

Comprehensive Guide to Successful Commercial Wastewater Treatment Projects

Presenter: Brian Koski

The following presentation includes experience and views of the presenter, not NOWRA.

Common Failures in Commercial Projects

- **Lack of owner awareness or education**
- **Poor communication of expectations**
- **Not following guidelines and misuse**
- **No alerts to issues or alarms**
- **Odors, noise, and poor aesthetics**
- **Unexpected maintenance costs**
- **Not aware of ongoing maintenance requirements and costs**
- **Lack of good project management**



Success Flywheel

- Successful projects start with Design
 - And working with the right customers
- Full circle approach
 - Regulatory, design, install, maintenance, improve.
- Apply what we learn

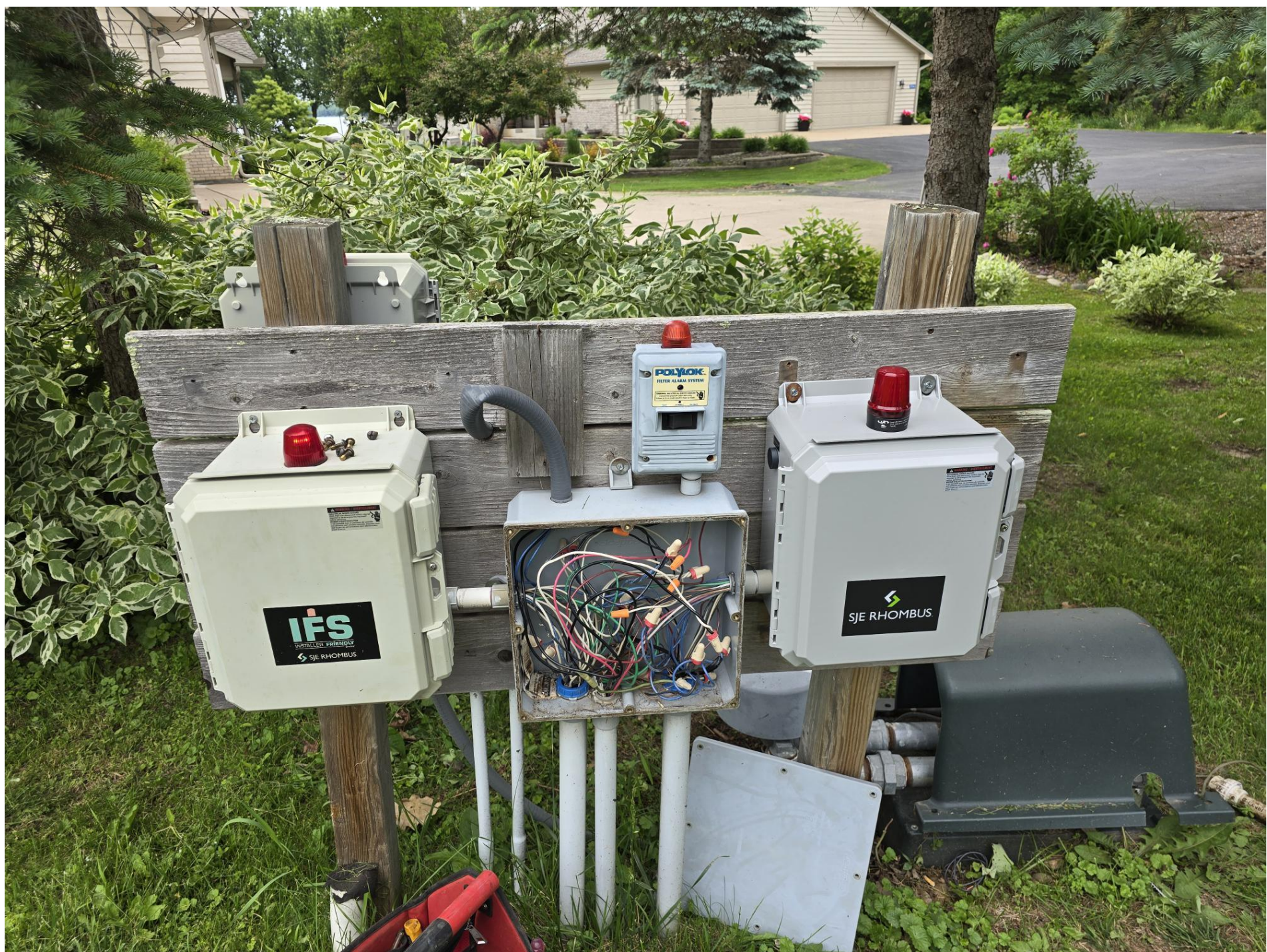


Design Phase

- Influent data
 - Waste strength sampling (HSW)
 - Actual flows vs book values
- Existing components
 - Verify compliance for reuse
- Tour the facility, look for surprises in water use and housekeeping
 - Cleaning practices
 - Ice makers, water treatment systems, sump pumps
- Site and component access for service

Design Phase Con't

- Detailed Site plans & Specs.
 - Can someone build off plans and meet the quality standards
 - High quality materials specified with cut sheets
 - elevations
- Pre-treatment
 - Appropriately sized
- Designed to be maintained
- Owner or manager interview
 - Do they care?
 - Are they invested in a successful outcome or just the lowest cost?
- Electrical



Upgrade To Existing Systems

- Daily flow readings, water or effluent pumps
- Anticipated future needs
- Waste strength- Sample existing wastewater
- Site restrictions, space, soil conditions
- Hours of operation- EQ considerations
- Property Transfer? Try to work with new owners.

Wi-Fi Flow Meters and Pump Calibrations



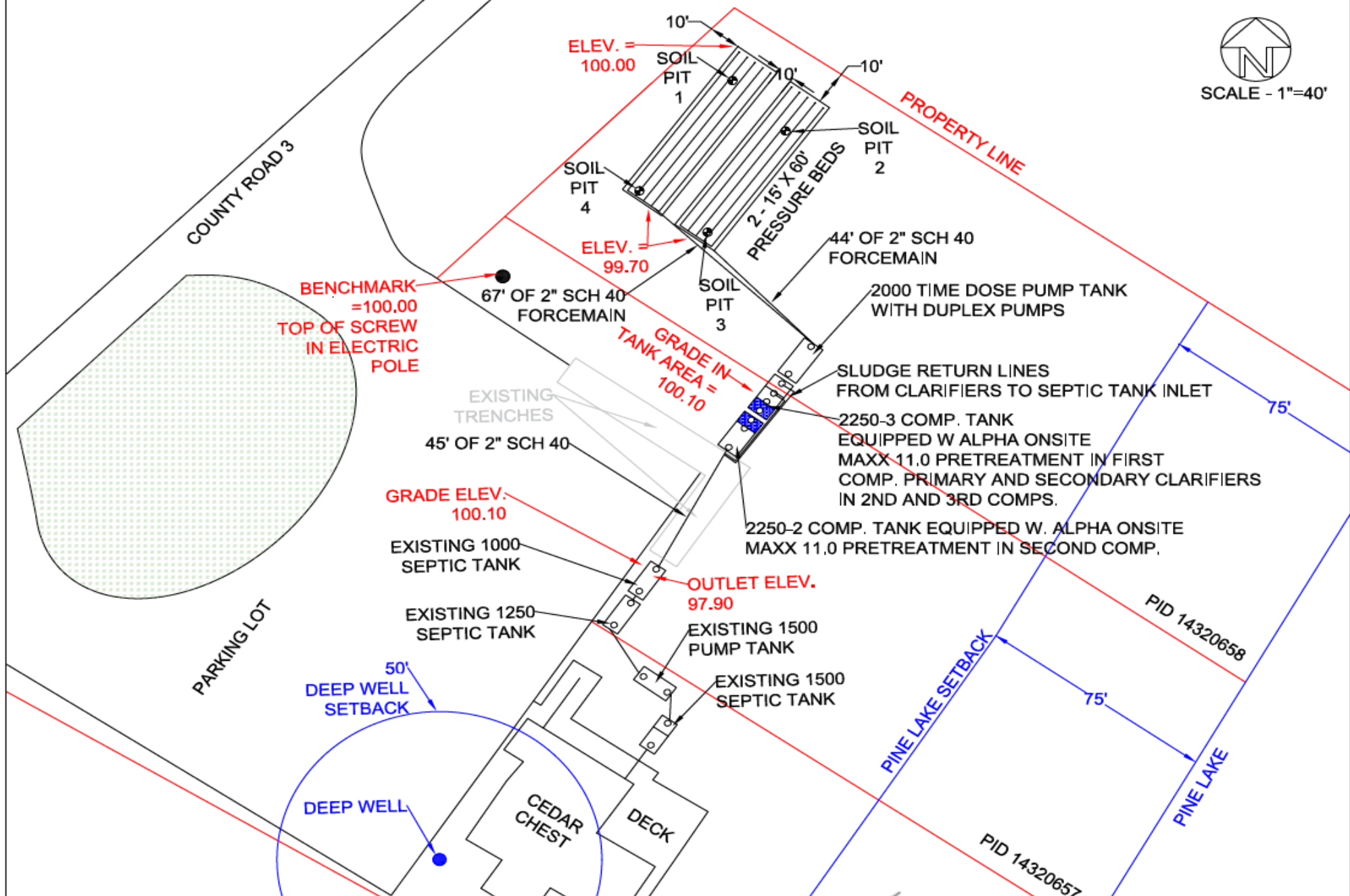
CLICK ME OR SCAN ME FOR DETAILED EXPLAINER VIDEOS!

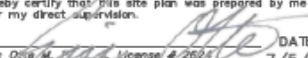


Sampling Protocols

- BOD, TSS, FOG
- Outlet of existing septic tank
- During business hours
- Make sample holding times and preservations.
- Ice





PREPARED FOR: PATRICK'S CEDAR CHEST	PROPERTY LOCATION 33350 COUNTY ROAD 3 CROSSLAKE, MN 56442	LEGAL DESCRIPTION Crow Wing County, Minnesota PID's # 14320673, 14320657, 14320658	SEPTIC CHECK 6074 KEYSTONE RD MLACA, MN 56353 (320)-983-2447 (FAX) (320)-983-2151	I hereby certify that this site plan was prepared by me or under my direct supervision.  Eric Dittus License # 26371 DATE 1/5/24	PAGE TITLE SITE MAP	SHEET NUMBER 1 OF 1
---	---	---	---	--	-------------------------------	-------------------------------

Waste Strength Tables for Reference.

Facility Type	Sub Category	BOD-Septic Tank Effluent	Resource	Average GPD	# Per day	Design Basis
Resturant	Bar & Grill (Basket Meals)	400-800	SC samples	35	0.12	per seat
Resturant	Plated Meals	600-1500	Design Guidance	50	0.17	per seat
Resturant	Mexican	800-1500	Best guess			per seat
Resturant	Asian	800-1500	Best guess			per seat
Resturant	Diner	400-600	Google AI Overview			per seat
Resturant	coffe shop	280	Google AI Overview			per seat
Resturant	Along Freeways	600-1500	Design Guidance	100	0.33	per seat
Resturant	Fast Food	1000-2000	Design Guidance		0.8	per seat
C-Store	No Food prep	200-280	Google AI Overview			
	Food Prep					
Resort	RV Park - Dump Station	1280-1550	Google AI Overview/ Uof M p	50	0.53-0.65	Per black tank
Resort	RV Park - Full hook ups	700-1000	Google AI Overview	100	0.58-0.83	
Resort	RV Park - Full hook ups Average with 20% safety	700-1000	SC experience	30	0.18-0.25	
Resort	RV Park - Full hook ups & Bathrooms					
Resort	Cabins-per person	290	Design Guidance	50	0.12	per person
Resort	Rental Condos-per person	240	Google AI Overview	75	0.15	per person

Start Up

- Ideally...
 - Owner, designer, installer, and service provider are present
 - Panel, pumps, alarms, are tested
 - Timers are set based on actual GPM output, requires draw downs and water.
 - All activities are documented for everyone's records.
 - Skipping this step almost certainly will cause nuisance alarms, stress and issues for everyone involved.



Installation

- Best practices
 - Build it for maintenance
 - Electrical sealed and above grade
 - Pumps and filters removable from grade
 - Manholes secured at grade
 - As built supplied to end user, county, service provider
 - Pictures
 - If you don't know, be humble, ask a vendor or the designer for help.









Maintenance

- A service provider hired and contracted prior to install
- Follow pre-treatment vendor recommendations. Get trained.
- Document activities
- Have a report and database
- Report issues immediately. Act as the voice of the system.
- Flow tracking

