

FACT SHEET: OAK ORCHARD WASTEWATER TREATMENT PLANT (WWTP)

SPDES Permit No. NY - 0030317

4300 Oak Orchard Road, Clay, NY 13212

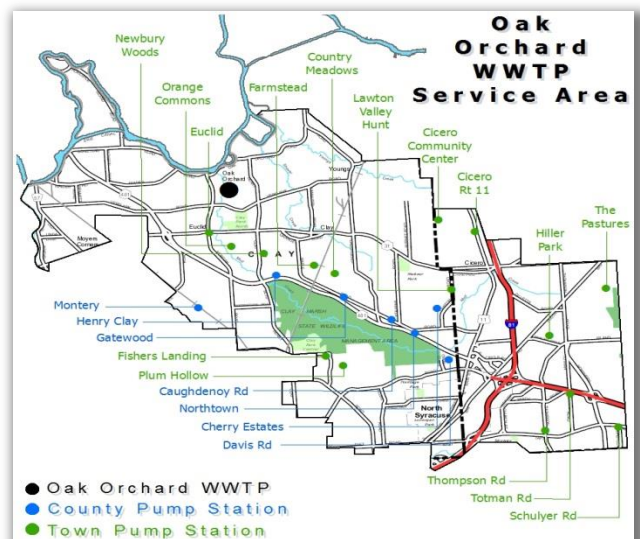


Service Areas

Constructed in 1981, the Oak Orchard WWTP has a design flow of 10 MGD and provides advanced secondary treatment of wastewater using an Activated Sludge Processes. Wastewater is collected throughout significant sections of the Town of Clay and portions of the Town of Cicero; along with the Village of North Syracuse. A system of gravity sewers and smaller pumping stations convey sewage from a large portion of the service area through trunk sewers to the Davis Road Pump Station. Flow from this pump station is transported over six (6) miles, through two interconnected force mains (24" and 36") that combine to form a single 30" force main at Euclid in the Town of Clay, which then conveys the sewage to the Oak Orchard WWTP influent headworks. Wastewater influent is primarily from residential and commercial sources, however there are some industrial users, such as Clintons Ditch Corp.

Treatment Process Description

The wastewater undergoes screening and grit removal in the headworks building, utilizing both a bar rack and a mechanical screen rake, followed by grit removal in two aerated grit chambers, which use a mechanical clamshell removal system. Wastewater then gravity flows from the mechanical screen rakes into the flow distribution structure, where the flow is evenly split between four (4) primary clarifier tanks. Settled solids in the primary clarifiers are pumped to the gravity thickeners and floating grease is removed. Wastewater then flows into the two (2) covered pure oxygen activated sludge aeration tanks, where biological treatment occurs. The treated wastewater (mixed liquor) then flows to the six (6) secondary clarifiers where solids settling occurs with the aid of a cationic polymer. Activated sludge collected in the clarifiers is recirculated to the aeration tanks and/or wasted to the two (2) gravity thickener tanks, where it is then hauled to the Metropolitan-Syracuse WWTP for further treatment. Effluent from the secondary clarifiers flows through a Parshall flume into two (2) natural lagoons, which operate in series. These lagoons act as polishing basins and aid in additional solids settling and aeration. Effluent from the lagoons then flows to the two (2) chlorine contact tanks, then two (2) dechlorination tanks for seasonal disinfection/dechlorination using sodium hypochlorite and sodium bisulfite, before discharge to the Oneida River. Total Phosphorus is removed year round with the use of aluminum sulfate. Seasonal nitrification is related to ambient temperatures. Odor control is accomplished with odors collected from the grit chambers and the covered primary overflow weirs.



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Treatment Plant Specifications

Grit Chambers (Grit Removal)	(2) Chambers – 34'L x 16'W x 12'D
	49,000 gal / tank
	98,000 gal – total
Primary Clarifier Tanks	(4) Tanks – 120'L x 28.5'W x 10.5'D
	269,500 gal / tank
	1,078,000 gal – total
Aeration Tanks	(2) Tanks – 108'L x 72'W x 9'D
	523,500 gal / tank
	1,047,000 gal – total
Secondary Clarifier Tanks	(6) Tanks – 140'L x 20'W x 10'D
	209,500 gal / tank
	1,257,000 gal – total
Lagoons	(2) Lagoons
	9,000,000 gal / each
	18,000,000 gal – total
Chlorine Contact Tanks	(2) Tanks – 83'L x 25'W x 10'swd
	155,200 gal / tank
	310,400 gal – total
Dechlorination Tanks	(2) Tanks – 34'L x 5.5'W x 8'swd
	11,190 gal / tank
	22,380 gal – total
Gravity Sludge Thickener Tanks	(2) Tanks – 40'dia x 8'swd
	75,200 gal / tank
	150,400 gal – total

Performance Data (2016)

Average Daily Data	
Design Flow:	10.0 mgd (peak 24.0 mgd)
Avg Flow:	5.3 mgd (peak 17.3 mgd)
Design BOD:	17,100 lbs/day
Avg Influent CBOD:	191 mg/L – 7,958 lbs/day
Avg Effluent CBOD:	3.1 mg/L – 136 lbs/day
Design TSS:	16,700 lbs / day
Avg Inf TSS:	136.0 mg/L – 5,963 lbs/day
Avg Eff TSS:	5.0 mg/L – 221 lbs/day
Avg Inf TP:	4.0 mg/L – 166 lbs/day
Avg Eff TP:	0.08 mg/L – 3.4 lbs/day
Avg Inf TKN:	32.5 mg/L – 1,361 lbs/day
Avg Eff TKN:	4.7 mg/L – 213 lbs/day

Annual Information	
Biosolids Hauled:	3,786,895 lbs/dry
Grit Hauled:	446 cu ft
Screenings Hauled:	3,561 cu ft
Grease Hauled:	10,259 cu ft
Alum. Sulfate Usage:	98,148 gal
Na Hypochlorite Usage:	3,464 gal
Cationic Polymer Usage:	191,312 lbs

*swd = side wall depth

*mgd = millions of gallons / day

SPDES Permit compliance history can be found at: <https://echo.epa.gov/>

Treatment Process Flow Diagram

