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Alternative Backwash without Slotted Pipes

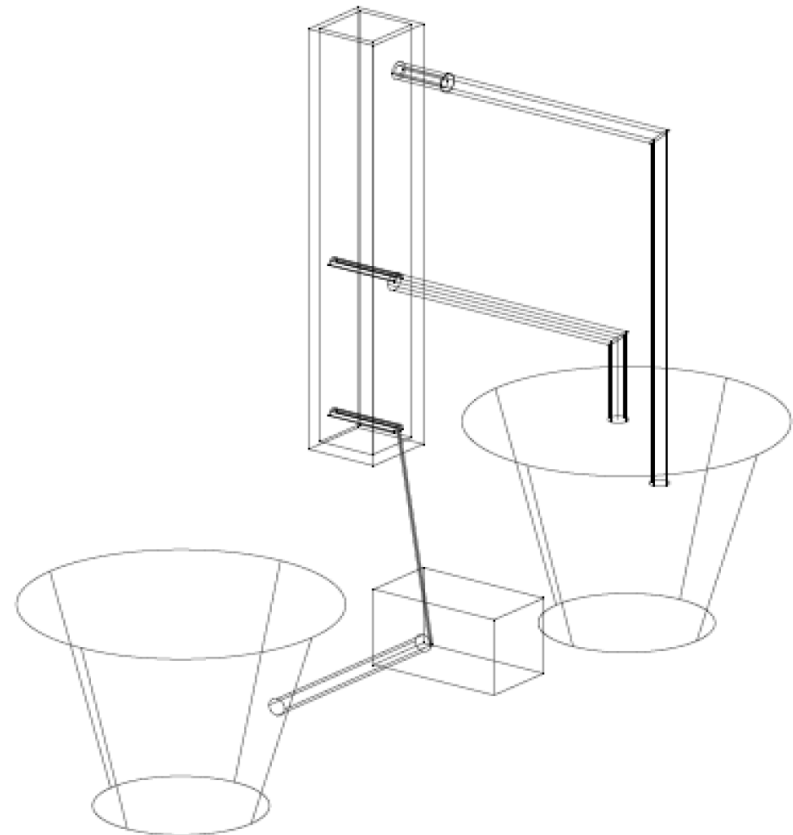
Alberto Arnedo, Ainhoa Arribas, and Jorge Guevara



Cornell University

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- Current backwash system has experienced troubles with the clogging of slotted pipes
 - Maintenance
 - Fabrication
- Find an alternative to the slotted pipe that would solve all the issues present with the slotted pipes.





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StaRS Scale Model

- 1.Box
- 2.Two water buckets
- 3.Pump
- 4.Inlet Pipe
- 5.Outlet Pipe
- 6.Backwash Pipe





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Alternative Pipe 1

- No sand accumulation while water was being pumped into the system during backwash.
- Sand accumulation in the outlet pipe during filtration.





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Alternative Pipe 2

- Sand filled up the pipe as soon as water began to pump into the system during backwash.
- During filtration, a mixture of sand and water left the outlet pipe.





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Alternative Pipe 3

- Slight sand accumulation during backwash.
- Slight sand accumulation in the pipe, however the sand did not exit the outlet valve during filtration.





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Alternative Pipe 4

- No sand accumulation during backwash.
- A plentiful amount of sand accumulation during filtration. Similar to alternative pipe 3, a mixture of sand and water came out of the outlet.





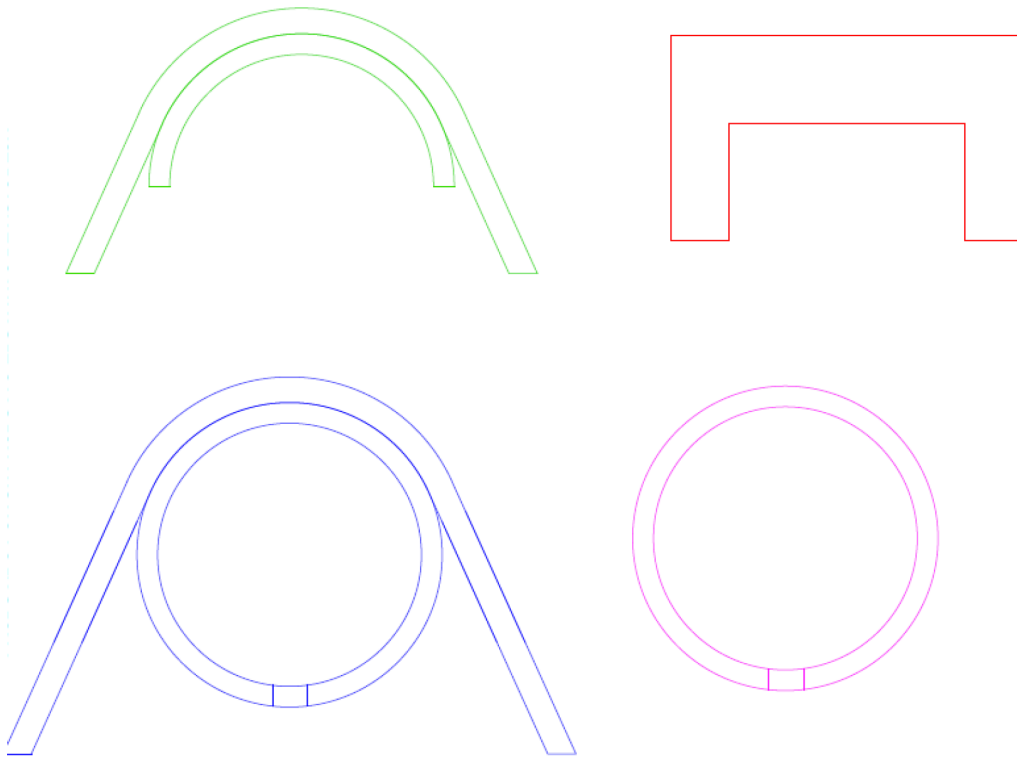
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Issues Found

- The pump
- Gate valve
- Arrangement of the elements
- Water leakage
- Outlet pipe



Conclusion



➤ U-Inverted shaped pipes optimal for backwash

➤ Filtration not solved



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Future Work

- Avoid suction
- Sand clogging, perhaps the use of a mesh
- Size and shape of wings





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Thank you for your time!

Questions?