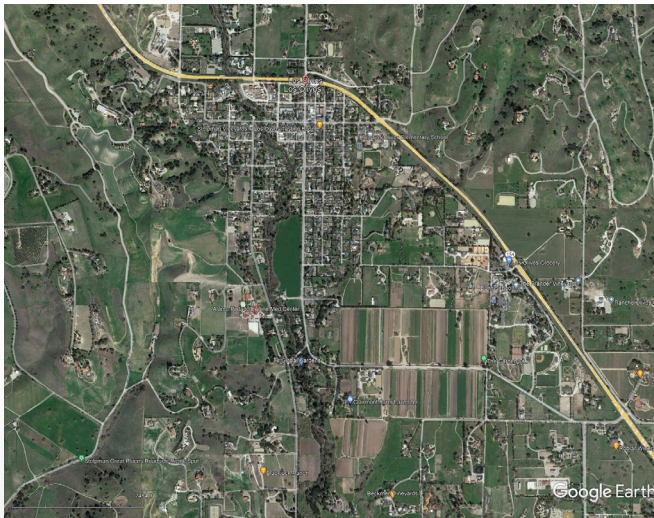


Prelos™ The Next Step In Sewer Evolution



Los Olivos, CA



Overview

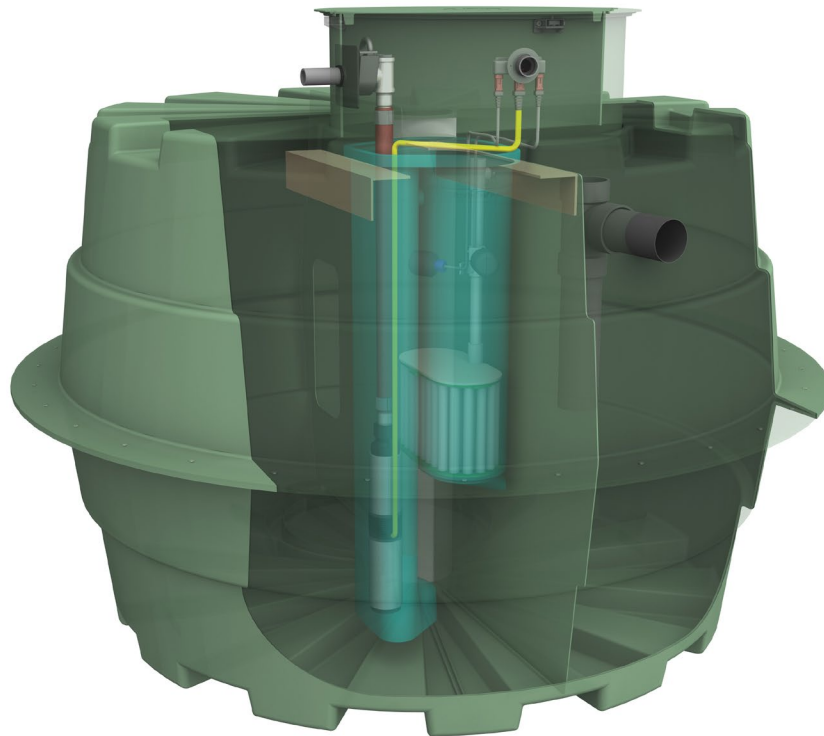
- About Orenco
- Intro to Prelos Liquid Only Sewer
- Intro to AdvanTex Treatment
- Conclusions

About Orenco

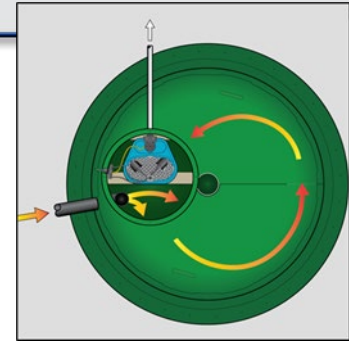
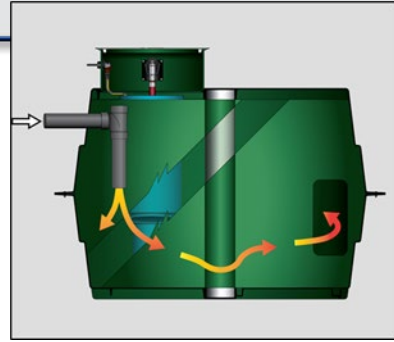
- Founded in 1981
- Family owned and operated
- Based in Sutherlin, Oregon
- Large Dealer/Distributor network
- Focused on passive, scalable and economical wastewater collection and treatment solutions
- Our typical project ranges from a single home to complete community solutions
- Industry leader in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

Intro to Prelos Wastewater Collection

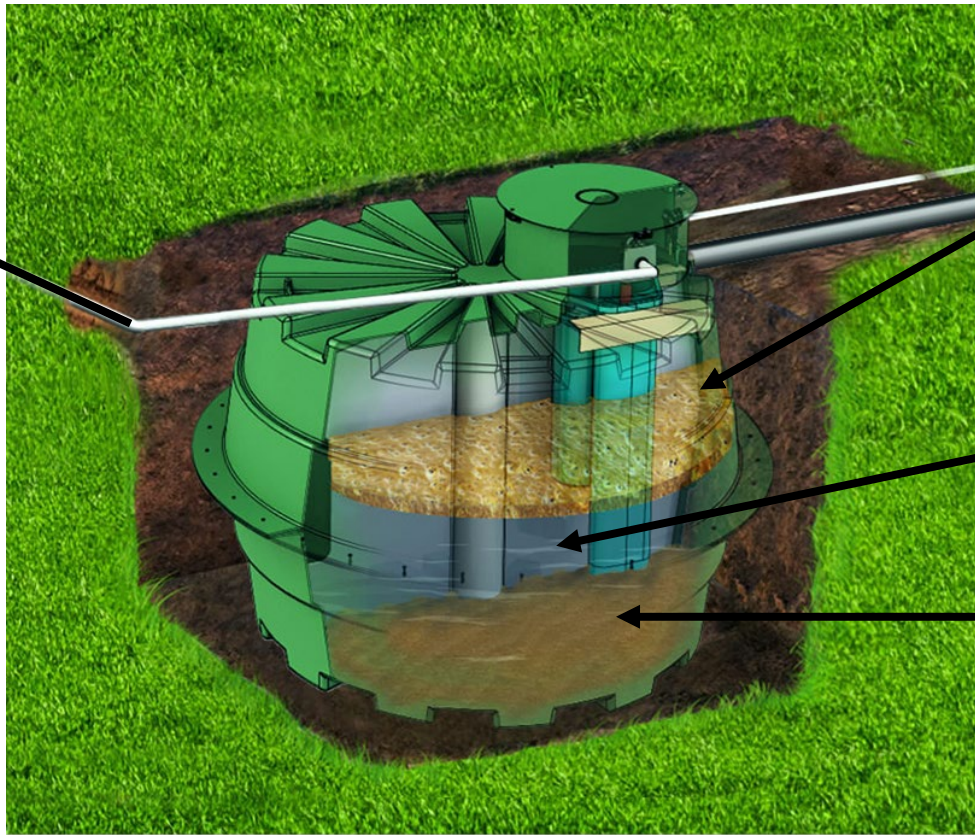
Prelos is a pressurized liquid only sewer built on the concepts of STEP sewer and effluent sewer, technology that dates to 1970.



The Basic Concept



Reduced
wastewater
strength &
reduced solids



Scum layer

Clear zone

Sludge layer

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

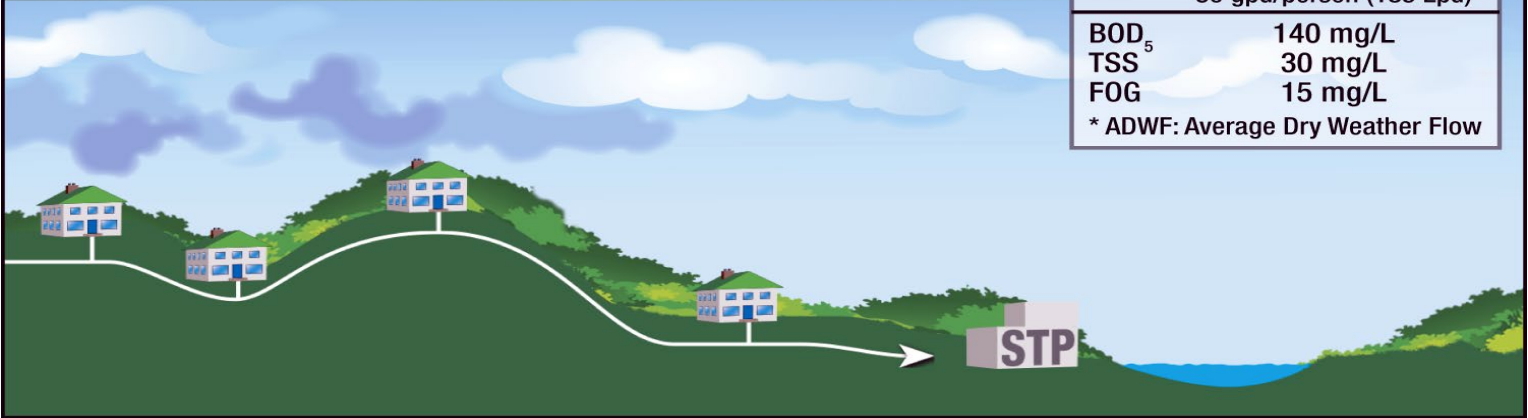
Typical Construction



6/08/2022

BC

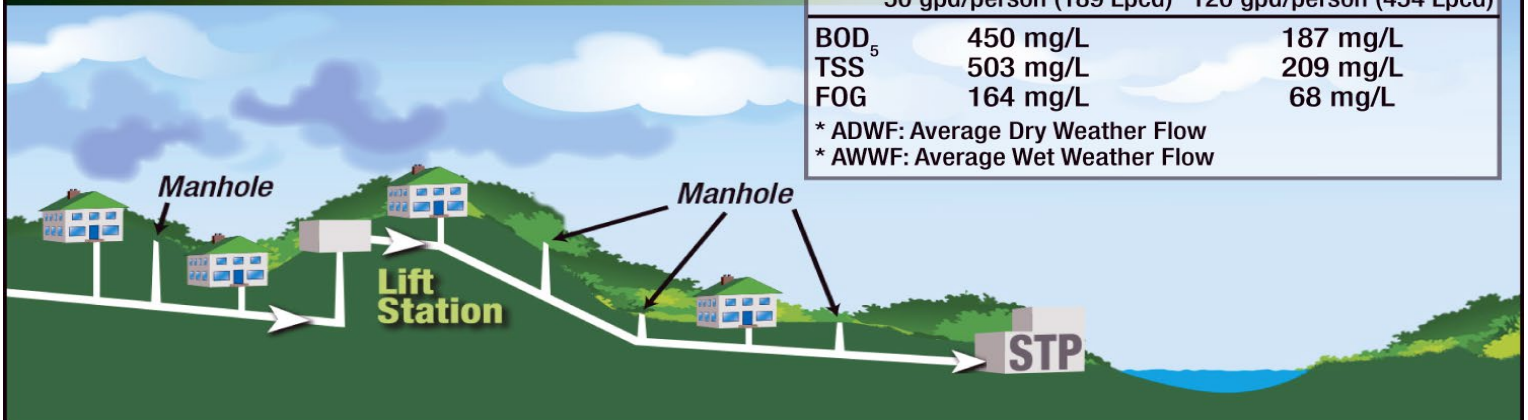
Effluent Sewer System



Waste Strength	
ADWF*	
	50 gpd/person (189 Lpd)
BOD ₅	140 mg/L
TSS	30 mg/L
FOG	15 mg/L
* ADWF: Average Dry Weather Flow	

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

Gravity Sewer System



Waste Strength		
	ADWF*	AWWF*
	50 gpd/person (189 Lpcd)	120 gpd/person (454 Lpcd)
BOD ₅	450 mg/L	187 mg/L
TSS	503 mg/L	209 mg/L
FOG	164 mg/L	68 mg/L
* ADWF: Average Dry Weather Flow		
* AWWF: Average Wet Weather Flow		

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



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.

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

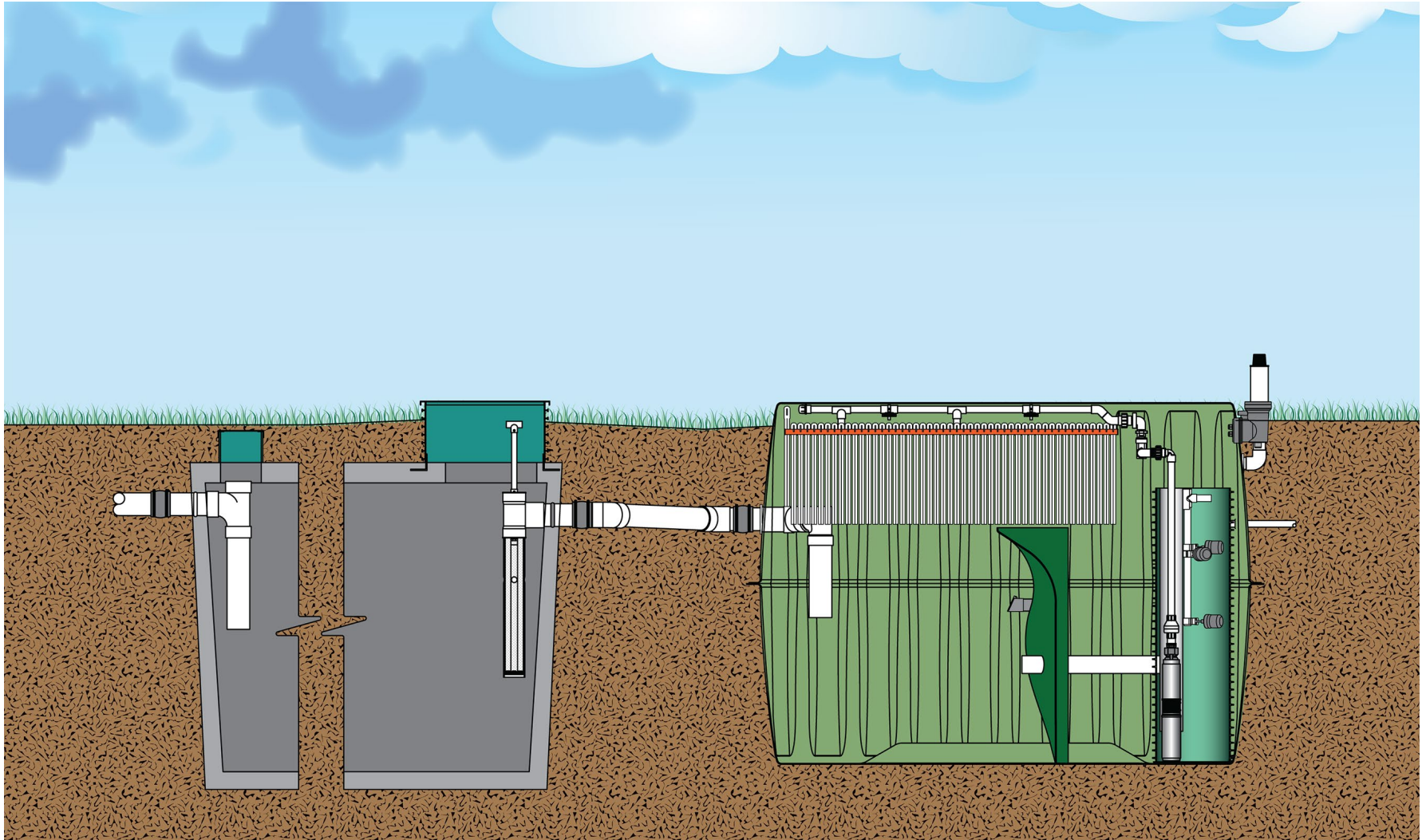
Conclusions Collection

- 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

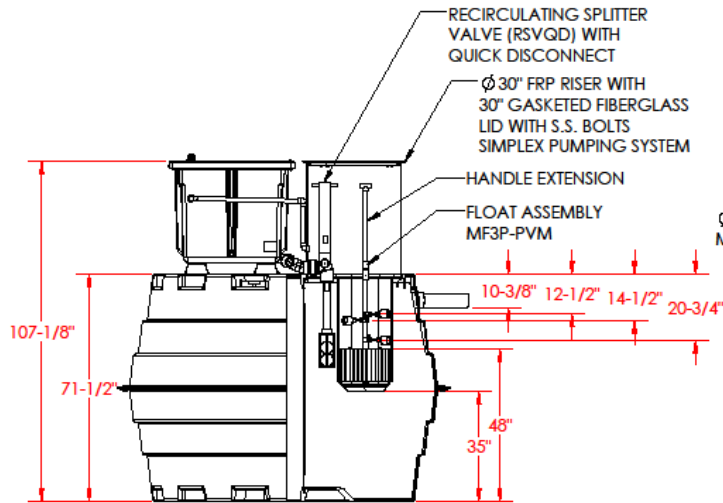


AX20 Residential

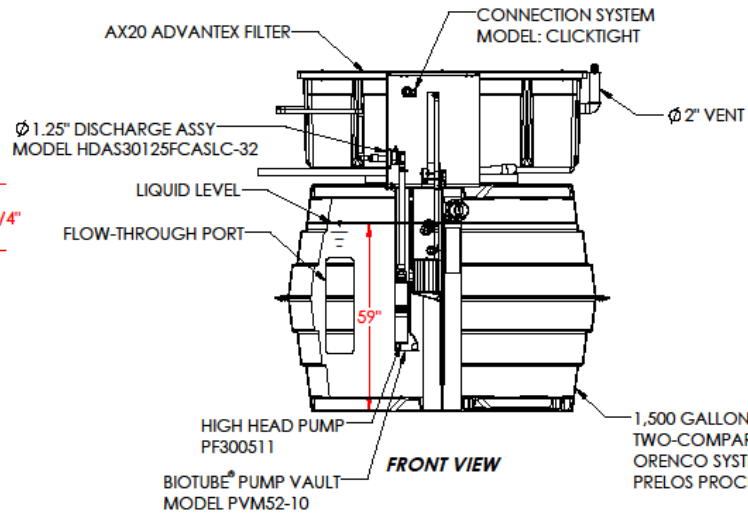
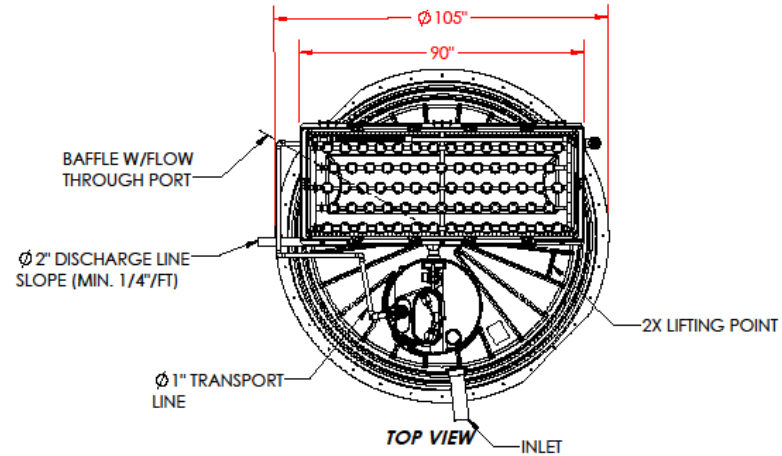
DESIGN NOTES:
EXPECTED FLOWS
Q-PEAK = 600 GPD


EXPECTED INFLUENT QUALITY
GREASE & OIL: 20 MG/L
BOD: 150 MG/L
TSS: 40 MG/L
TKN: 65 MG/L

TYPICAL EFFLUENT QUALITY
BOD: <10 MG/L
TSS: <10 MG/L
TN: <25 MG/L



SIDE VIEW



UNLESS SPECIFIED DIMS ARE IN INCHES	DATE: 1/22/2021	DRAWN BY: BNEAL	NAME: M1500-AX20-MODE38
TOLERANCES: FRACTIONS 1/16" DECIMALS ± .01" ANGLES ± .5° SURFACE FINISH: SEE GENERAL NOTES	DATE REVISED:	APPROVED BY:	DISCUSSION: PRELOS/ADVANTEK M1500 AX20 MODE 38
	SHEET(S): 1 OF 1	REVISION:	MATERIAL:
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Prelos™

The Next Step In Sewer Evolution

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Orenco
SYSTEMS

PROTECTING THE WORLD'S WATER

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