

Sundridge Wastewater Treatment Challenges

2 main challenges:

1. **Capacity:** high flows during spring
2. **Effluent quality:** periodic phosphorous and suspended solids exceedances

Capacity:

There is a clear link between snowmelt and rainfall causing high flows at the Sundridge wastewater treatment facility. This is due to inflow and infiltration (**I&I**).

- **Inflow:** snowmelt and rainwater enter the sewage system through prohibited connections from homes such as downspouts and sump pumps.
- **Infiltration:** snowmelt, rainwater or groundwater enter the sewage system through cracks in manholes and collection pipes.

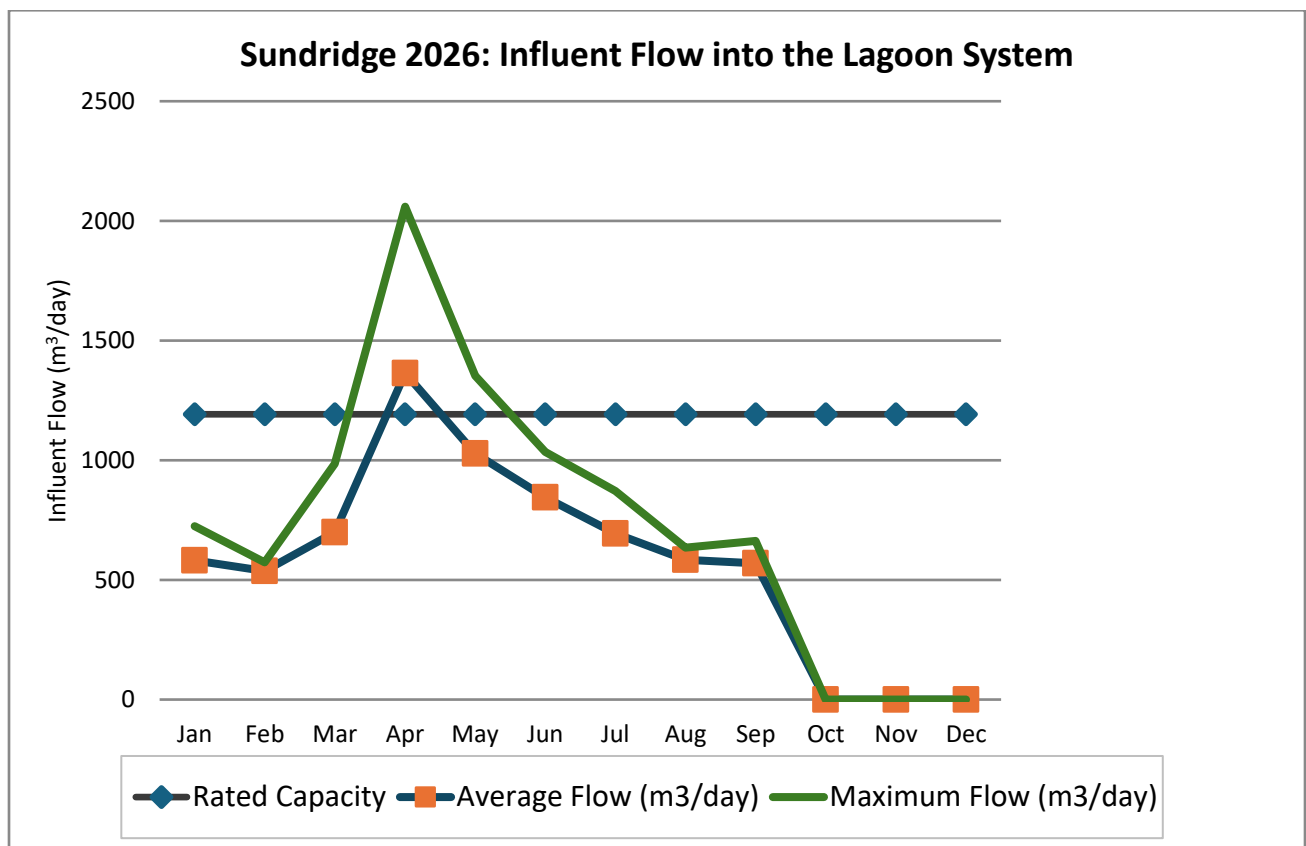
I&I should be assessed and addressed since some wet weather events can lead to daily rated capacity exceedances. I&I should be reduced as much as possible, especially when considering adding more homes and businesses to the wastewater system.

Exceeding the rated capacity of the facility wastes energy and treatment chemicals, upsets the treatment process, overwhelms storage capacity, and pushes pumps and filters hard which leads to premature equipment failure.

We propose, in spring of 2027, to undertake manhole assessments for I&I and observe downspouts for suspected connections to the collection system. Areas showing unusually high flows should be considered for sewer camera inspections when flows subside enough to allow for it. Camera inspections may locate areas of concern by identifying cracks, breaks and I&I to be repaired.

Figure 1: 2026 Daily Volume of Raw Sewage Plant Flows

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<i>Average Flow (m³/day)</i>	581	537	698	1364	1028	845	694	583	568	0	0	0
<i>Maximum Flow (m³/day)</i>	725	573	986	2059	1353	1035	871	634	663	0	0	0
<i>Rated Capacity</i>	1192	1192	1192	1192	1192	1192	1192	1192	1192	1192	1192	1192
<i>% Rated Capacity</i>	61	48	83	173	113	87	73	53	56	0	0	0



Effluent Quality:

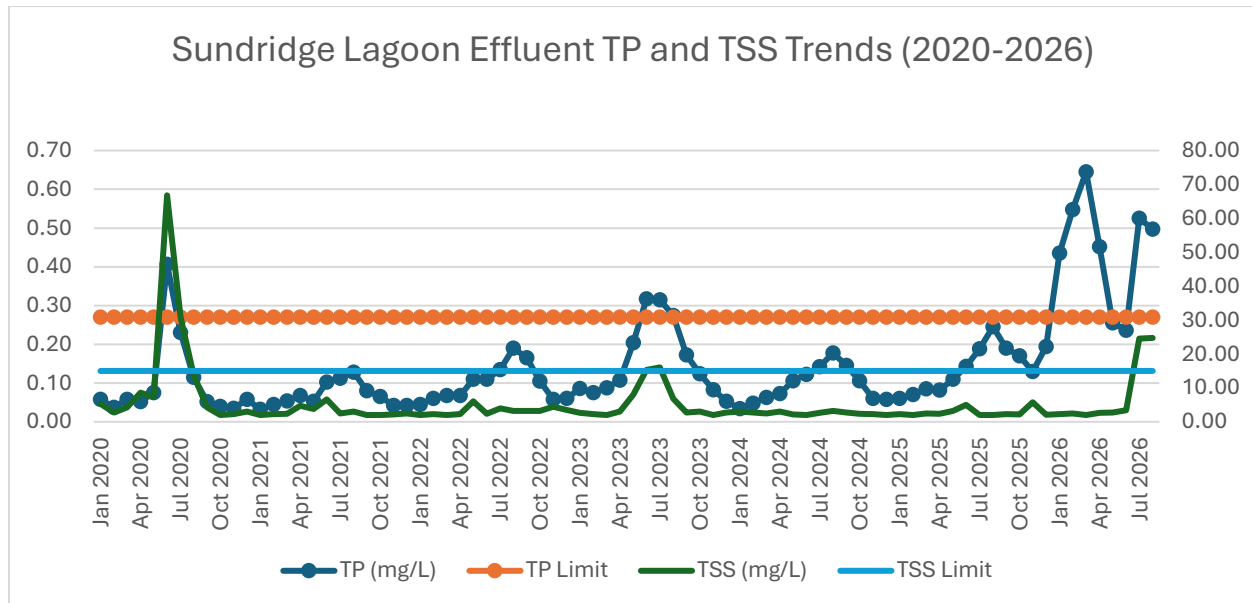
The Sundridge wastewater treatment facility has experienced Total Suspended Solids (TSS) and Total Phosphorous (TP) exceedances.

- **Total Suspended Solids:**

- TSS exceedances at this facility are often associated with filter breakthrough due to high flows from I&I. Filters are pushed beyond normal operations when the rated capacity is exceeded. The filter cloth can tear, allowing TSS to pass through.
- TSS exceedances are also associated with blue-green algae blooms in summer. This can occur if the ultrasonic algae control device fails, or there is a significant bloom that clogs the filters and passes through a filter cloth tear.
- Consider reducing I&I.
- Consider purchasing spare filter cloth and a new spare ultrasonic algae control device.

- **Total Phosphorous:**

- There is a relationship between elevated TSS and elevated TP. This suggests a large portion of the phosphorus is particulate phosphorus attached to algae and suspended solids.
- TP is reduced through filtration and chemical addition of a coagulant, poly aluminum chloride (PACl). When TP exceeds the effluent quality objectives, the dosage of PACl is increased. However, increasing the dosage is not always effective.
- Consideration is being given to trialing a different kind of coagulant that may prove to be more effective at reducing TP exceedances. A trial of a new coagulant would be initiated to determine effectiveness, quantity and cost of the new product.



Key Observations

- Significant TP and TSS exceedances occurred during June-July 2020 and were attributed to algae proliferation.
- TP exceeded the ECA objective during June-August 2023 while TSS approached or exceeded the effluent limit.
- TP increased significantly in January-April 2026 while TSS remained low, indicating factors beyond solids carryover affected phosphorus removal.
- TSS increased above the 15 mg/L limit in July and August 2026 and coincided with elevated TP concentrations.
- Historical records indicate algae growth, PACl dosing, ultrasonic algae control performance, and filter operation are key factors influencing TP and TSS results.

Next Steps:

- Manhole inspections next spring
- Sewer camera inspections at areas of concern identified by manhole inspections
- Plan for sanitary repairs identified by sewer camera and manhole inspections
- Purchase a new spare ultrasonic algae control device
- Consider trial of a new coagulant for improved phosphorous removal