TOWN OF BROOKFIELD

WPCA BROOKFIELD, CT 06804

Request for Information – Package WWTP – Twin 150,000 GPD (568M^3/D) Units

A pre-designed and prefabricated packaged wastewater treatment plant (WWTP) seems to be appropriate because in Brookfield only a fraction of its properties are on the sewer system. The Town sewer system was originally intended to serve commercial activity, but lately there has been a big increase in housing, stretching the available capacity. It is not feasible to tie into a traditional centralized regional wastewater treatment plant because of capacity issues.

The project contemplates phasing WWTP capacity. The idea is to build one 0.15 MGPD plant to serve for a few years, then adding a twin sister plant of 150,000 GPD on the same property. The second phase will come with the installation of a sewer system for 1200 homes in a lake-side community.

As to the location at the north boundary of Brookfield, Connecticut, it could be adjacent to a river or a few hundred yards away. A google map of the three options is attached.

The influent is a typical domestic wastewater loading.

Constituent	Inflow, mg/l	Discharge, mg/l
Total Solids	600	
Dissolved Solids	400	
Suspended Solids	200	<10
Nitrogen (as N)	40	< 5
Phosphorus (as P)	10	≈0.1 *
BOD5	200	<10

- * Phosphorous limit likely to be 0.2 lbs/day. By calculation that is only 0.07 mg/l at 0.3 MGPD.
- Refer to the attached Google Earth image for the site identifications. For scale, the building at 993 Federal Road is 215’ x 260’ or 56,000 sqft.
- Sites 1 and 2 are by the river but to keep Phosphorus emissions low to the river, ground injection may be necessary.
- Site 3 will require injection, which may be preferred to keep P low into the waterway.
- Ambient temperatures are normally between 0 and 100°F, but can be between 10° and 110°F

What will be the footprint and land requirement of a 150,000 GPD plant?
What will be the budget cost? How sensitive is the cost to the

Flow rate
Solids removal
BOD removal
N limit and
P limit?

What is are the utility requirements?
What is the delivery time and, separately, what is the on-site assembly time?

Let's start the conversation.

Respond to
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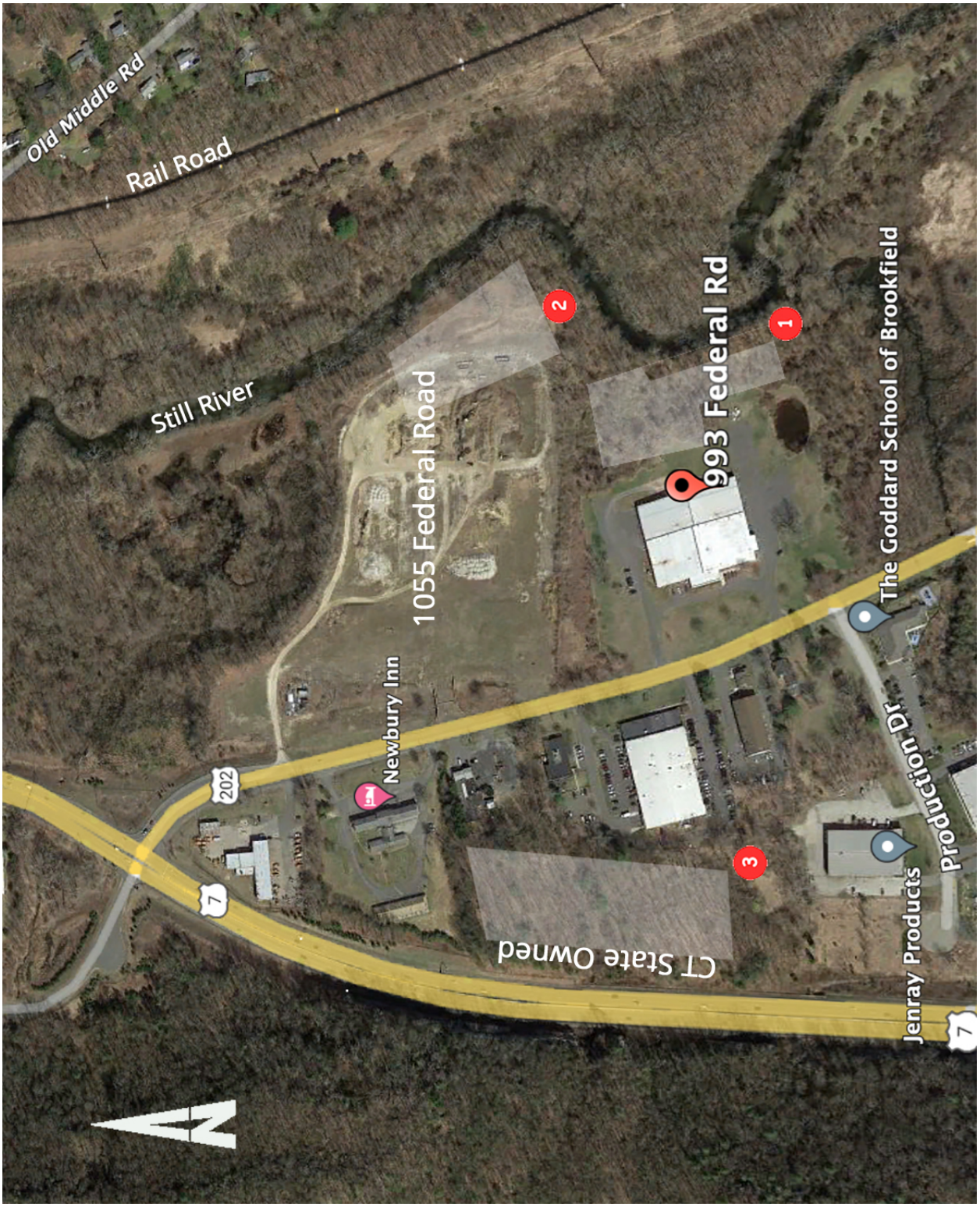
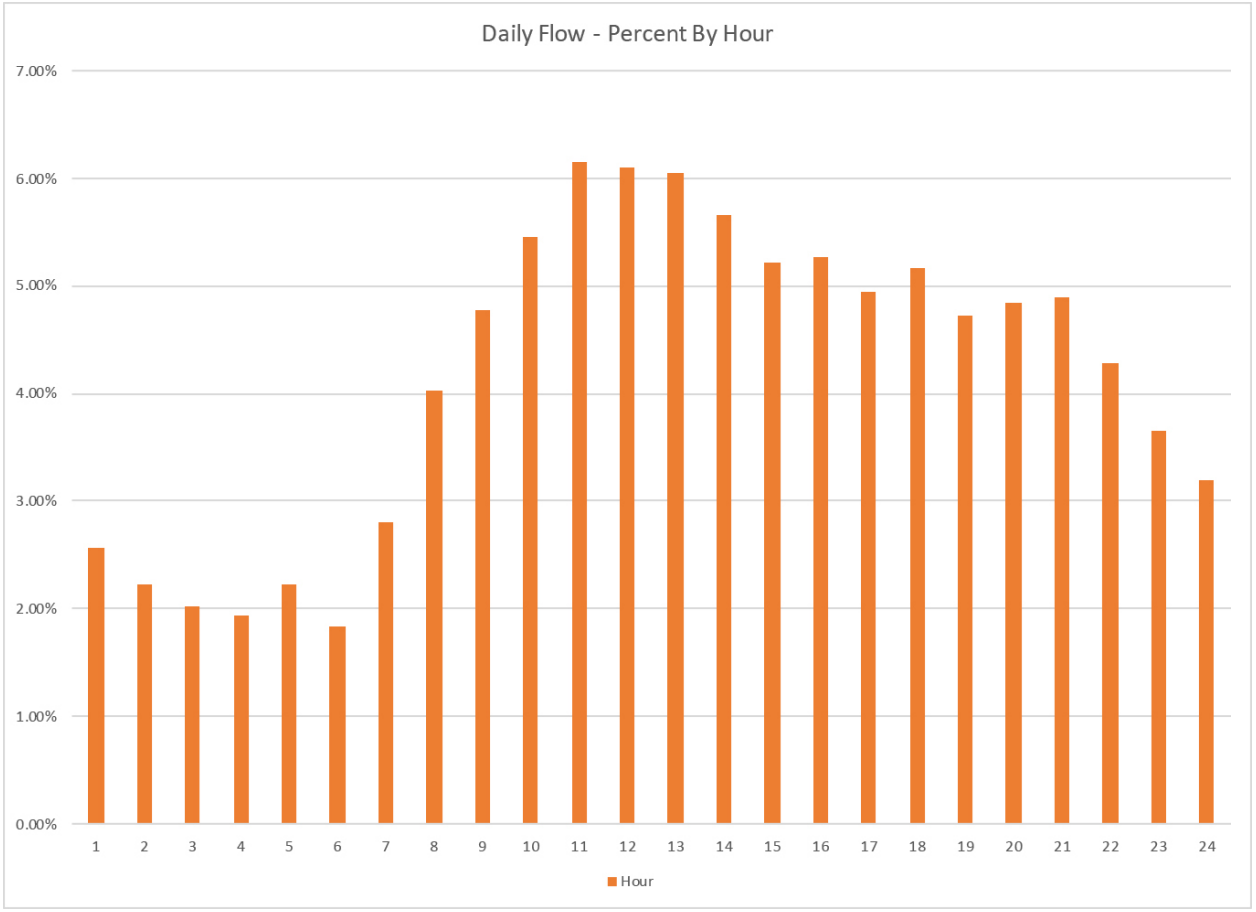
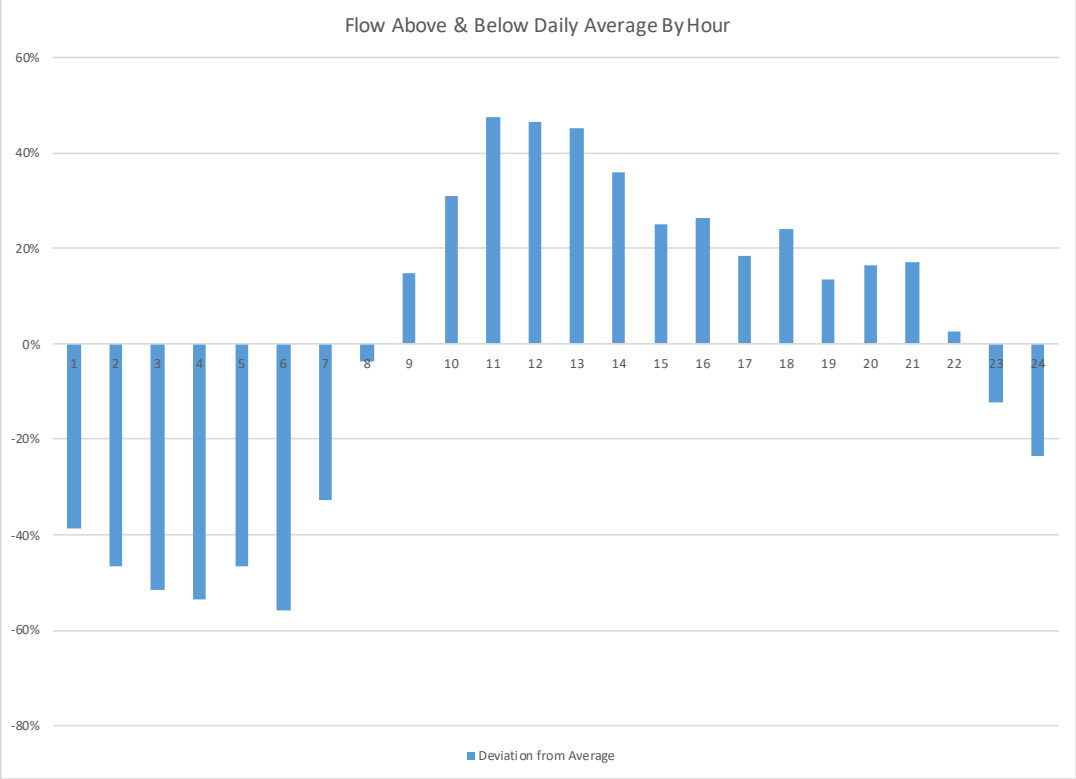


The Brookfield SCADA flow data shows the flow by hour in this residential region from the north area pump station. The peak flows noon time are about triple the flow for the night hours. The flow volume and diurnal pattern is consistent for all seven days in the week.



Requested design flow rate is 150,000 US Gallons/Day, that is 568 cubic meters/day.

Looking at the flow patterns another way, if the nameplate capacity of a prepackaged unit is 150,000 GPD, the system should handle daily peaks and valleys. Noon-time peak flows are about 50% above the average. That would be at an instant rate of 225,000 GPD for a nameplate 0.15 MGPD Wastewater Treatment Plant. It is acceptable to have the input flow peaks and valleys managed by storage solutions.



Prepared November 29, 2021