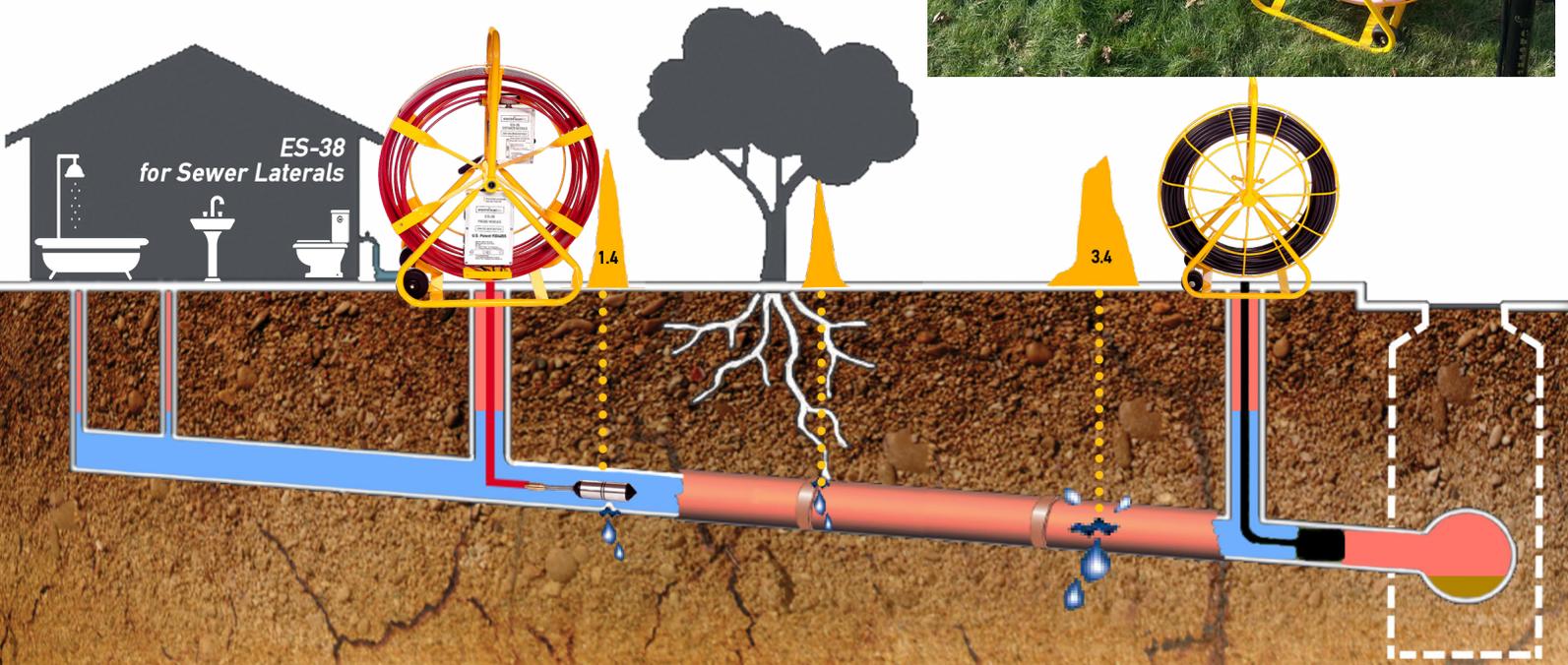
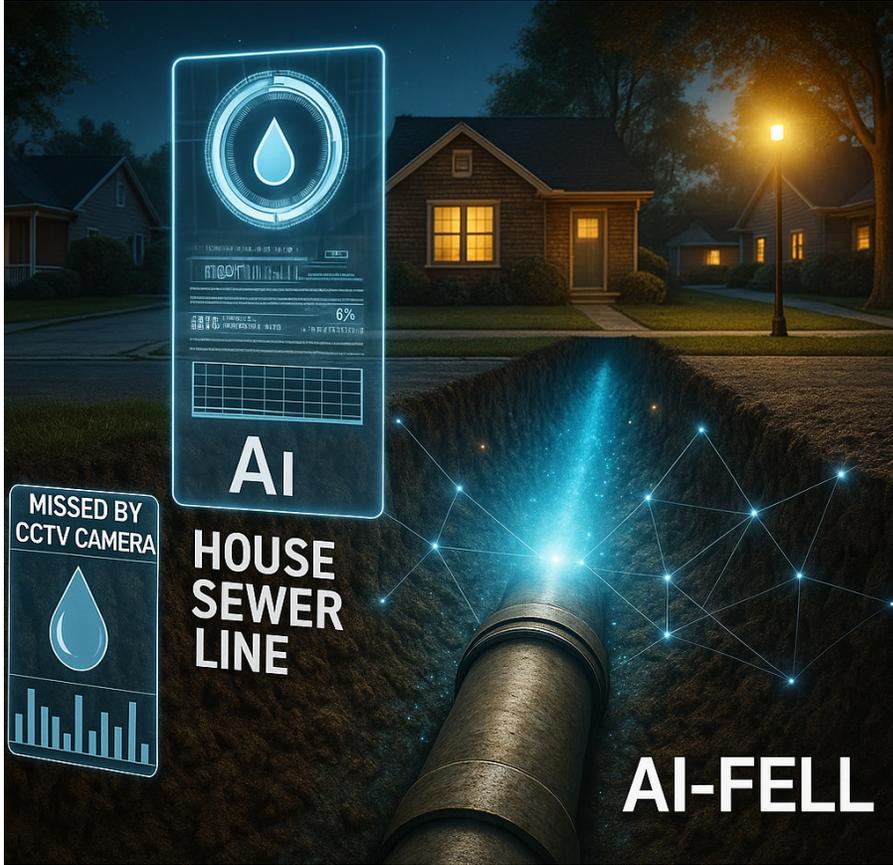


Sewer Service Line Condition Assessment Using AI to Find Leaks Missed by CCTV

ES-38

AI-Based Sewer Service Line Assessment

- ES-38 is a non-acoustic, non-visual machine-intelligent solution to locate & measure multiple leaks in a single pipe.
- ES-38 utilizes a low-voltage high frequency electrical current to locate all leaks with 1cm (0.4in) locational accuracy, including defect flow in Gallons Per Minute (GPM).



ES-38

Leader in Service Line Assessment



Conveyance	Service Laterals Connecting Residential, Commercial, and Industrial Customers to Municipal Sewer Mains.	
Required Flow	None. Dry Pipe or Fully Surcharged Flow.	
Pipes	Pipe Diameters	3 to 8 inch (76 to 200mm)
	Pipe Shape	Any, including Circular, Box, Oval, and Trapezoidal. Able to navigate 90° bends or elbows.
	Pipe Materials	Electrically Non-Conductive Pipe Walls, including, Asbestos Cement, Brick, Cement Mortar Lined and Coated Steel, Cured-In-Place Pipe, Ductile Iron with Epoxy Coatings, Fiberglass Reinforced Pipe, High-Density Polyethylene Pipe, Prestressed Concrete Cylinder Pipe, Polyethylene, Polyvinyl Chloride, Reinforced Concrete, Vitrified Clay, etc.
ES-38	Dimensions	Length: 6.5 inches (165mm); Diameter: 0.57 inches (15mm)
	Scan Recorder	Critical Sewers® Field Laptop PC, Wifi Connection to Critical Sewers® Cloud Application.
	Scan Speed	30 ft/minute (10m/minute)
	Environmental	IP 67. Able to withstand rain and low pressure wash down. 20°F to 120°F (-7°C to 50°C)
	Power Supply	14ea 3.7V Rechargeable Lithium-Ion Batteries -or- 12V DC External Power Supply.
	Cable	1/4 inches (6.5mm) fiberglass push rod. 200 ft (60m) range from single point of access.
	Reel	Diameter 26 inches, L26 inches, W12 inches, H32 inches (L66cm, W30cm, H81cm)
	Weight	39 lb (17.7kg)
	Current (max)	40 mA
	Electrical Array	Focused tri-electrode array.
	Defect Flow Calculation	± 30% Accuracy measured in Gallons Per Minute (GPM) or Liters Per Second (LPS).
Defect Location	± 0.4 inches (1 cm)	
Air Push Rod	Manual pump air source, 25 psi. Tire valve compatible with standard test balls.	
Advantages	<ol style="list-style-type: none"> 1. No manual coding required. 2. Finds 90-100% of leaks missed by CCTV. 3. Locates and measures leaks in GPM or LPS. 4. Tracks pre- and post-rehabilitation I/I reduction. 5. Use in field either rain or shine. 6. Replaces Smoke Testing, Soaker and Dye Testing. 7. Finds defects inside joints not seen by CCTV. 8. Differentiates superficial cracks from cracks through pipe. 9. Find & measure defects hidden by grease, silt, & encrustation. 10. Automatically evaluates 360° of pipe wall. 11. Determines water tightness of service laterals. 12. Fewer breakdowns. No moving parts. 13. Recommended by WRC, developers of NASSCO CCTV Codes. 14. Reports available in minutes, not hours, days, or weeks. 	
Limitations	<ol style="list-style-type: none"> 1. Does not provide a clock position of defect location inside the pipe, but location is accurate to within 0.4 inches (1cm). 2. Does not scan metallic pipes or fittings, unless there is a coating or liner (minimum of 1-2mm). 	