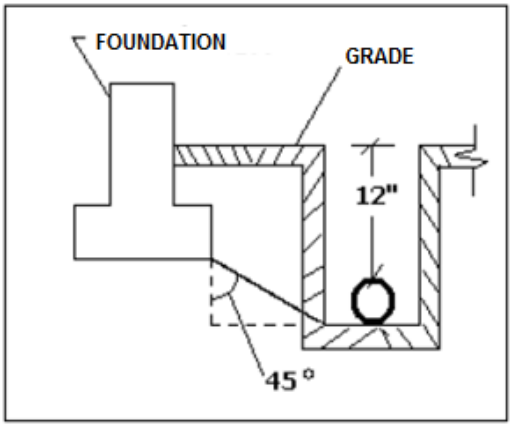


Figure CPA 054— Trenching Parallel to Building Foundation

☐ Sewer piping shall maintain a slope of a minimum 1/4” per foot. Where impractical due to the depth of the street sewer, the structural features, or the arrangement of a building or structure, a slope of 1/8” per foot, piping 4” or larger in diameter shall be permitted at the discretion of the building official. 1/8” per foot shall be specified on approved plans. (CPC 708.0)

☐ Sewer piping shall be a minimum of 12” below finished grade and laid on a firm bed through its entire length. (CPC 718.2, CPC 728.3)

☐ Sleeves shall be provided to protect all piping through concrete and masonry walls and footings. Sleeves shall be sealed and watertight between the sleeve and pipe in exterior walls. (CPC 312.10, CPC 312.10.2)

☐ Piping through concrete or masonry walls shall not be subject to a load from building construction. (CPC 312.10.1)

- ☐ Building sewer shall be tested by plugging the end of the building sewer at its point of connection with the public sewer and completely filling the building sewer with water from the lowest to highest point. (CPC 723.0)

- ☐ An air test may be performed by pressurizing the system to 5 Psi for 15 minutes. Plastic DWV shall not be tested by air test. (CPC 723.1)

- ☐ Trenches shall be backfilled and compacted in thin layers to 12” above the top of the piping with clean earth or sand which shall not contain stones, boulders, construction debris or materials that would break or damage piping or cause corrosive action. (CPC 314.4)

BACKWATER VALVE

- ☐ Fixtures installed on a floor level that is lower than the next upstream manhole cover of the public, or private sewer shall be protected from backflow of sewage by installing an approved type of backwater valve. (CPC 710.1)

- ☐ Fixtures on such floor level that are not below the next upstream manhole cover shall not be required to be protected by a backwater valve. Fixtures on floor levels above such elevation shall not discharge through the backwater valve. (CPC 710.1)

- ☐ When a backwater valve is required it shall be located upstream of the cleanout. See figure CPA 052.

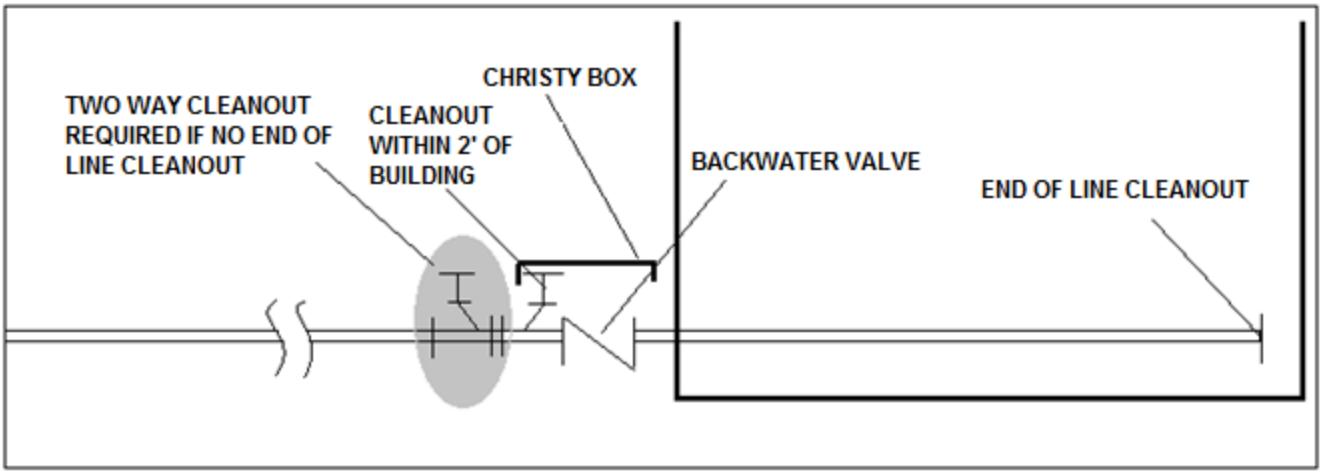


Figure CPA 052—Backwater Valve Location

- ☐ Figure CPA 052 is the preferred backwater valve configuration. Site conditions may require an alternative configuration.

- ☐ Cleanouts for drains that pass through a backwater valve shall be clearly identified with a permanent label stating "backwater valve downstream". (CPC 710.1)

☐ Second floor drain shall not pass through a backwater valve and tie in downstream of the first floor clean out and backwater valve. (PAMC 16.08.110)

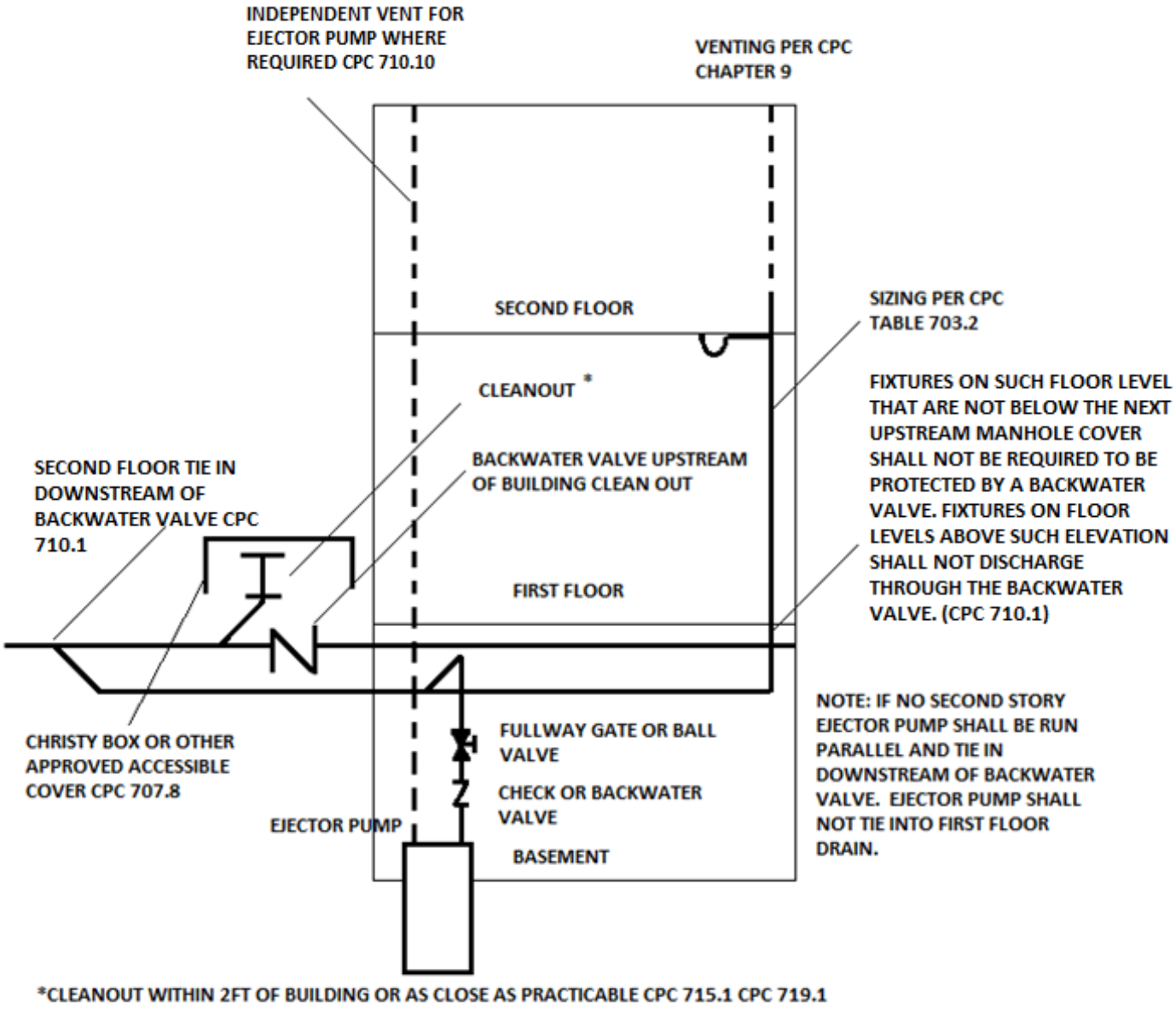


Figure CPA 059—Second Floor Tie In With First Floor Fixtures Requiring Backwater Protection

☐ For detached accessory dwelling unit/attached accessory dwelling unit and accessory structure configuration see Figure CPA 060 below. The drainage system of each new building and of new work installed in an existing building shall be separate and independent from that of any other building. (CPC 311.1)

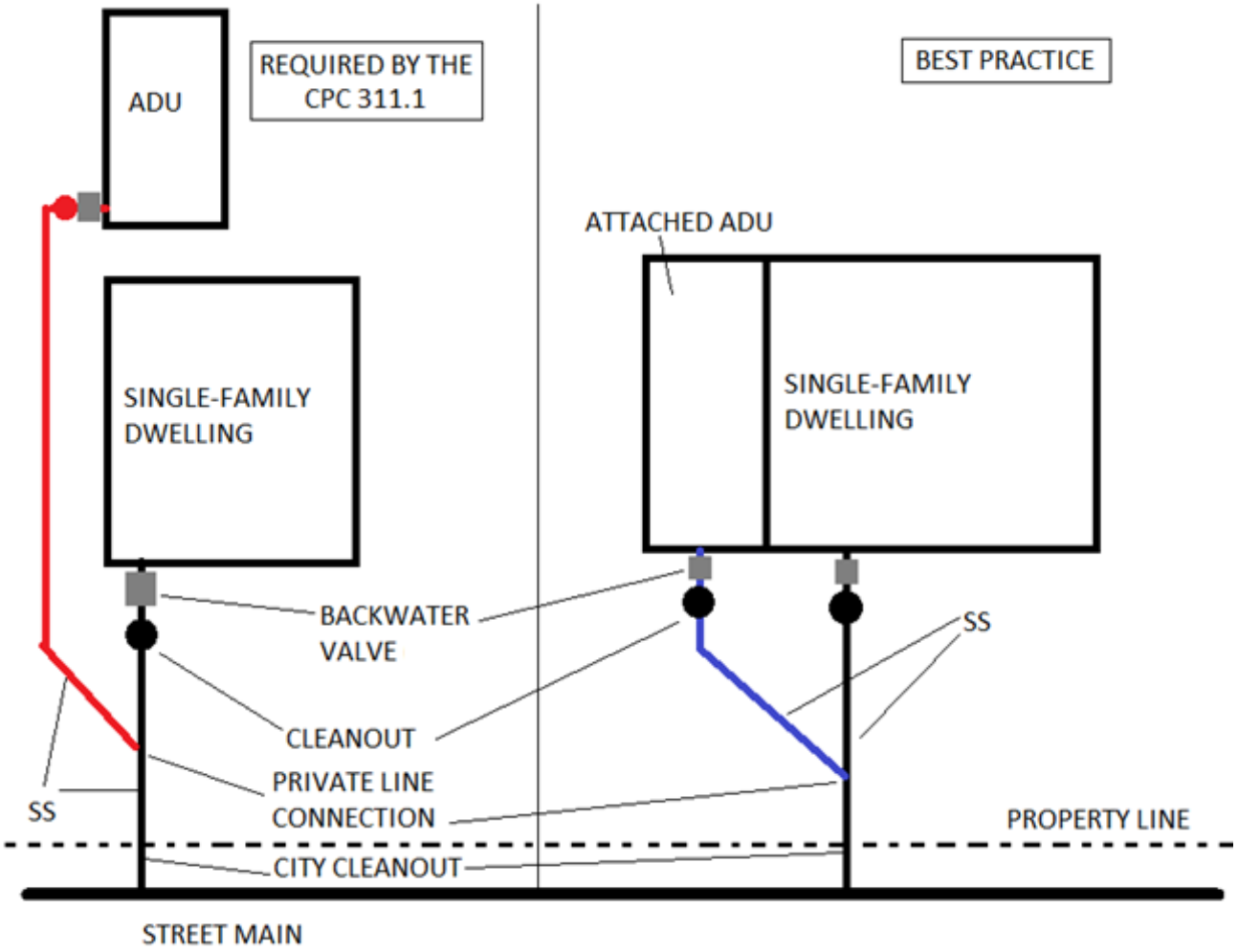


Figure CPA 060—ADU/Accessory Structure When a Backwater Valve is Required

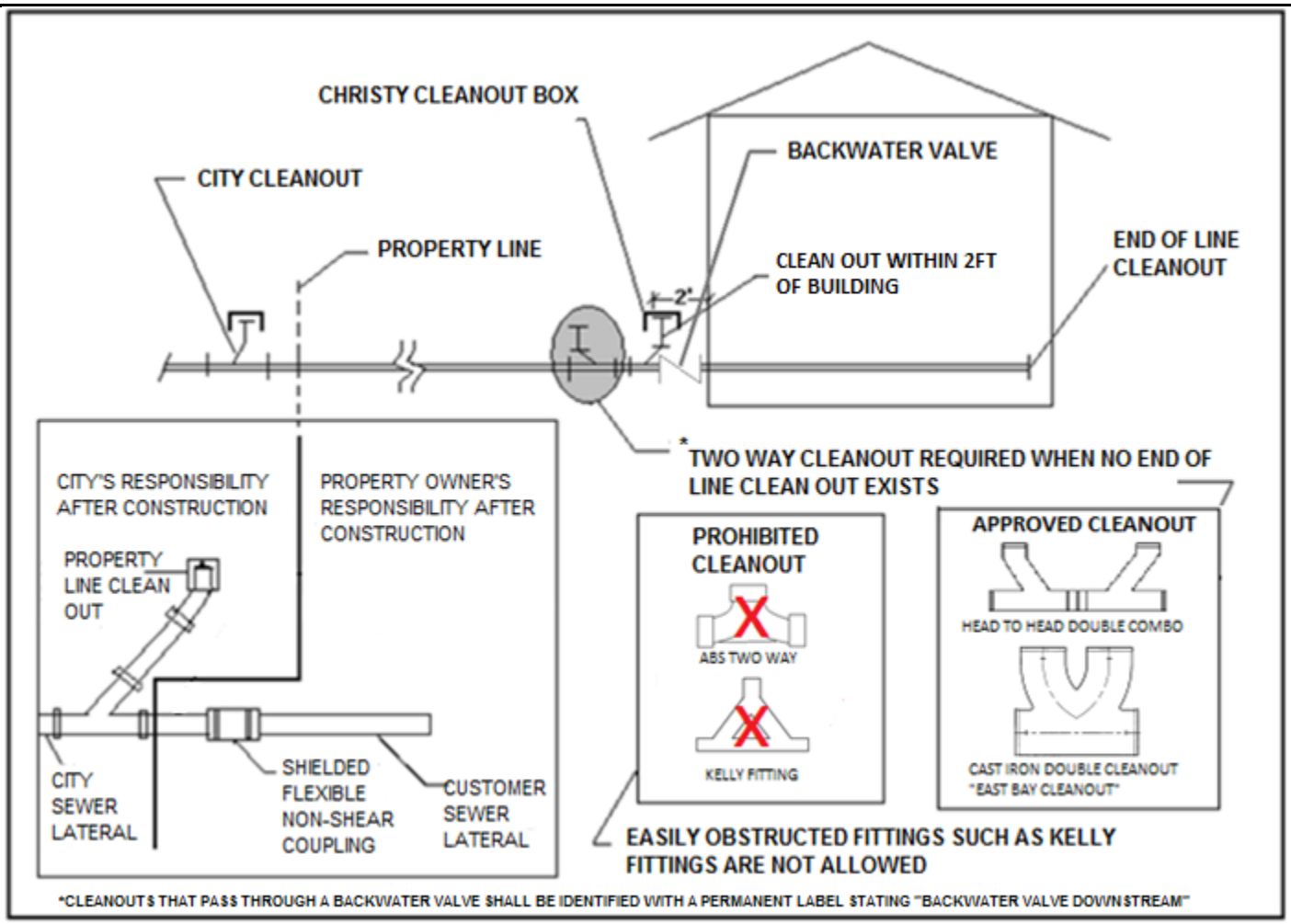


Figure CPA 055—Sewer Replacement Diagram