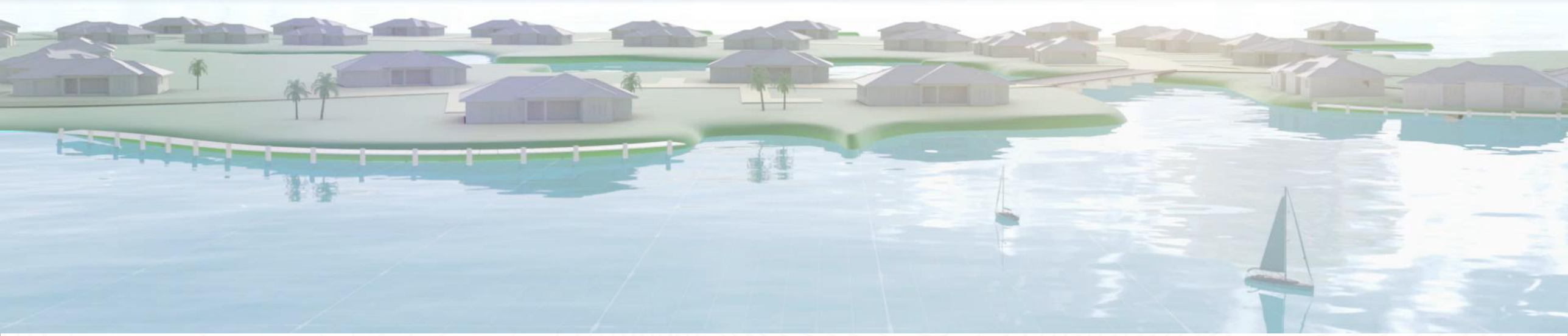
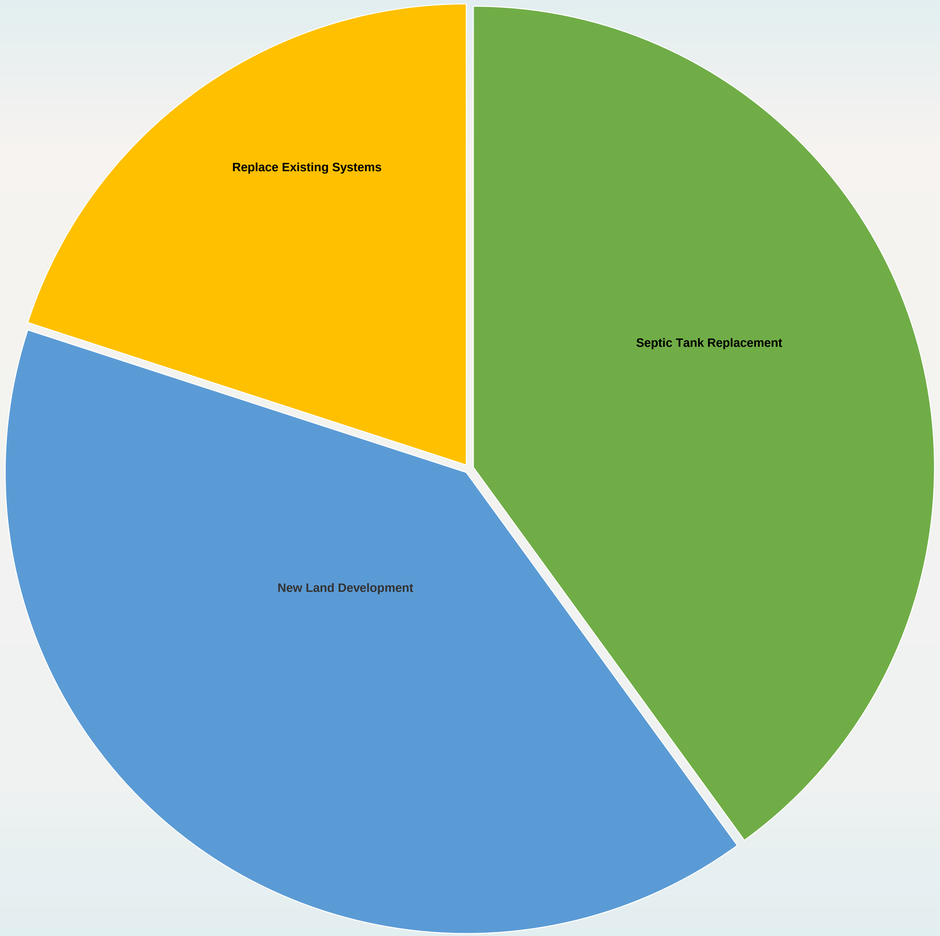
Onsite | 2024 Spokane, WA
Wastewater
Mega-Conference
Celebrating Tomorrow's Environment
Clean Water for the Future

Pressure Sewer For Septic Abandonment

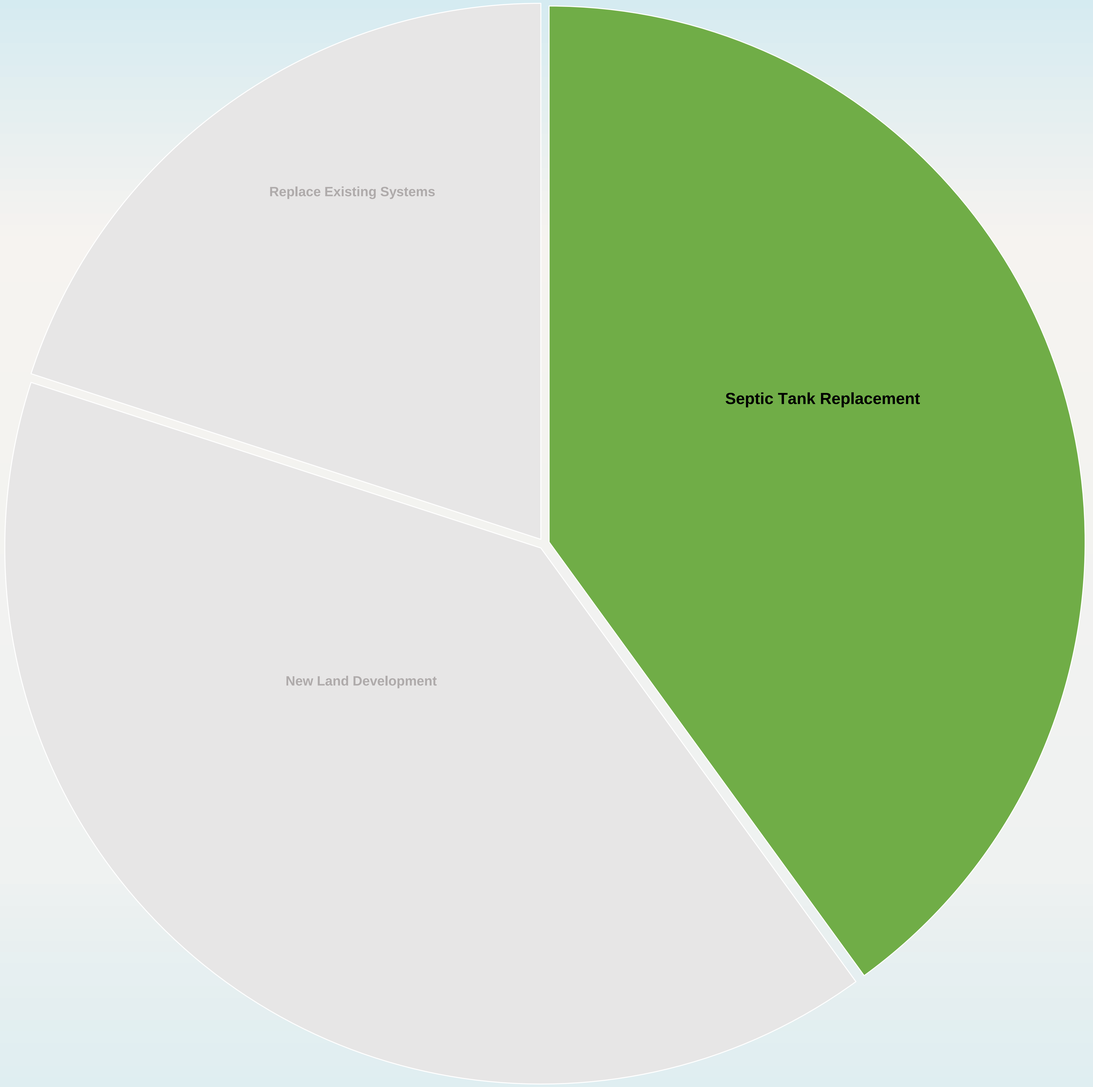
Christine McTavish, CAPM



Pressure Sewer Applications



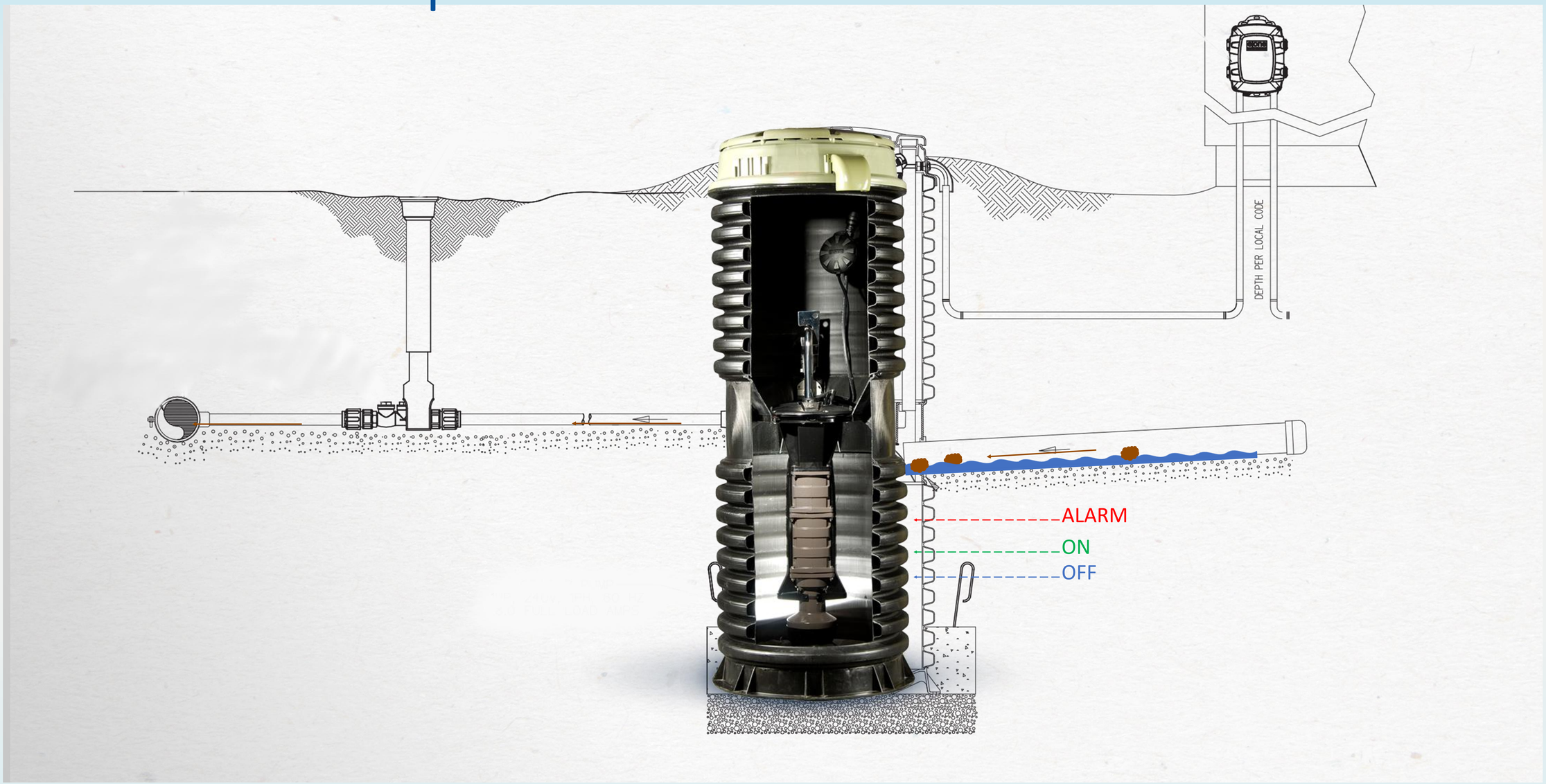
Pressure Sewer Applications



Agenda

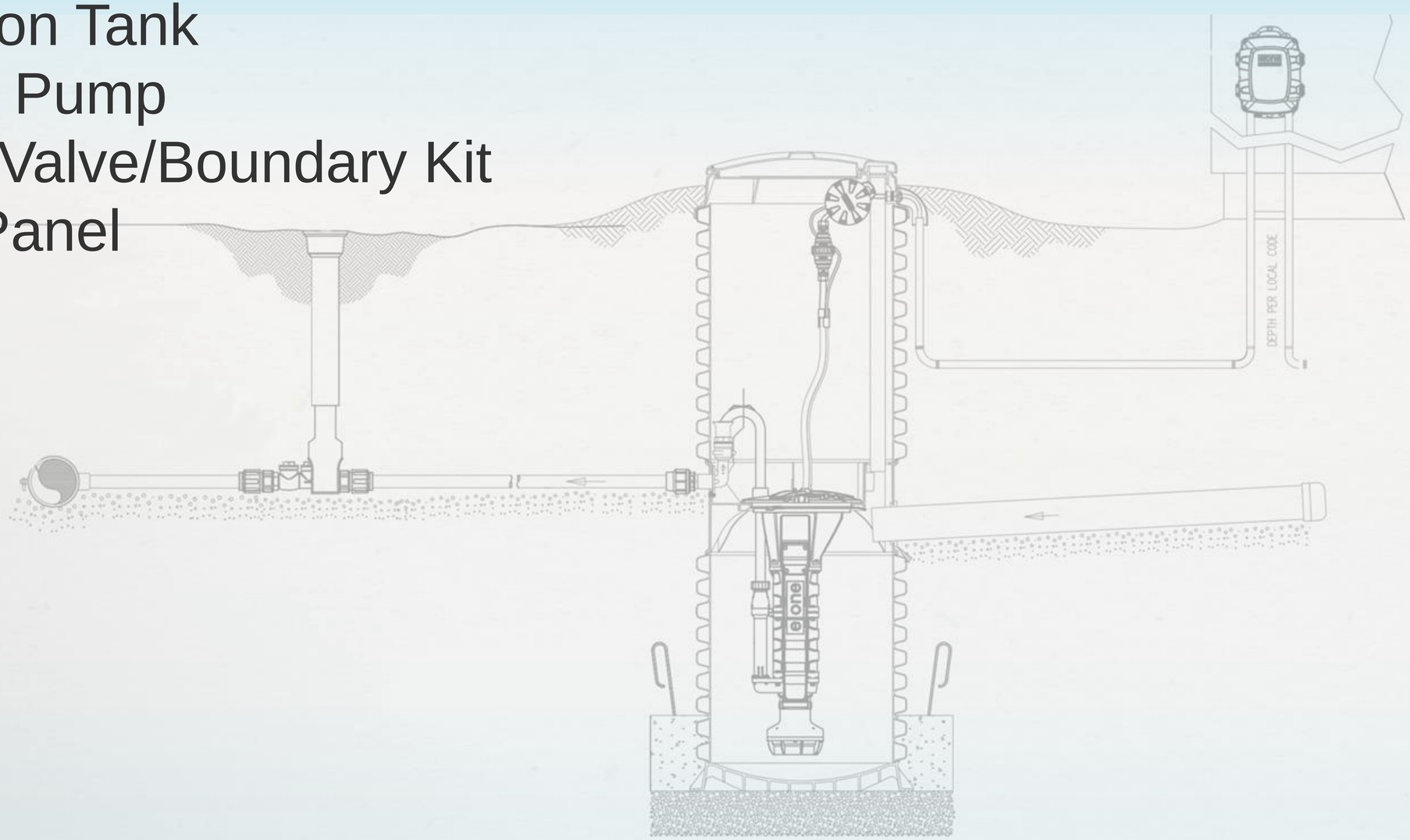
- Pressure sewer basics
  - How it works
  - System components
  - Where to apply it
- Discharge considerations
- Septic tank abandonment
  - Options
  - Constructability
  - Case study

Grinder Pump Station

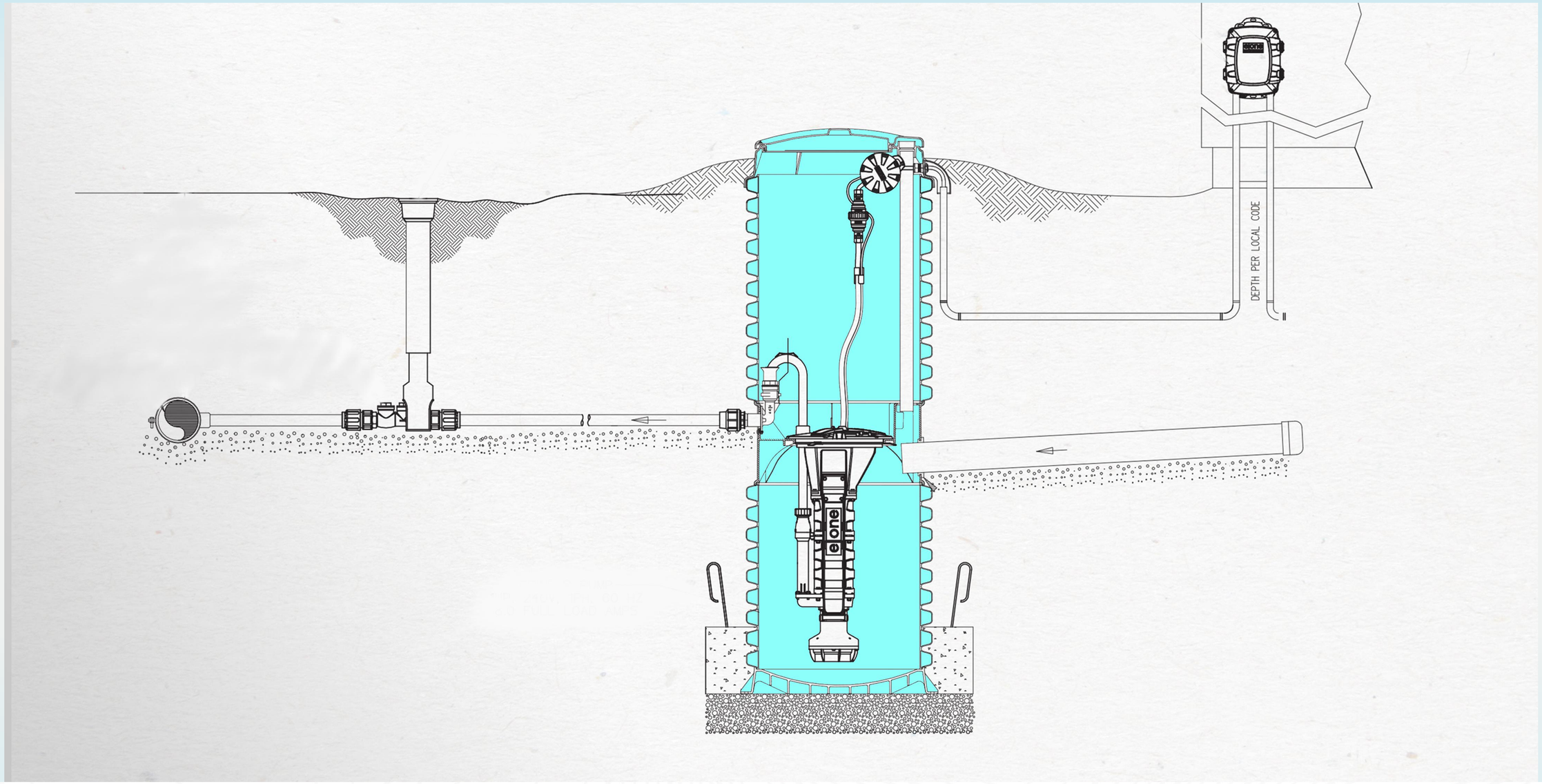


Grinder Pump System Components

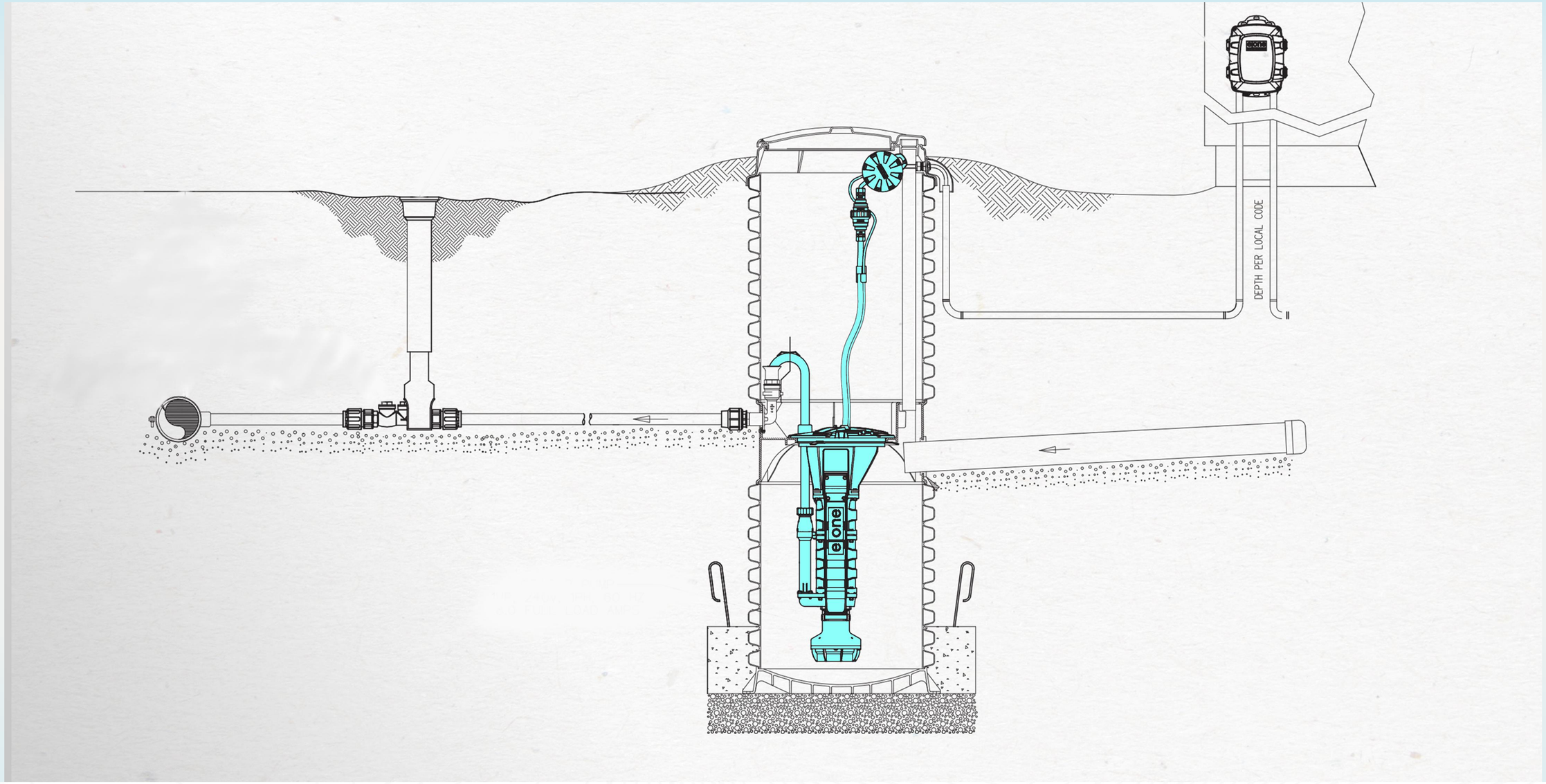
- Collection Tank
- Grinder Pump
- Lateral Valve/Boundary Kit
- Alarm Panel



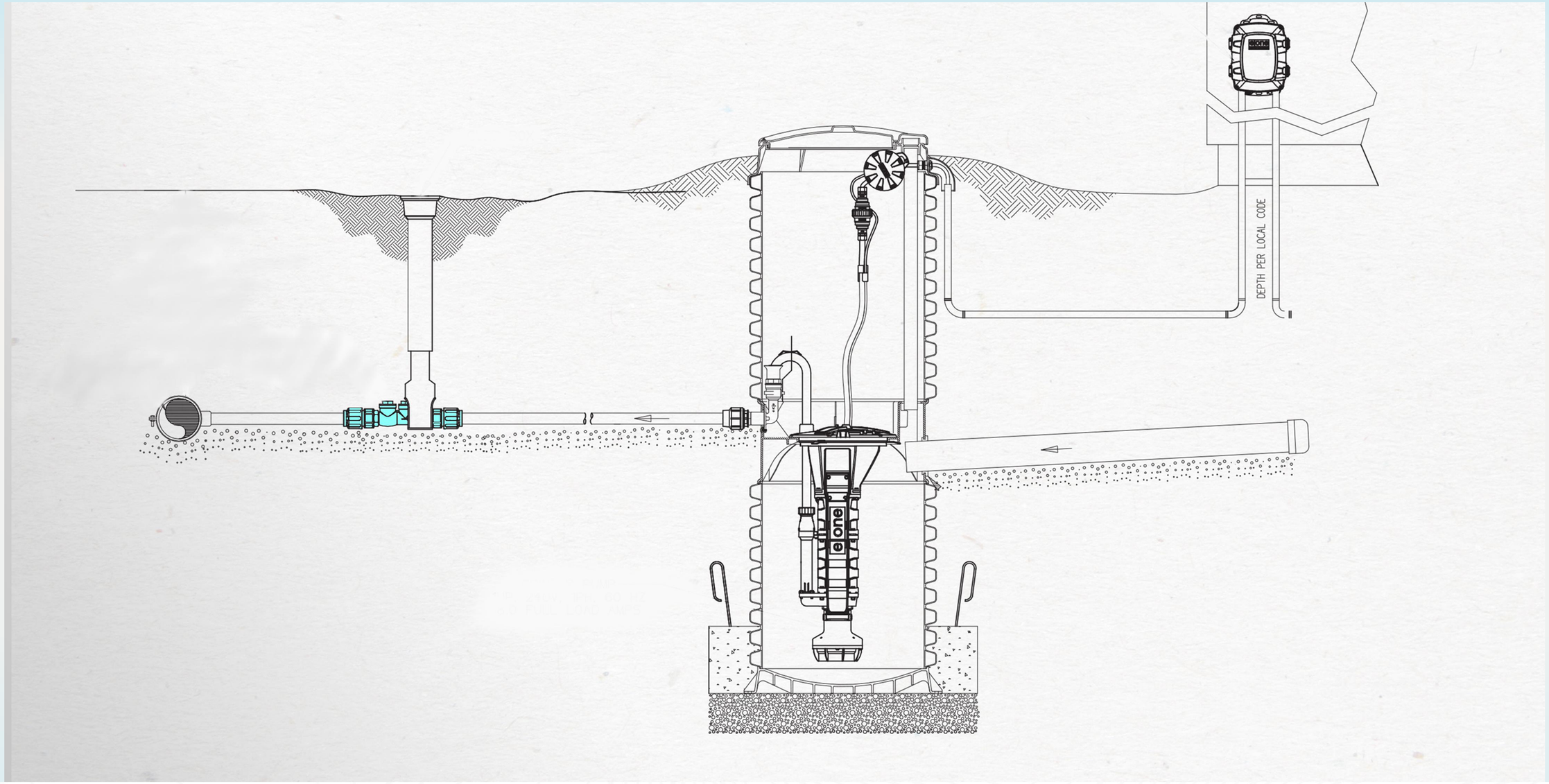
Grinder Pump System Components



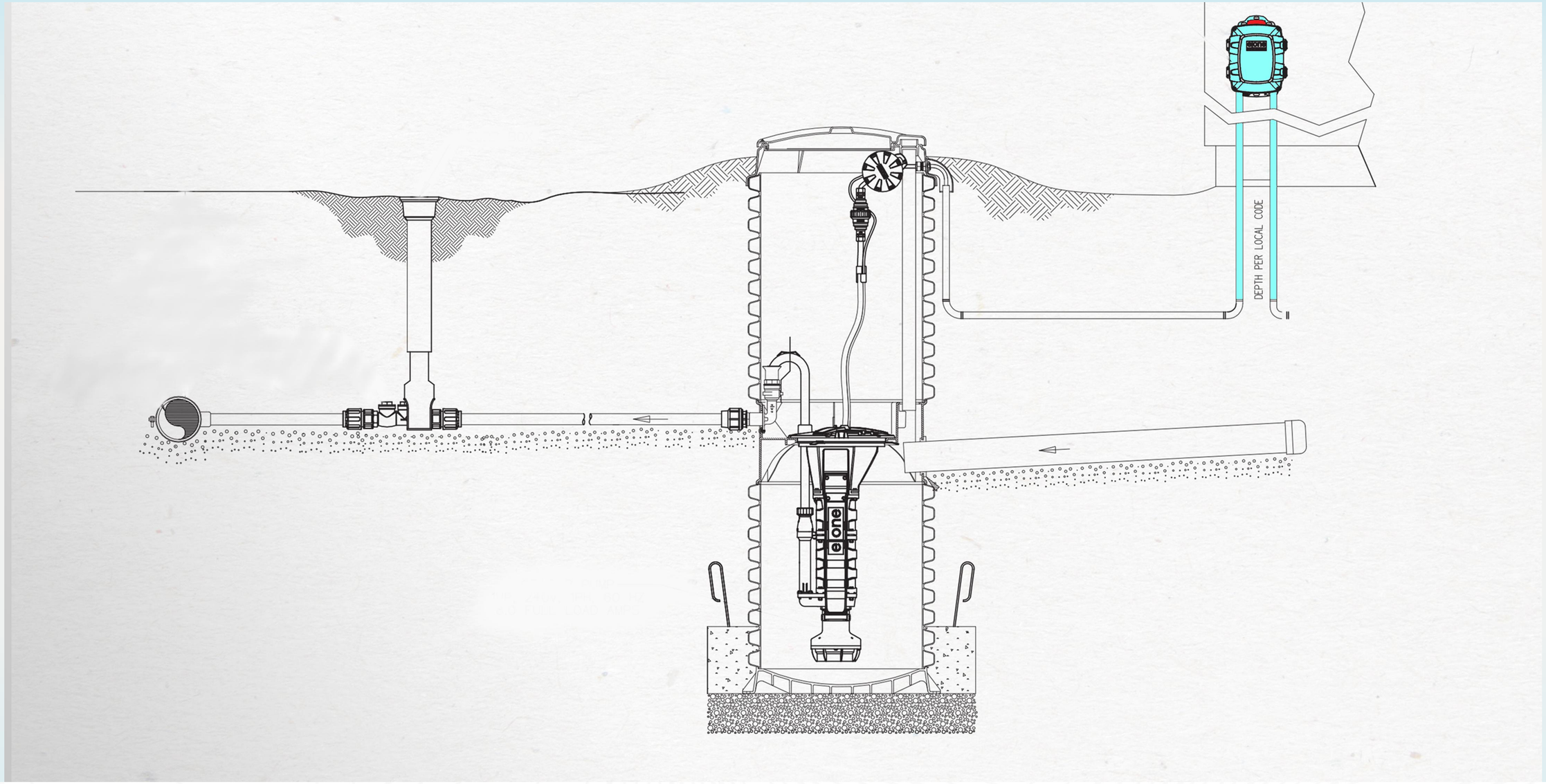
Grinder Pump System Components



Grinder Pump System Components



Grinder Pump System Components



Variety of Basins

70 gal

237 gal

486 gal

How Does it Look?

System Piping

- Must be rated for a minimum of 160psi working pressure
- SDR11 HDPE and SDR21 PVC are the most common
- SCH40 PVC and SDR26 PVC also used
  - Standardized dimensions
  - IPS – Iron Pipe Size
- Avoid CTS – copper tube standard
- Pressure test per AWWA C600 standard for testing water lines
- Directional drilling is a common way to install

Discharge Locations

- Gravity manhole
- Gravity main
- Existing force main — pressure sewer

Septic to Sewer Conversion Methods

INSTALLATION OPTIONS:

- New excavation
- Grinder pump station in septic tank
- Grinder pump in septic tank
- Indoor grinder pump station

Septic to Sewer Conversion Methods

New Excavation

- Excavate location and install tank
- Install alarm panel with dedicated 30 amp breaker power
- Run conduit and supply cable to tank
- Reroute 4” house lateral to new grinder pump station
- Install 1 ¼” discharge lateral out to force main complete with Unilateral
- Abandon septic tank properly

PROS:

- Flexibility of location
- Easy to access station

CONS:

- Excavation of new hole
- Station depth dependent upon distance from building

Septic to Sewer Conversion Methods

Install grinder pump station in septic tank

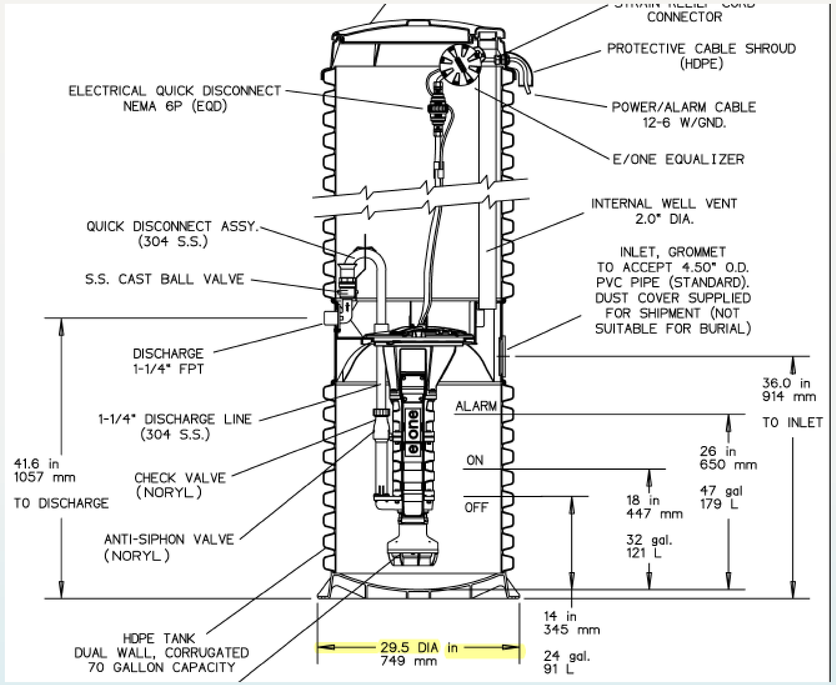
- Wash and empty inside of septic tank
- Retrofit tank to accept grinder station
- Install alarm panel with dedicated 30 amp breaker power
- Run conduit and supply cable to tank
- Reroute 4” house lateral to new grinder pump station
- Install 1 ¼” discharge lateral out to force main complete with Unilateral
- Break septic tank lid and backfill tank to properly support grinder station

PROS:

- Avoid new excavation
- Simple to reroute 4” house lateral

CONS:

- Extensive work to retrofit septic tank



Septic to Sewer Conversion Methods

Install grinder pump in septic tank

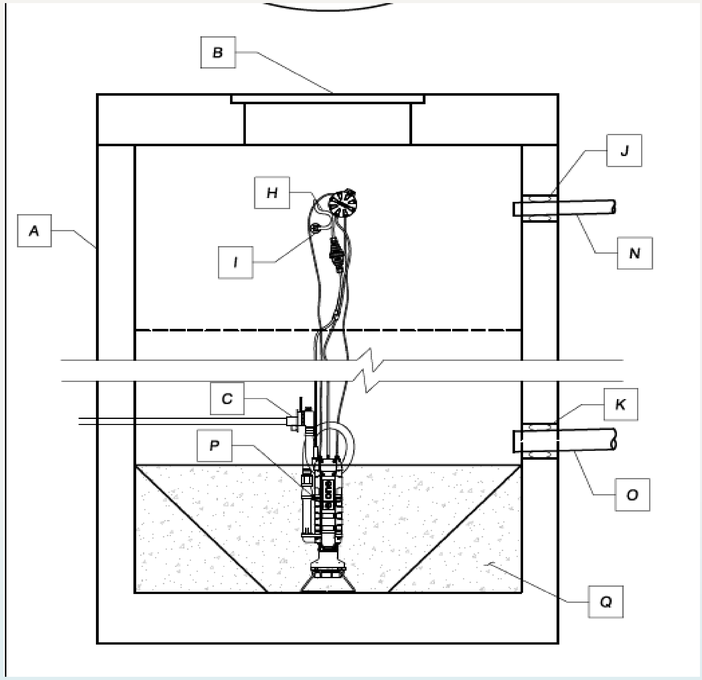
- Only possible if septic tank structure not compromised
- Wash and empty inside of septic tank
- Grout inside of tank to create proper geometry – CRITICAL!
- Install alarm panel with dedicated 30 amp breaker power
- Run conduit and supply cable to tank
- Reroute 4” house lateral to new grinder pump station
- Install 1 ¼” discharge lateral out to force main complete with Unilateral
- Break septic tank lid and backfill tank

PROS:

- Avoid new excavation
- No need to reroute 4” house lateral

CONS:

- Retrofit for pump



Septic to Sewer Conversion Methods

Install indoor grinder pump station

- Identify acceptable location – basement, crawl space, garage
- Install alarm panel with dedicated 30 amp breaker power
- Run conduit and supply cable to tank
- Reroute 4” house lateral to new grinder pump station
- Install 1 ¼” discharge lateral out to force main complete with Unilateral
- Properly abandon septic tank

PROS:

- Avoid new excavation
- Simple to reroute 4” house lateral

CONS:

- Identifying location

Septic to Sewer Conversion Considerations

- Available space
- Available time
- Available budget
- Warranty

Case Study – Sacheen Lake, Washington

Case Study – Sacheen Lake, Washington

Background

- Pend Oreille County, Washington
- Lake formed from granite “bowl”
- Invasive milfoil and increased turbidity were present
- Failing septic tanks and cesspools were uncovered
- Homeowners struggled to mitigate symptoms and save their lake

Case Study – Sacheen Lake, Washington

<u>Evaluating Alternatives</u>

- Rocky ground conditions and challenging terrain
- Gravity sewers quickly disqualified due to cost and complexity
- STEP and Pressure Sewers were evaluated in detail

Case Study #3 – Sacheen Lake, Washington

Identifying the Solution

- STEP and Pressure Sewers were evaluated in detail
- STEP disqualified due to constructability
  - Varying lot sizes, minimal available land for septic tank
  - Equipment access and ground conditions not suitable for larger equipment
- Pressure sewers have better constructability and flexibility
  - Adjust alignment as is rock discovered
  - Reduced cost

Case Study – Sacheen Lake, Washington

<u>The Result</u>

- Pressure sewers allowed for a cost effective and practical solution
- Centralized treatment prevented risk of pollution to the lake
- Hydraulic benefits of selected grinder pump results in operational simplicity – one pump model used across the network
- Water quality sampling demonstrated impact of collection system
  - Water clarify improved by at least 25% shortly after installation
- Homeowners enjoying the improved water quality

425-869-1233
info@correctequipment.com

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Thank You