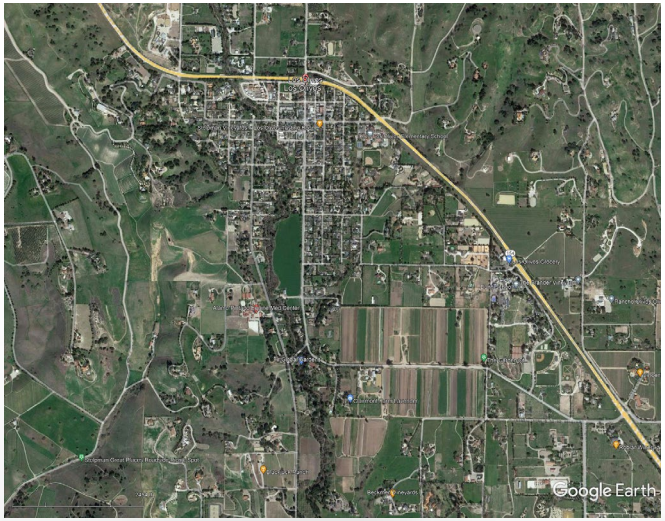
Prelos™ The Next Step In Sewer Evolution



Los Olivos, CA

Overview

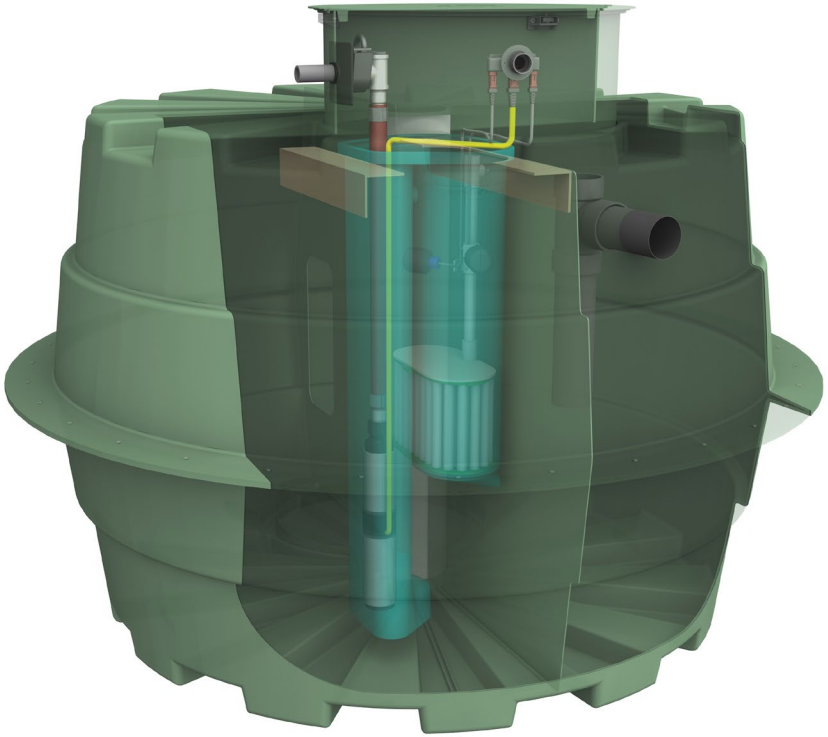
- About Orenco
- Intro to Prelos Liquid Only Sewer
- Intro to AdvanTex Treatment
- Conclusions

About Orenco

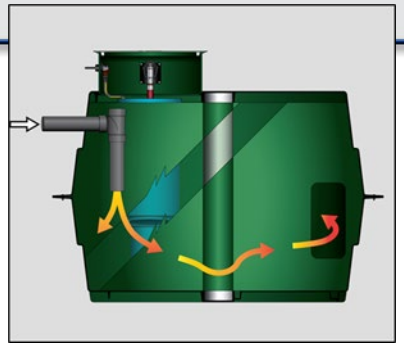
- Founded in 1981
- Family owned and operated
- Based in Sutherlin, Oregon
- Large Dealer/Distributer network
- Focused on passive, scalable and economical wastewater collection and treatment solutions
- Our typical project ranges from a single home to complete community solutions
- Industry leader in liquid only sewer and attached growth treatment processes
- Almost 400 employees

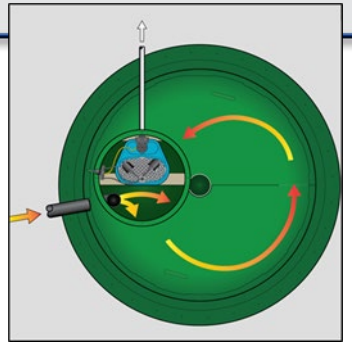
Intro to Prelos Wastewater Collection

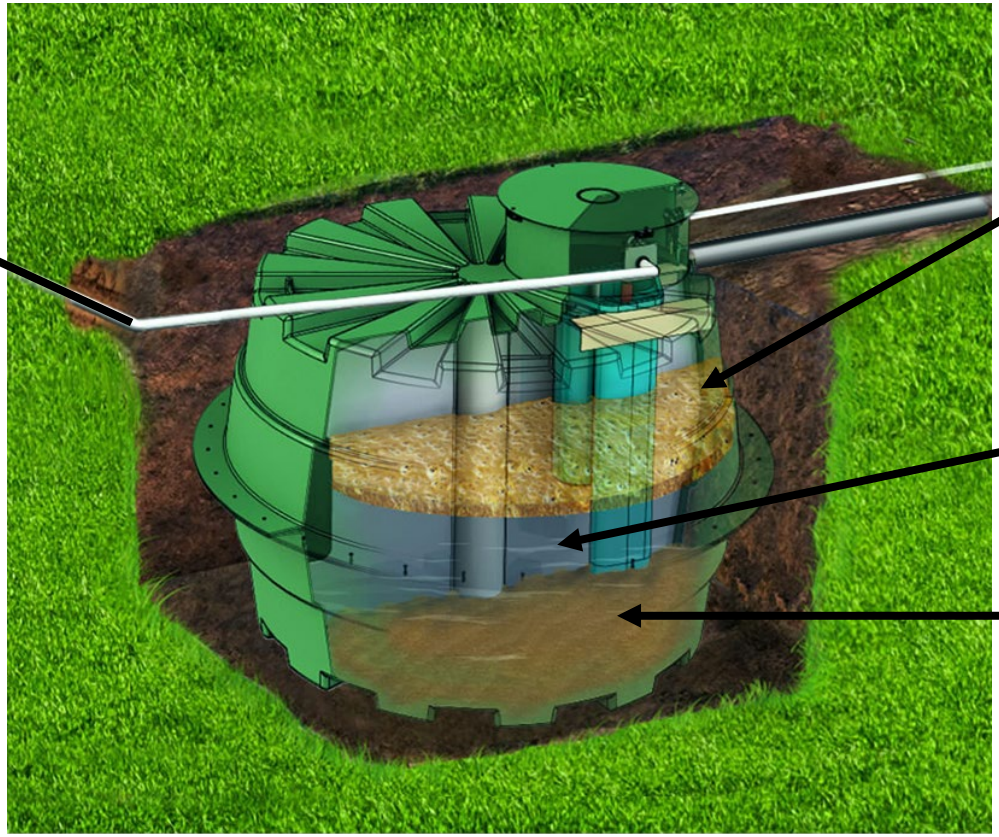
Prelos is a pressurized liquid only sewer built on the concepts of STEP sewer and effluent sewer, technology that dates to 1970.



The Basic Concept







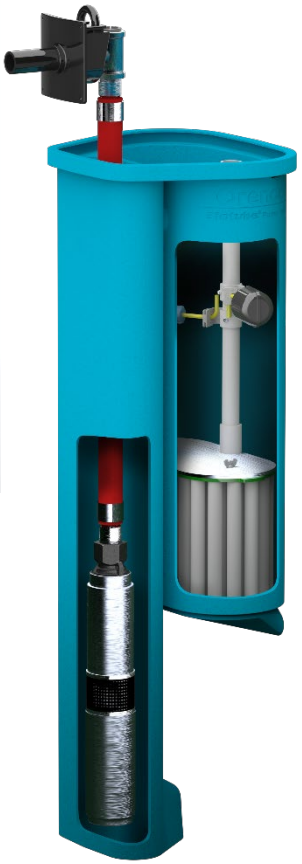
Why retain solids at the source? Think about a snow globe

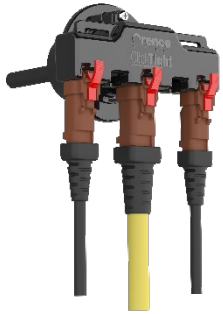
Typical Sewer – We need to facilitate 2ft/sec so that solids don't settle

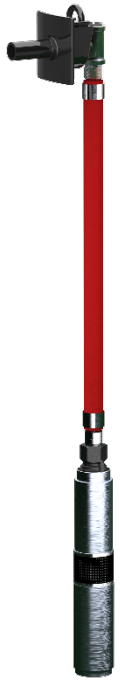
Liquid Only Sewer – We don't have to worry about solids settling

Solids settle when adequate velocity is not achieved

Liquid-Only Sewer Components







Prelos Sewer

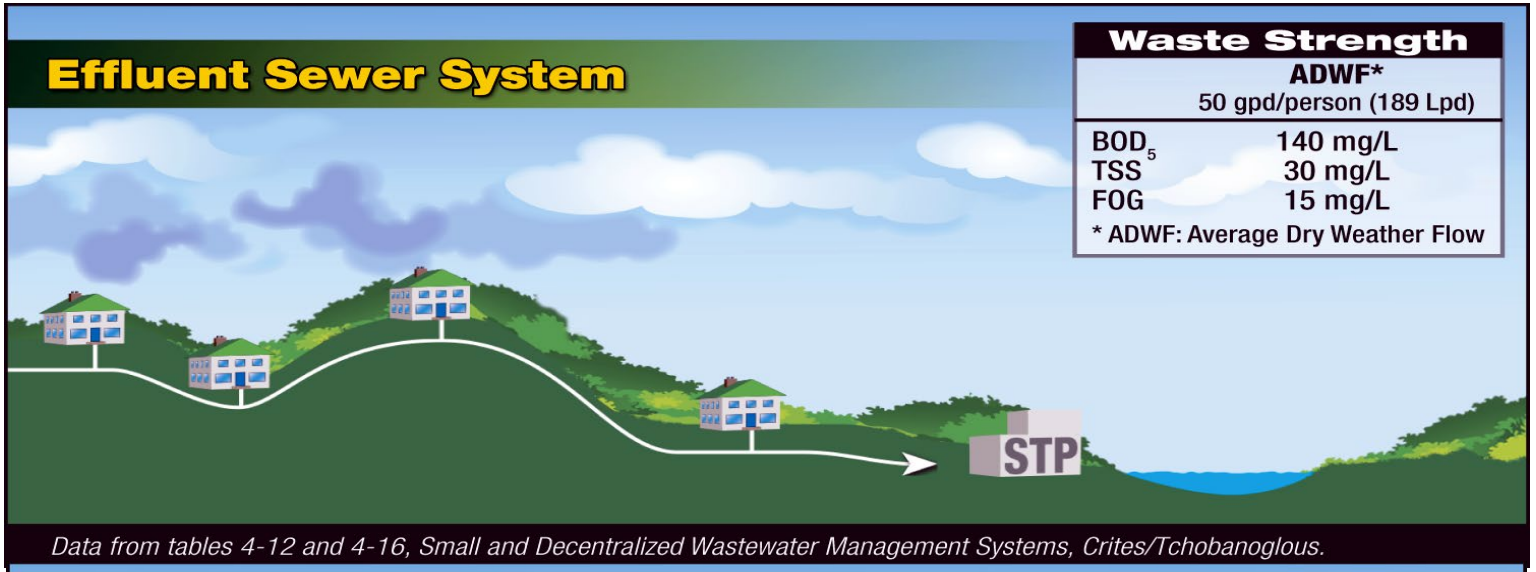
Liquid-Only Sewer

- ✓ Typically 2" pressure mains buried 3' to 5'
- ✓ Typically 1.25" laterals to property line (occupied properties only)

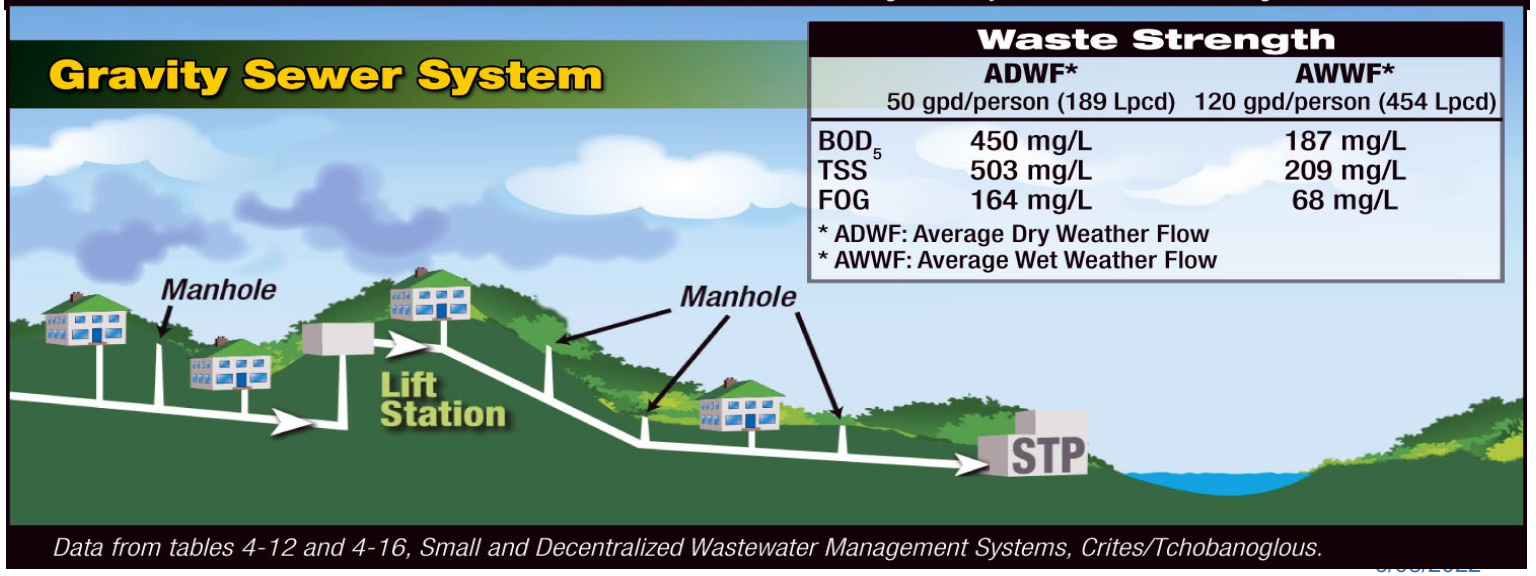
Gravity Sewer

- ✓ Manholes every 400' min.
- ✓ 8" min. diameter mains at 0.4% min slope
- ✓ 4" service laterals (all properties)
- ✓ Lift stations
- ✓ Force mains

Typical Construction



Data from tables 4-12 and 4-16, Small and Decentralized Wastewater Management Systems, Crites/Tchobanoglous.



Data from tables 4-12 and 4-16, Small and Decentralized Wastewater Management Systems, Crites/Tchobanoglous.


Dunn School
Write a description for your map.
Legend
Sewer line
Google Earth
4.63 ft

Media & spray nozzles

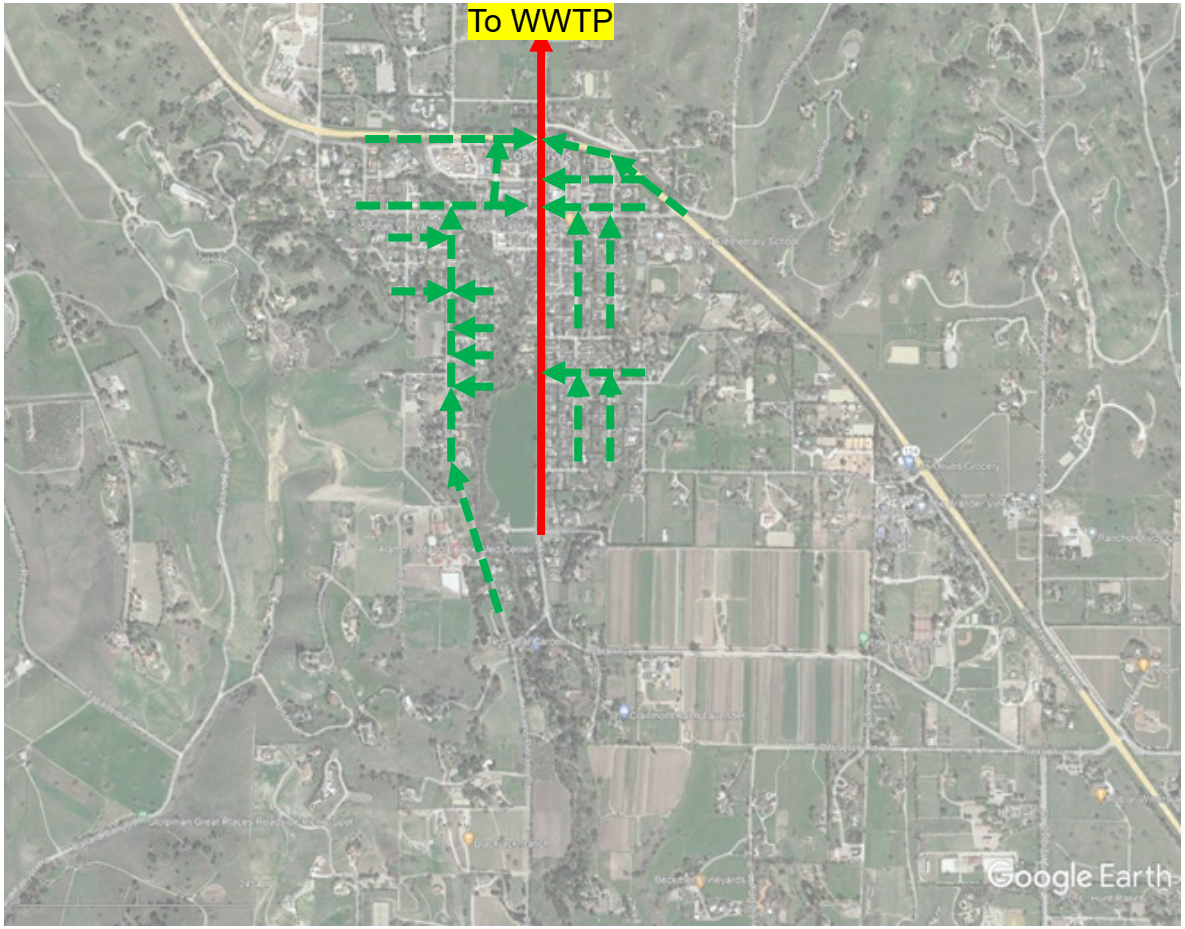
Prelos Sewer

- Not impacted by water conservation
- No lift stations
- Would support moving treatment plant and infiltration ponds to the same site
- Expandable without lift stations
- Collection mains directional bored / flexible hdpe similar to gas lines
- Less cost to make sewer available (50% reduction)
- Onsite cost deferred to time of connection and includes septic tank abandonment. Does not appear that this cost was included in PER.
- Typical O&M cost < $100 annually for first 10 years, $100 - $150 per annually per connection thereafter.

Possible Layout

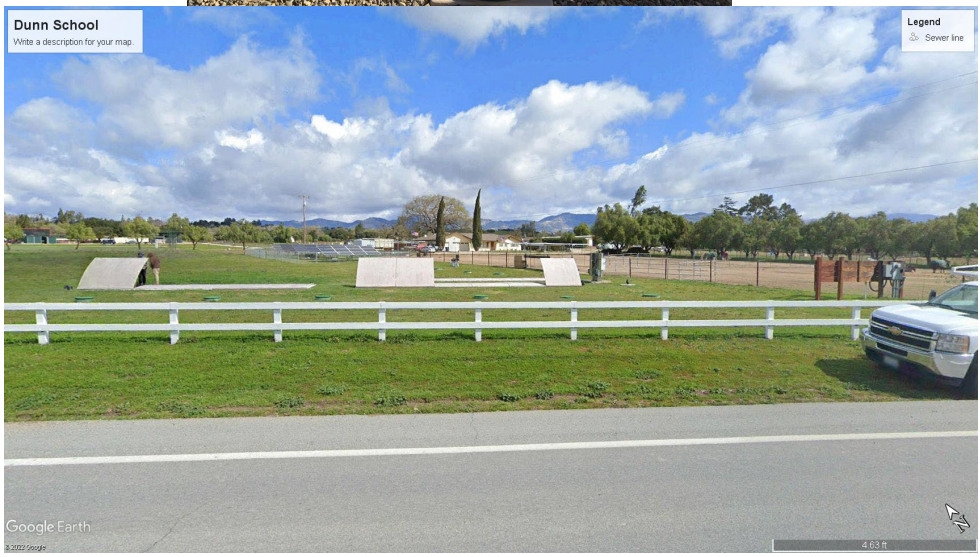
Trunk Main to WWTP and infiltration ponds, probable size is 4” up to 8”

Collection Mains to Trunk Mains, typically 2” diameter



AdvanTex Treatment

- Would likely be in the range of 20% to 50% more expensive than MBR in capital cost
- Quicker to design and construct
- Can be decentralized to more than one location
- Larger footprint
- No open tanks
- Much lower energy
- No headworks required when combined with Prelos sewer
- Much lower O&M cost than an MBR (50% to 80% less)



Dunn School, Los Olivos

Prelos Sewer – Impact on proposed MBR WWTP

- Headworks eliminated (-$205,000)
- 300,000 EQ tank can be downsized significantly (-$430,000)
- Sludge handling at the wwtp virtually eliminated (-$70,000)
- Possibly reduce or eliminate odor control (-$121,500)
- Less aeration requirement due to lower strength influent
- Reduce sludge disposal cost at plant (-$103,368 annually)
  - Prelos tanks are pumped every 10 to 12 years on average (20 to 30 tanks annually)
- May require slightly more carbon addition for nitrogen removal

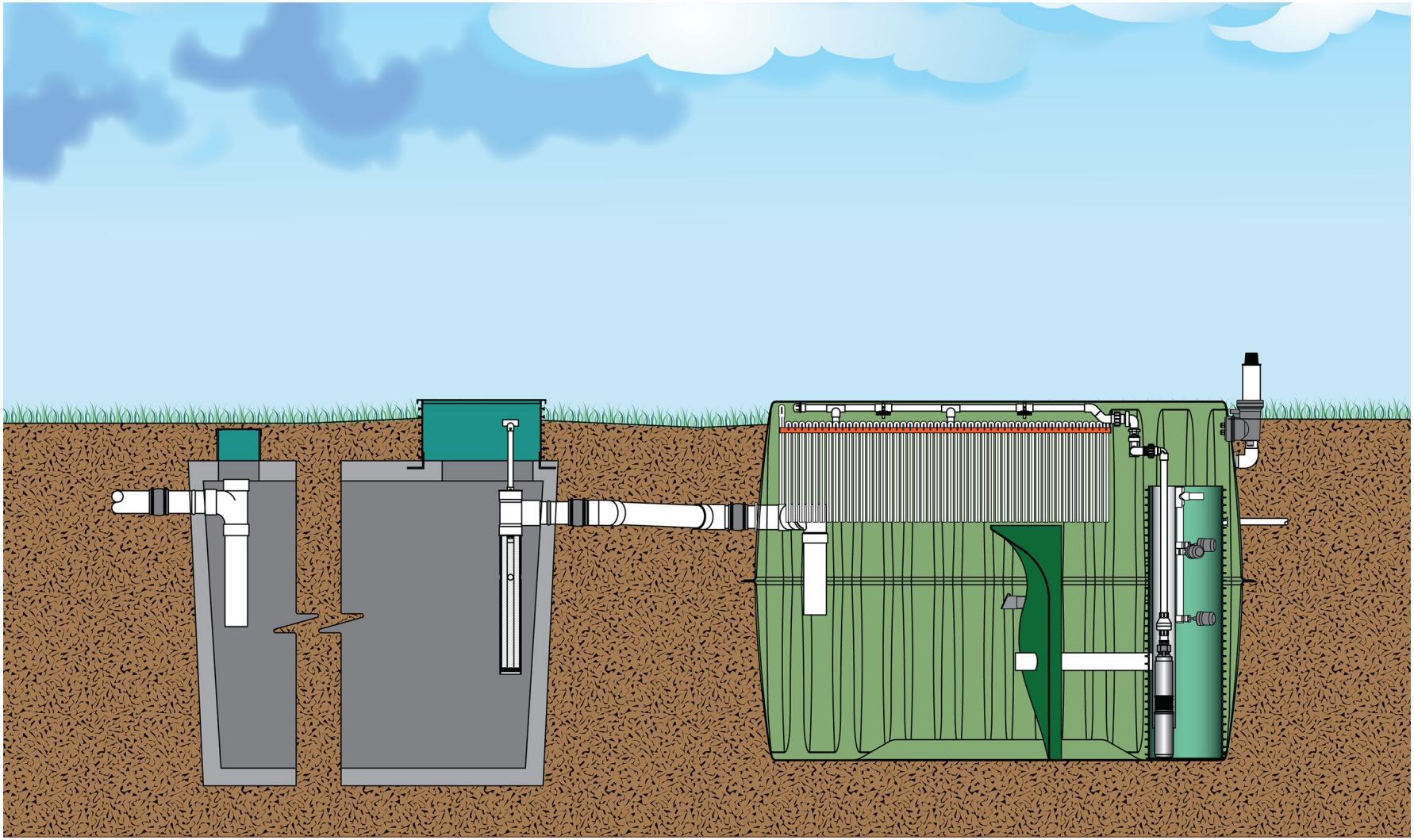
Conclusions Collection

- Prelos Sewer will provide:
  - Reduced capital cost / Elimination of lift stations
  - Prelos conveyance is not impacted by water conservation
  - Reduced costs at the proposed MBR wwtp
  - Less construction impact
  - More flexibility
  - Future expansion as needed
  - Easy integration of treatment & percolation ponds to one site

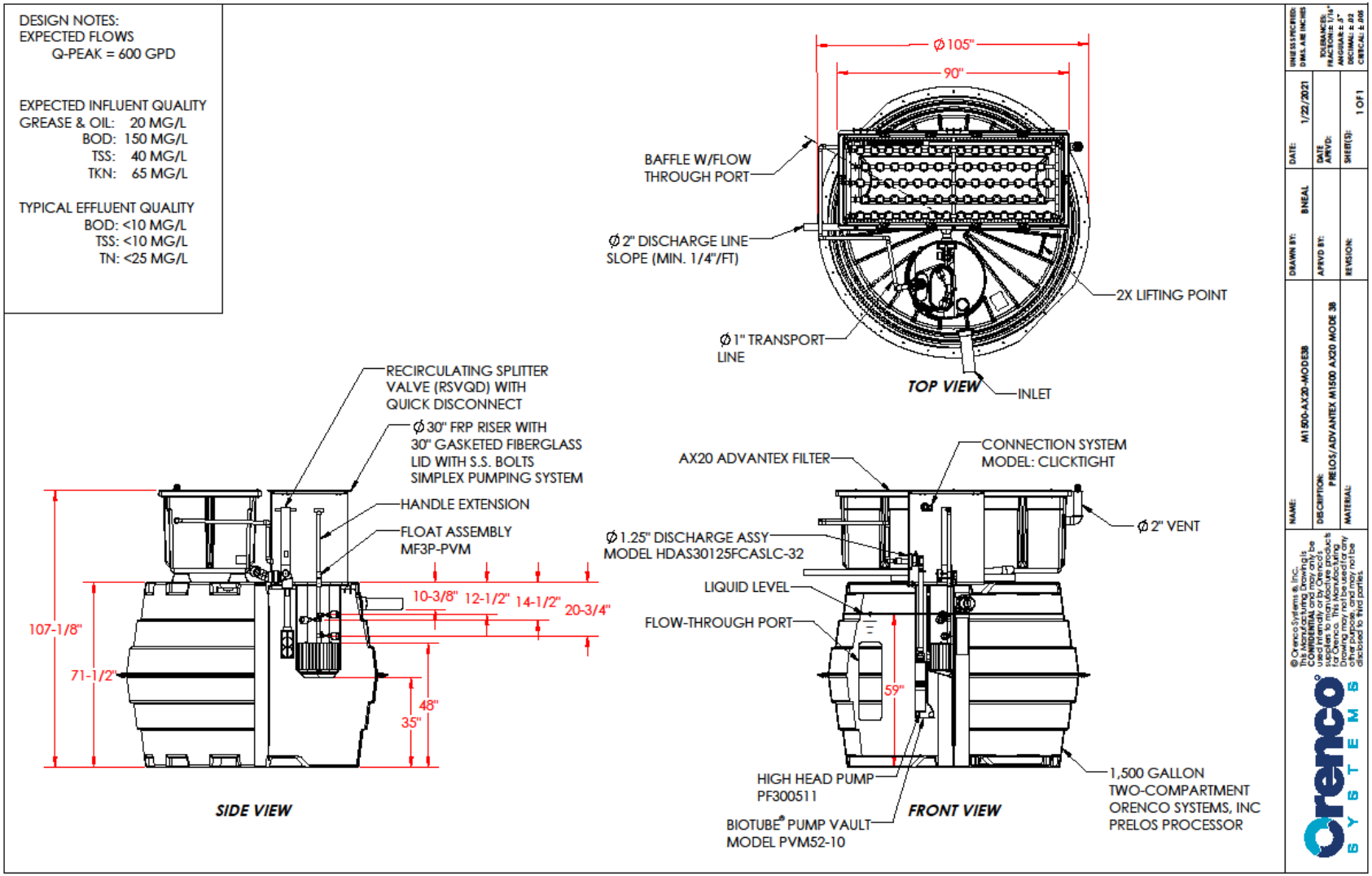
Conclusions Treatment

- AdvanTex
  - Would likely increase capital cost but would have lower O&M cost
  - Less impact
    - Odor
    - Open tanks
  - Less energy demand
  - Decentralized treatment

AXRT Residential



AX20 Residential



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