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## Assignment NO 2:-

### Wastewater Engineering.

Briefly describe the following terms-

- (i) SOIL PIPES And anti-SYPHON PIPES.

#### Soil Pipes:

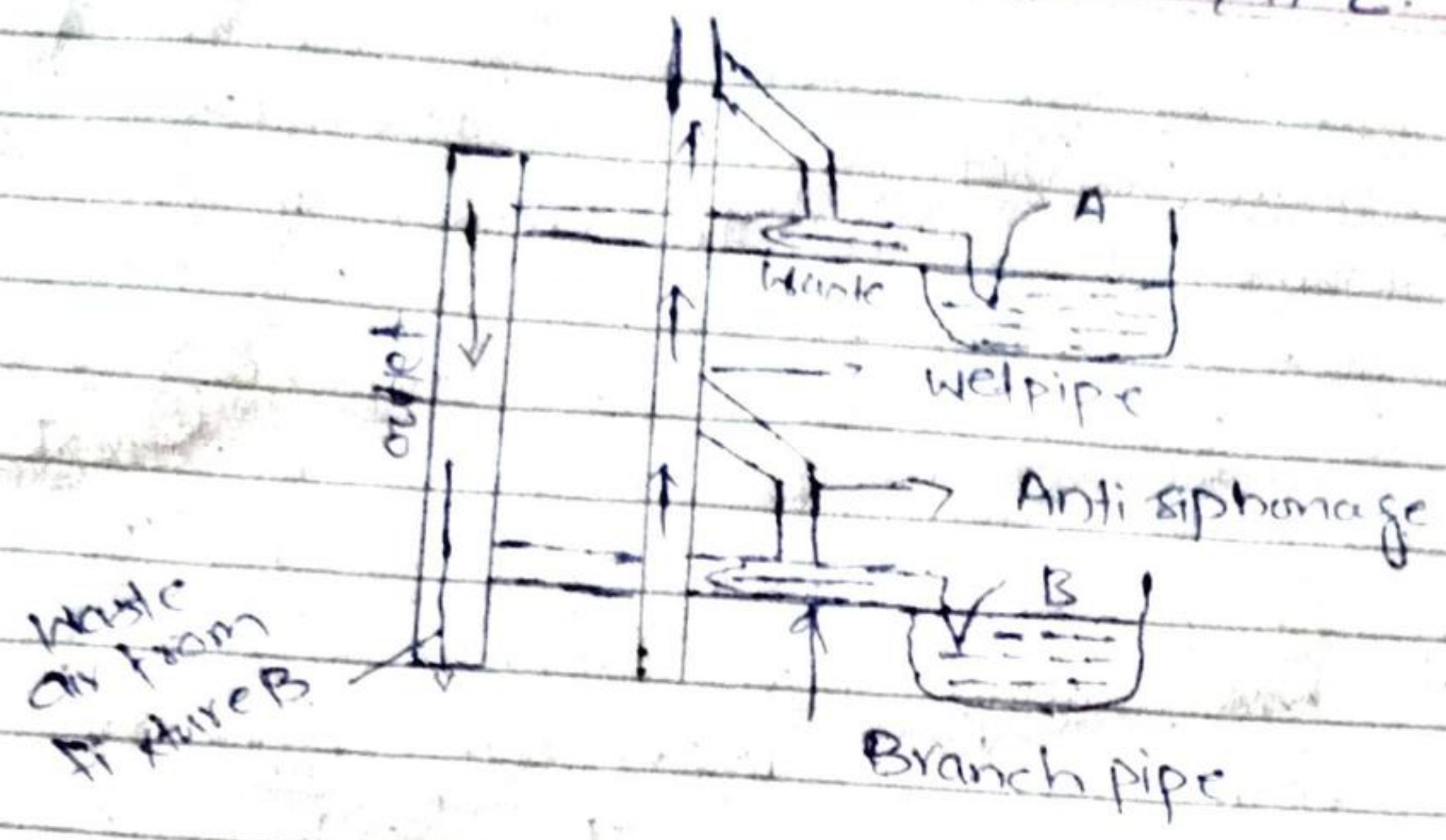
It is usual a soil pipes is designed to carry soiled water from the toilet, urinal, or bidet to the sewer. A waste pipe carries water from your sinks, shower, washing machine or bath.

There should be no trap in the soil-pipe and no trap in a private drain between the outlet of the soil-pipe and the sewer.

The soil-pipe weights about ten pounds per foot and is almost always four inches inside diameter.

Two-Inches The vent form bend of soil-pipes carried with various angle into cold chimney flue.

# ① ANTI - SIPHONAGE PIPE.



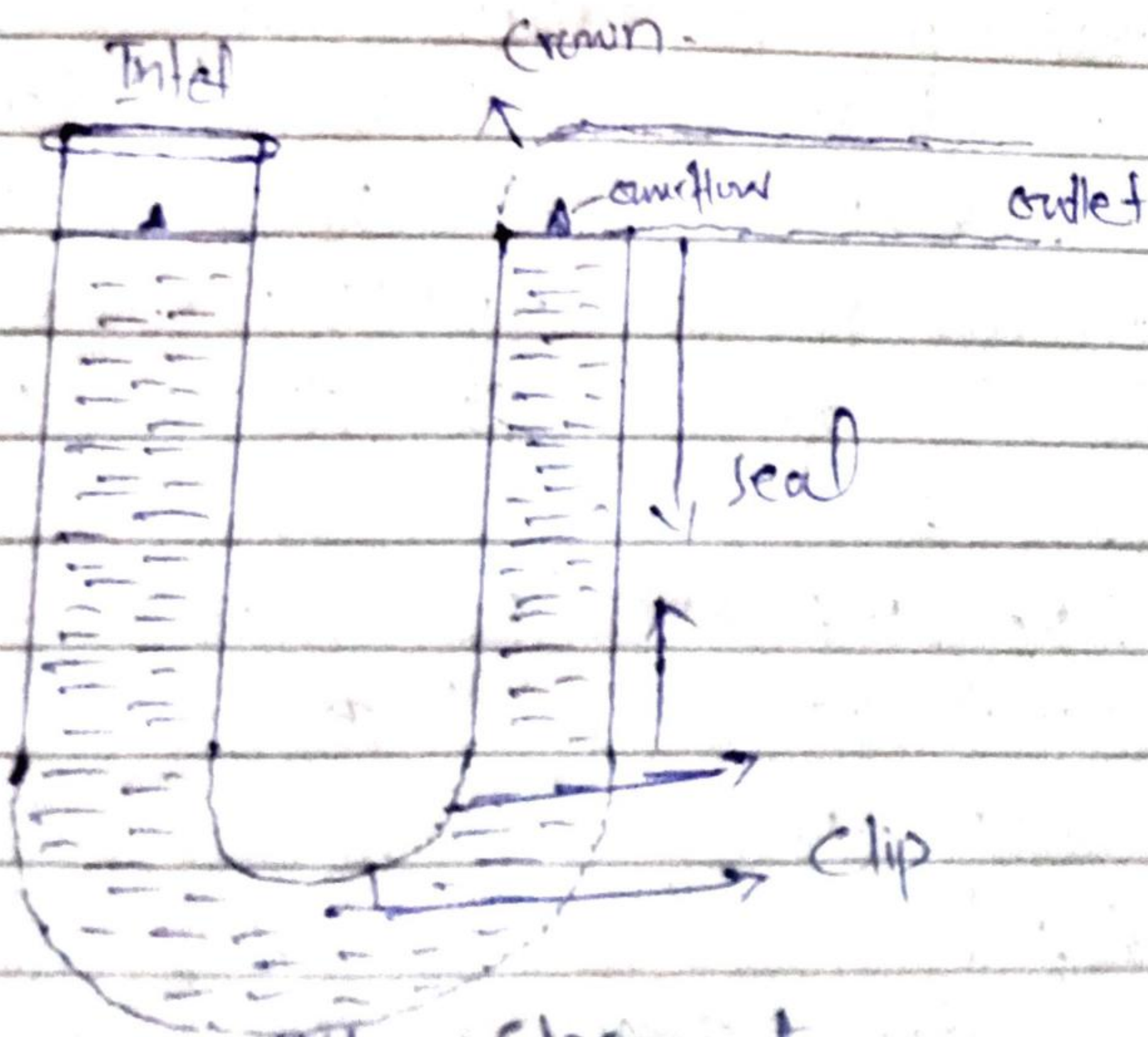
## Anti-siphonage Pipe.

An extra pipe connected to the outlets of toilet seats of all the floor, the other end of which is exposed to atmosphere is called anti-siphonage pipe. There are provided to maintain water seal so that foul gases of the sewer line do not find entry in the toilet/bathrooms.

If we look into a toilet seat we find some water at the bottom, which remains there even after flushing - the seat are designed with a trap so that the water remains in the seat.

The water to prevent entry of foul gases from the toilet pipe / soil pipe / sewer line into the toilet room - This is called water seal.

When one of the toilet in the upper floor is flushed, a lot water gushes down the toilet line in the form of a water column with accelerating speed due to gravity. The fast moving water column cause a low air pressure just above it. The water seal of the toilet has normal air pressure on the toilet side and a lower air pressure on the toilet pipe side. The difference of air case pressure the water seal in the toilet seat to get sucked out. Thus the water seal broken and foul gasses can enter into the toilet room.



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## SANITARY FIXTURES AND TRAPS

### Sanitary fixture:

Sanitary fixture a receptacle for industrial and fecal sewage that is installed in home and public and industrial building.

The sanitary fixture are installed in different area, 1

Bathtubs, washtand, shower sump, traps and bidets are installed in bathroom, bathroom & shower room.

A receptacle for industrial and fecal sewage that is installed in home and public and industrial building. Sanitary fixture are attached to the interior system of water pipes and sewage system and constitute the main element of a building sanitary engineering equipment.

Special Sanitary fixtures are used in medical institutions, laboratories, bathhouses, barber shops, and beauty salons and the transportation facilities. These fixtures are made of iron cast, ceramics, sheet steel, non ferrous metals and alloys, or plastic. Cast iron and steel fixtures are covered with a white or colored vitreous enamel.

They are also equipped with siphons that have water seals to prevent polluted air from entering room from sewerage pipes.

### FIXTURE OF TRAPS:

Each plumbing fixture shall be separately trapped by a liquid-seal trap, except as otherwise permitted by this code. The vertical distance from the fixture outlet to the trap weir shall not exceed 24 inches (610mm), & the horizontal distance shall not exceed 30 inches (610mm) measured from the centerline of the ~~outlet~~ fixture outlet to the centerline of the inlet of the trap.

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⇒ A combination plumbing fixture is permitted to be installed on one trap, provided that one compartment is not more than 6 inches (152mm) deeper than the other compartment and the waste outlets are not more than 30 inches (762mm) apart.

⇒ Where floor drains in multilevel parking structure are required to be discharged to a combined building sewer system, the floor drains shall not be required to be individually trapped, provided that they are connected to a main trap.



Q.3 (1)

## Cross Connection & Back Siphonage Control.

A Cross Connection is a point in a plumbing system where it is possible for a nonpotable substance to come into contact with the potable drinking water supply - Common examples of cross-connection include garden hose submerged in a pesticide mixture, a piped connection providing potable feed water to an industrial process, such as cooling water tower, or a submerged outlet of an irrigation system.

Connection of firefighting equipment are other very common - Cross-connection can be

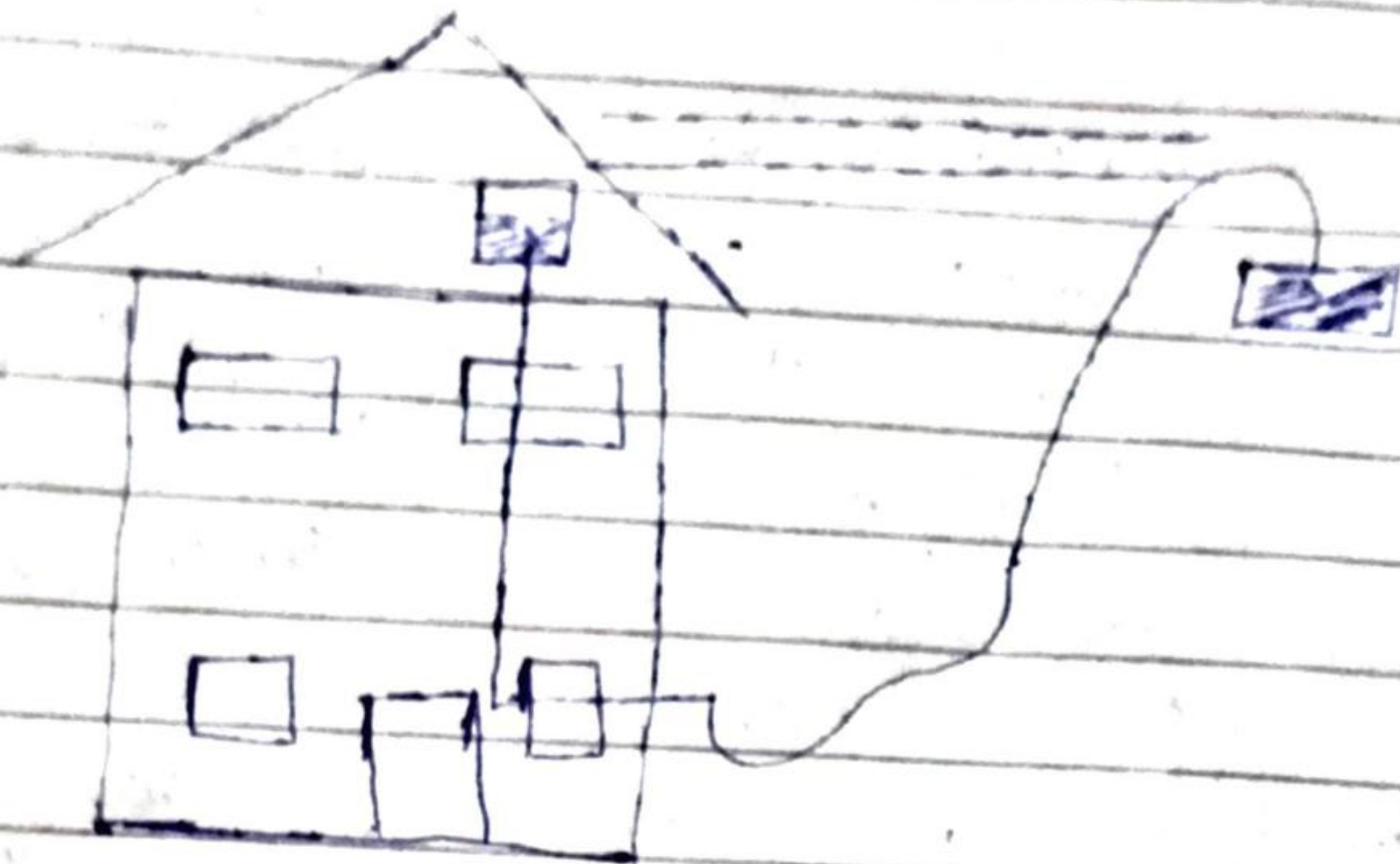
Most cross-connection occur beyond the customer service connection, with residential, commercial, institutional or industrial plumbing system - Identify cross-connection can be challenging because many distribution systems are expanding to serve new customer and changing to accommodate customer needs.

Further, temporary and permanent cross connection can be created in existing facilities without the knowledge of the water system manager and operator.



# Back Siphonage

## Control.



A backflow prevention device is used to protect potable water supplies from contamination or pollution due to backflow. In water distribution systems, water is normally maintained at a significant pressure to enable water to flow from the tap, shower, or other fixture.