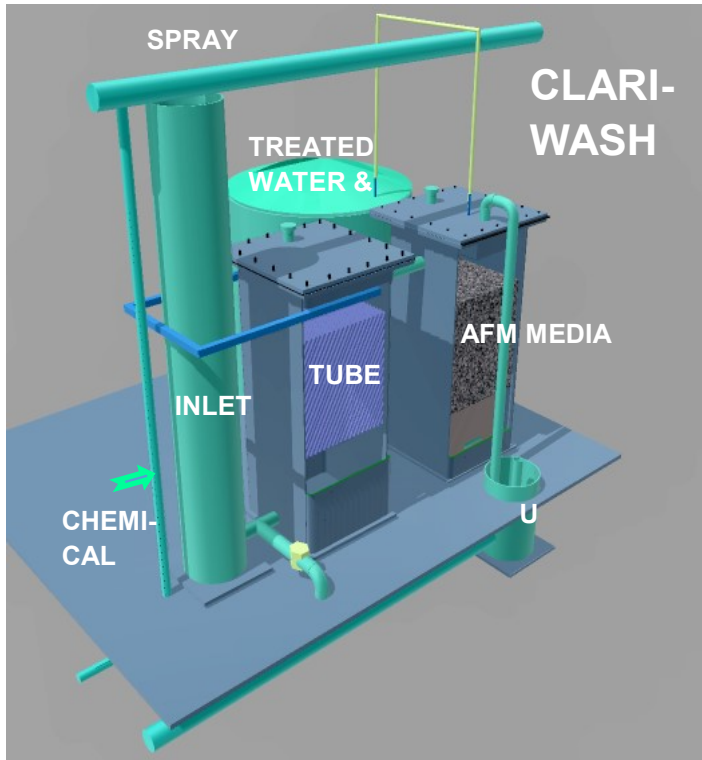


SELF-WASHING FILTRATION SYSTEM (CLARIWASH)

OPERATIONAL SEQUENCE



The ClariWash self-washing filtration system is designed to operate without the need for operational input to achieve backwash cleaning of both clarifier and filter. It has no requirement for power supply or control system making it ideal for off-grid locations and where expensive technologies would otherwise breakdown and be difficult to repair/maintain.

The following sequence of diagrams demonstrate the method of operation of the self washing function.

The treatment stages of the system are as follows:

1. **Spray aeration** to increase dissolved oxygen and precipitate dissolved chemicals
2. **Tube clarification** to settle out suspended solids, turbidity etc.
3. **Filtration** using a high quality media (AFM or similar)
4. **Disinfection** using chlorine dose and an associated contact volume

Contact details:

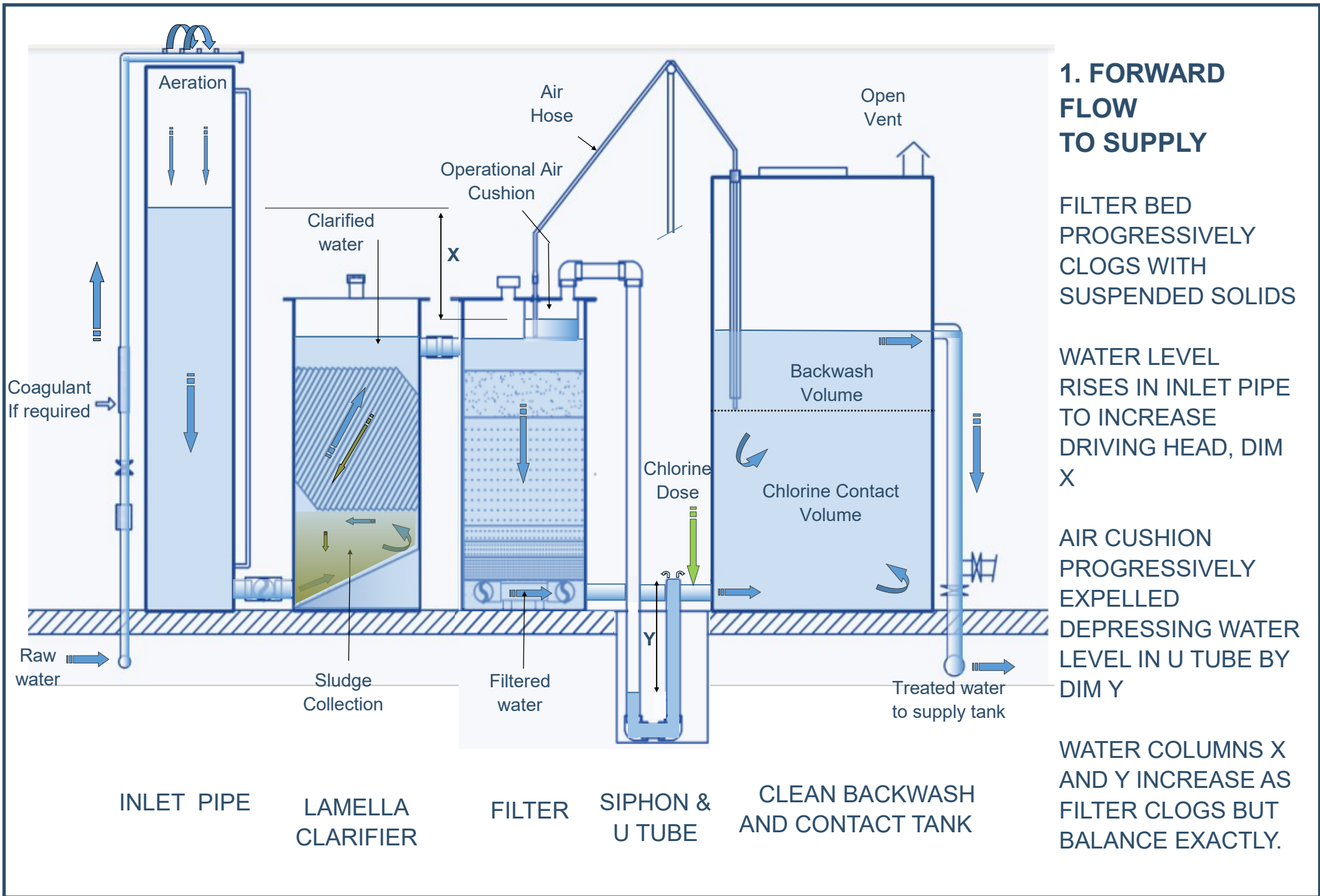
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WaterReach[™]

Solutions for Development and Disaster Response



1. FORWARD FLOW TO SUPPLY

FILTER BED PROGRESSIVELY CLOGS WITH SUSPENDED SOLIDS

WATER LEVEL RISES IN INLET PIPE TO INCREASE DRIVING HEAD, DIM X

AIR CUSHION PROGRESSIVELY EXPELLED DEPRESSING WATER LEVEL IN U TUBE BY DIM Y

WATER COLUMNS X AND Y INCREASE AS FILTER CLOGS BUT BALANCE EXACTLY.

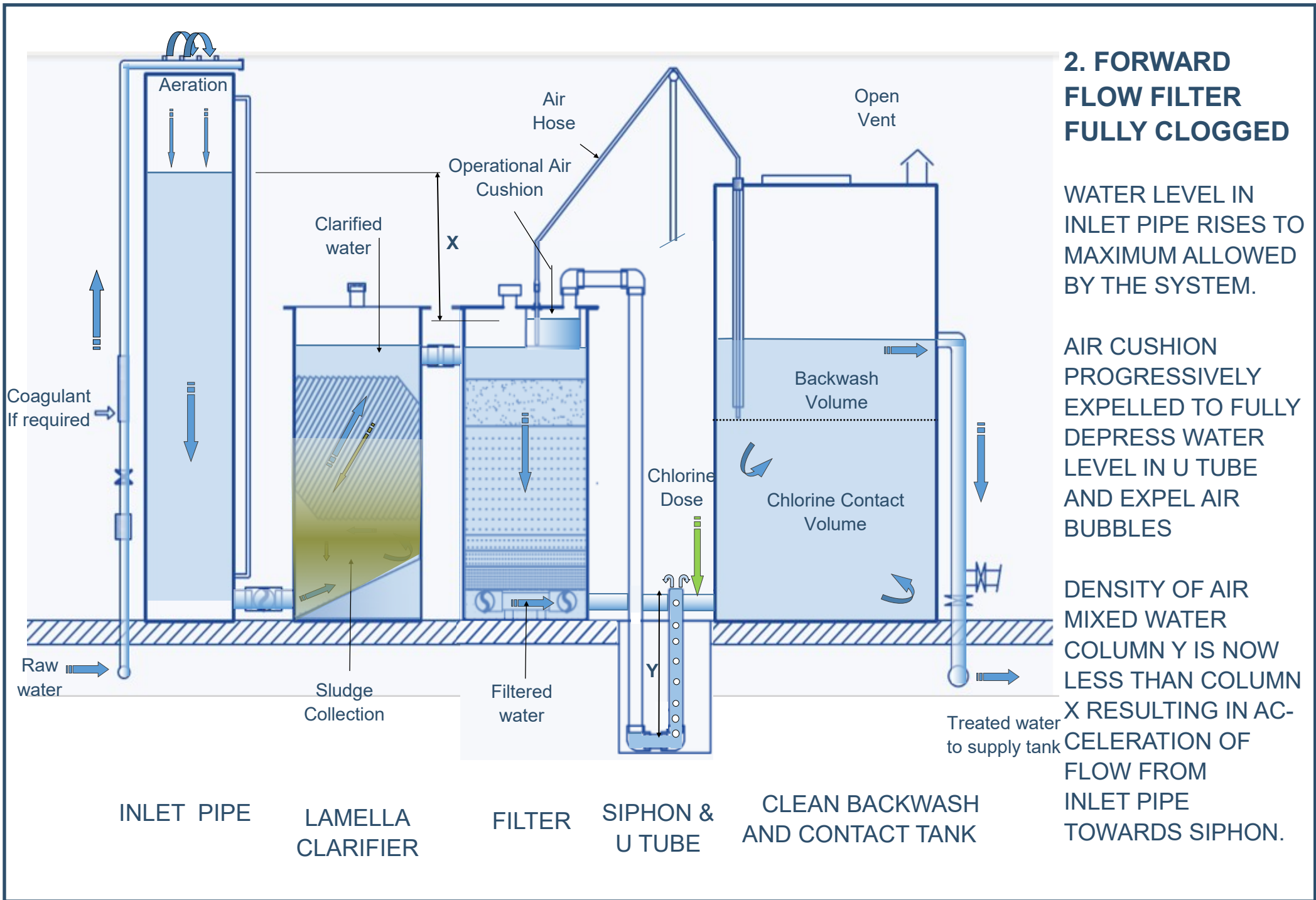
INLET PIPE

LAMELLA CLARIFIER

FILTER

SIPHON & U TUBE

CLEAN BACKWASH AND CONTACT TANK

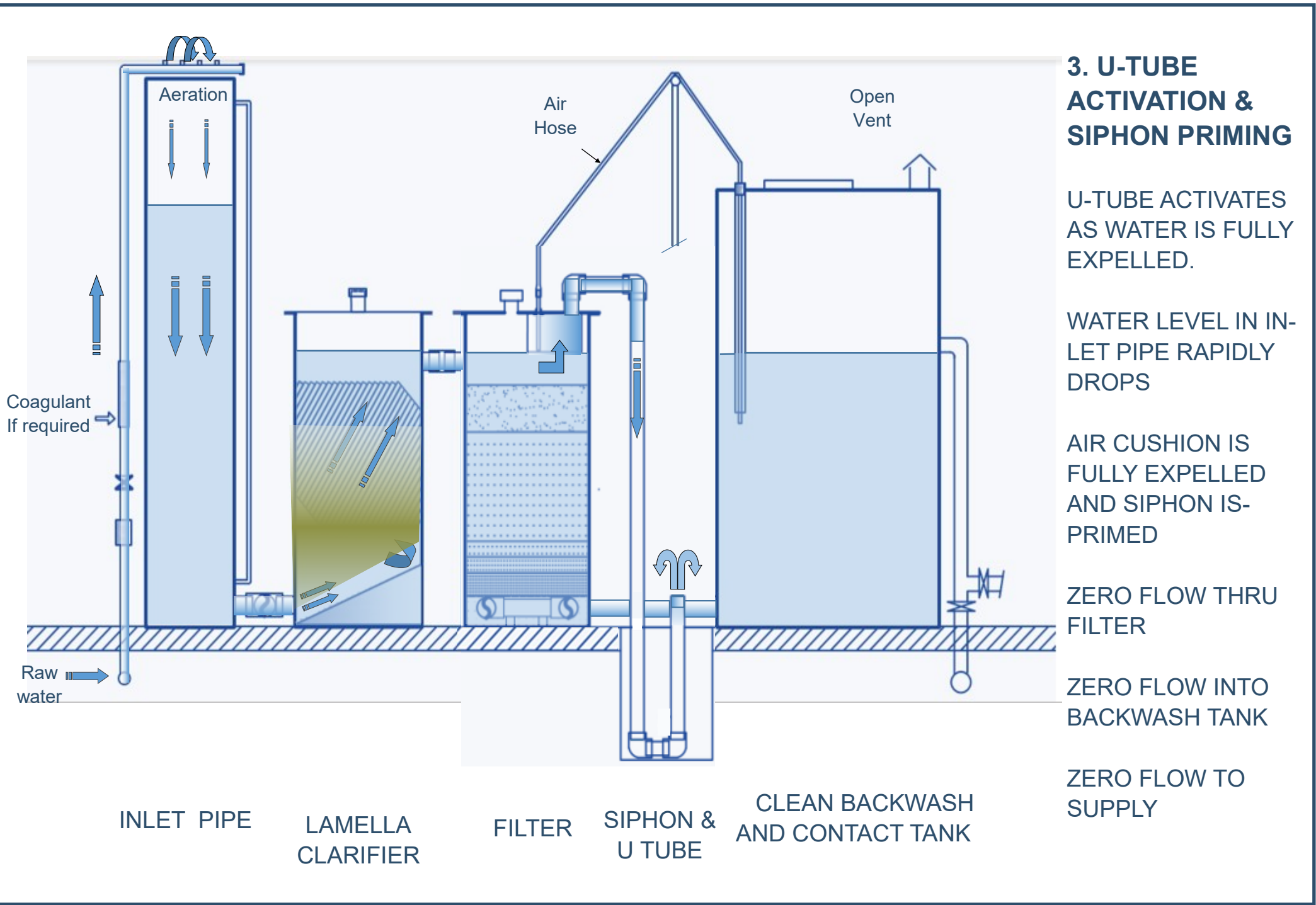


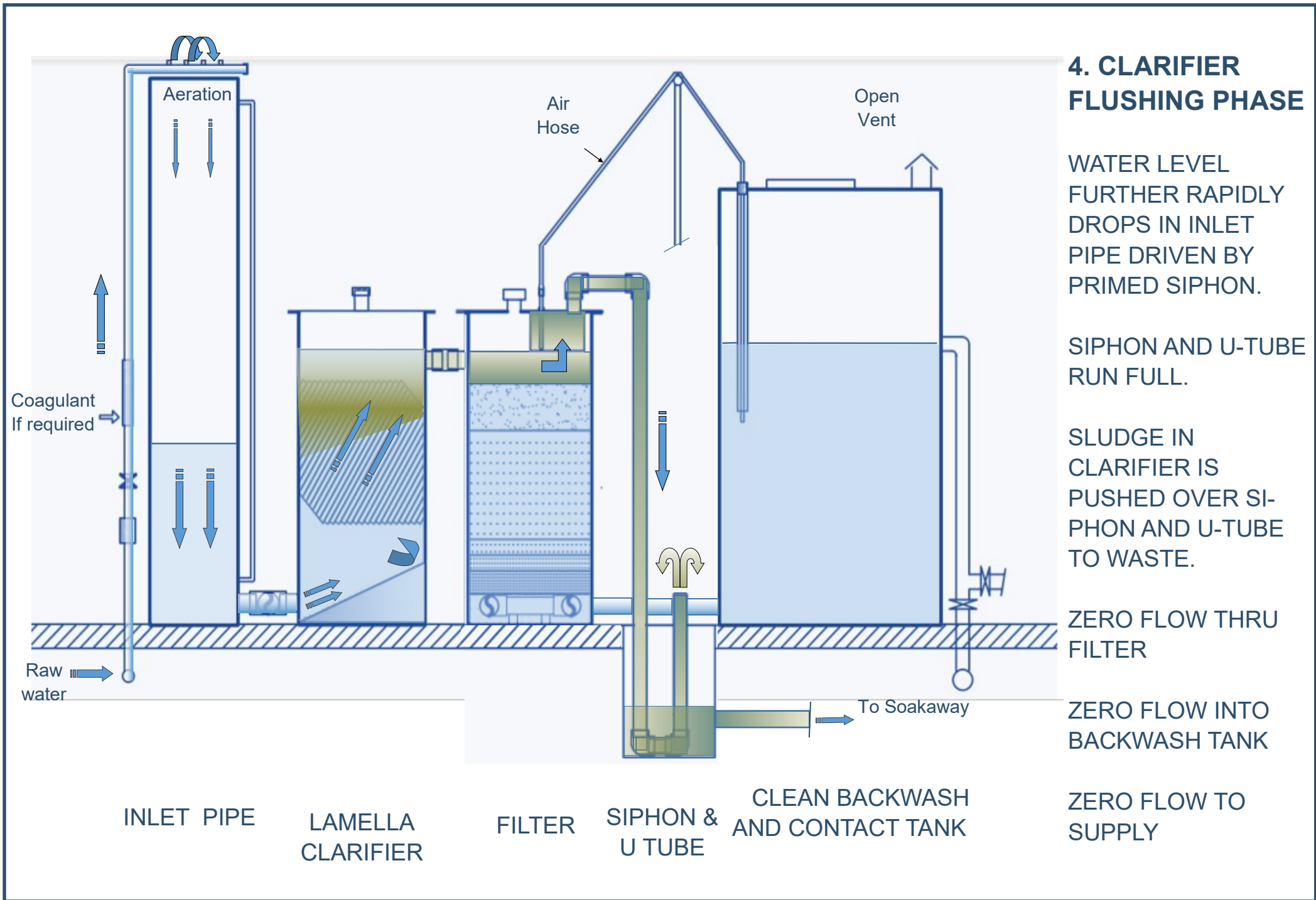
2. FORWARD FLOW FILTER FULLY CLOGGED

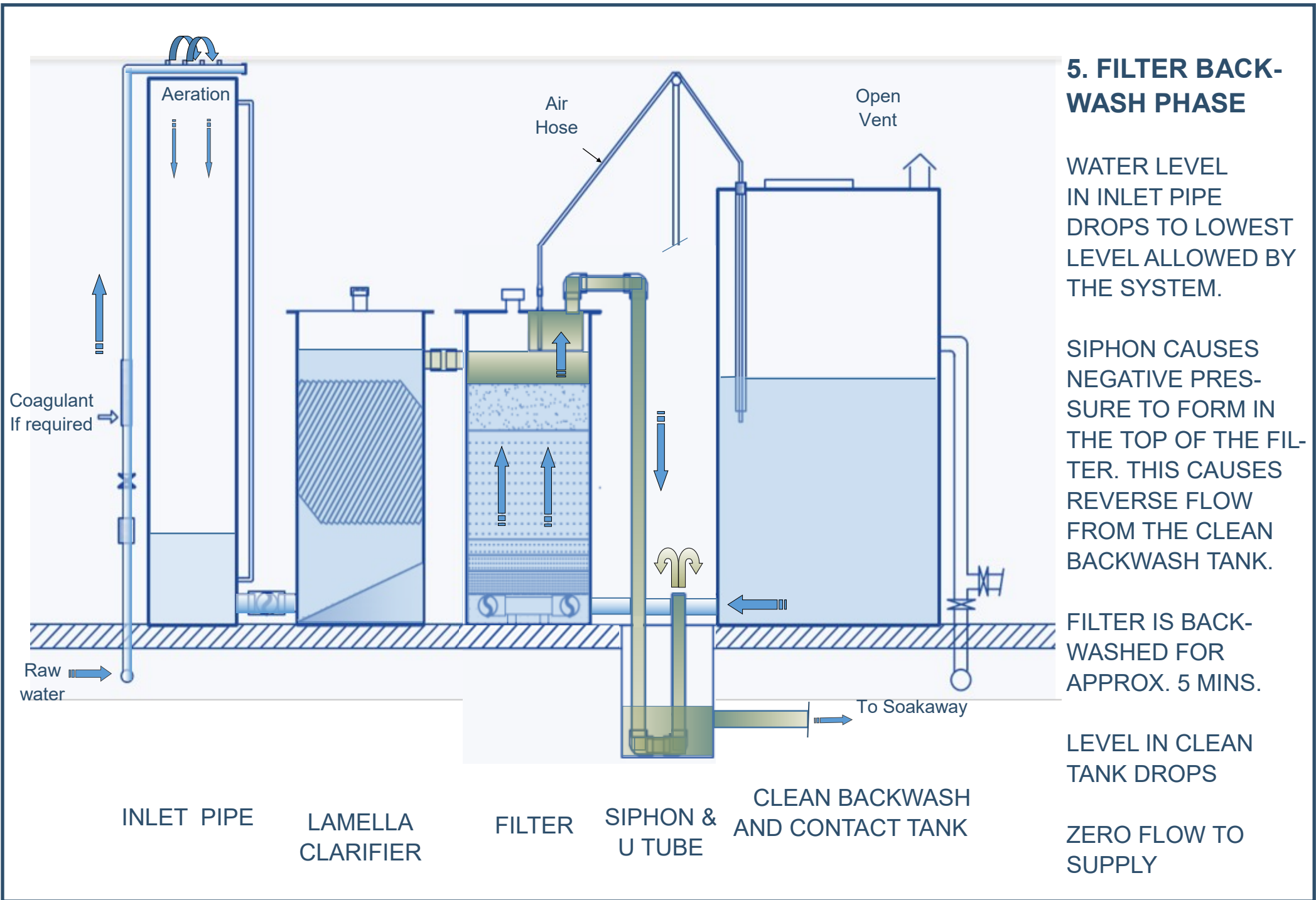
WATER LEVEL IN INLET PIPE RISES TO MAXIMUM ALLOWED BY THE SYSTEM.

AIR CUSHION PROGRESSIVELY EXPELLED TO FULLY DEPRESS WATER LEVEL IN U TUBE AND EXPEL AIR BUBBLES

DENSITY OF AIR MIXED WATER COLUMN Y IS NOW LESS THAN COLUMN X RESULTING IN ACCELERATION OF FLOW FROM INLET PIPE TOWARDS SIPHON.







5. FILTER BACK-WASH PHASE

WATER LEVEL IN INLET PIPE DROPS TO LOWEST LEVEL ALLOWED BY THE SYSTEM.

SIPHON CAUSES NEGATIVE PRESSURE TO FORM IN THE TOP OF THE FILTER. THIS CAUSES REVERSE FLOW FROM THE CLEAN BACKWASH TANK.

FILTER IS BACK-WASHED FOR APPROX. 5 MINS.

LEVEL IN CLEAN TANK DROPS

ZERO FLOW TO SUPPLY

INLET PIPE

LAMELLA CLARIFIER

FILTER

SIPHON & U TUBE

CLEAN BACKWASH AND CONTACT TANK

To Soakaway

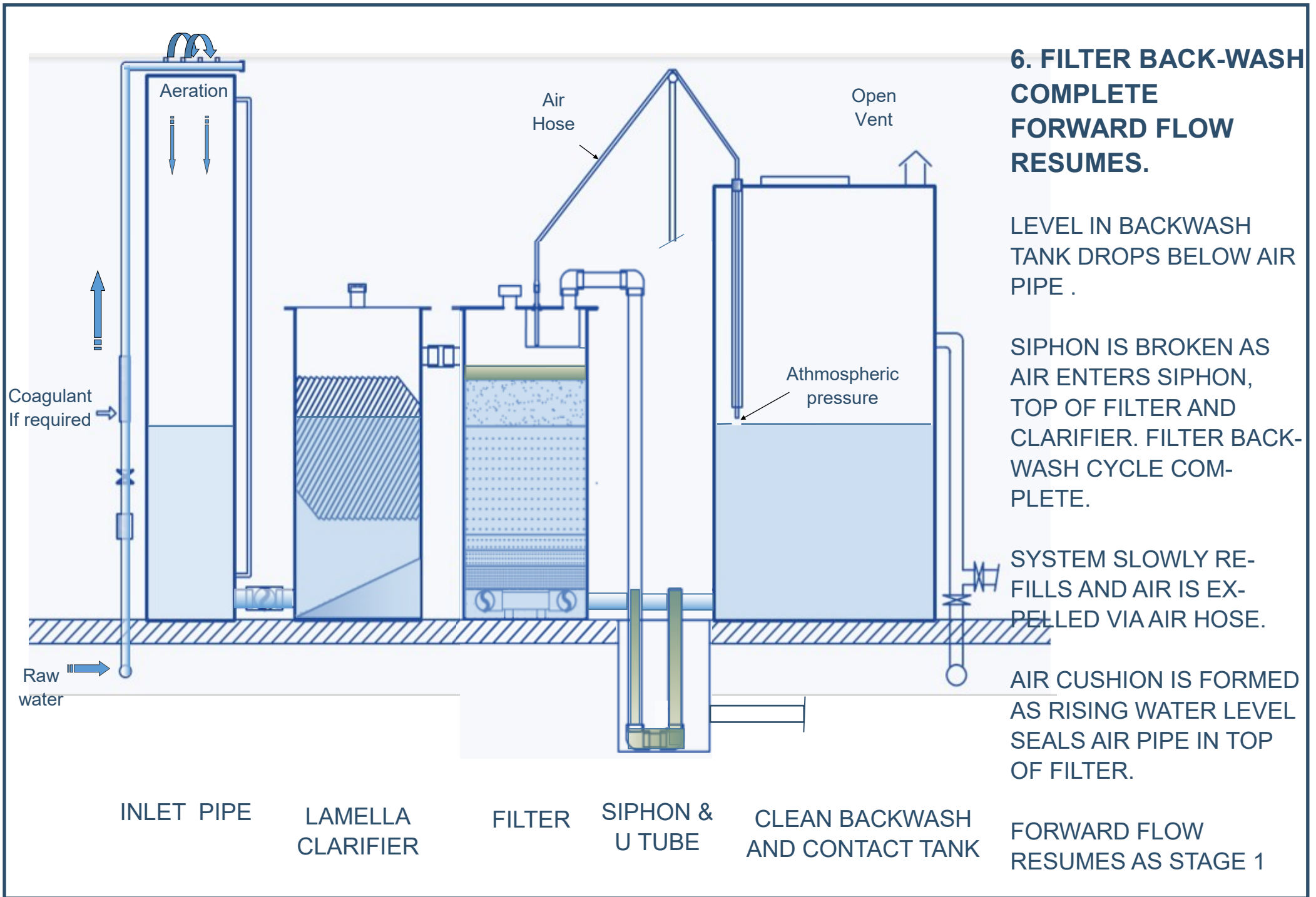
Coagulant If required

Raw water

Aeration

Air Hose

Open Vent



6. FILTER BACK-WASH COMPLETE FORWARD FLOW RESUMES.

LEVEL IN BACKWASH TANK DROPS BELOW AIR PIPE .

SIPHON IS BROKEN AS AIR ENTERS SIPHON, TOP OF FILTER AND CLARIFIER. FILTER BACK-WASH CYCLE COMPLETE.

SYSTEM SLOWLY REFILLS AND AIR IS EXPELLED VIA AIR HOSE.

AIR CUSHION IS FORMED AS RISING WATER LEVEL SEALS AIR PIPE IN TOP OF FILTER.

FORWARD FLOW RESUMES AS STAGE 1