

## Transcend Standard Process Design Units & Associated Equipment List

Automated Design Tool	
Process area	Associated items
<b>Pre-treatment</b>	
coarse screen (20mm)	screen press, conveyor, container
fine screen (3 mm)	screen press, conveyor, container
Integrated pre-treatment unit	screen, grit chamber, container
Grit chamber	Aerated: bridge, blower, grease pump Vortex: axial-flow propeller, underdrive sand classifier, container
Alkalinity dosing	mixer, tank, dosing system, storage
<i>Neutralization (2)</i>	<i>mixer, tank, dosing system, storage</i>
Equalization Tank	<i>In-line and offline (1), pump, blower</i>
Primary Clarifier (circular, rectangular)	bridge, sludge pump, scum pump
<i>High-rate primary clarifiers and wet weather clarifiers (3)</i>	<i>Chemically enhanced primary treatment, Biologically enhanced primary treatment</i>
<i>Primary sludge fermenter (2)</i>	<i>bridge, sludge pump, scum pump</i>
<i>DAF (2)</i>	<i>Chemical tank, mixers, pumps, pressure tank, sludge collector</i>
<b>Biological treatment</b>	
Biological treatment (conventional AS, MBR, <i>MBBR (1), IFAS (1) and SBR (2)</i> with carbon, ammonia, N removal) <i>EBPR (2)</i>	mixers, aeration system, recycle pumps, external carbon dosing
<b>Chemical dosing</b>	
Chemical P removal (ferric, alum, PAC)	coagulation and flocculation tank, mixers, dosing system
Flocculation	polymer dosing system, rapid mixing and flocculation tank, mixers
<b>Main phase separation</b>	

Automated Design Tool

Process area	Associated items
Secondary clarifier (circular, rectangular)	clarifier bridge, WAS pumps
Discfilter (only for Organica FCR)	
<i>DAF (only for MBBR) (1)</i>	<i>Chemical tank, mixers, pumps, pressure tank, sludge collector</i>
<i>Lamella clarifier (2)</i>	<i>Lamella plates, sludge scrapers</i>
<b>Tertiary filtration</b>	
Discfilter	
<i>Cloths-Media Filter (3)</i>	<i>TBA</i>
<i>Dual-media filter (2)</i>	<i>TBA</i>
<b>Advanced treatment</b>	
<i>Membrane filtration (MF, UF, RO) (2)</i>	<i>TBA</i>
<i>Advanced oxidation (O<sub>3</sub>, H<sub>2</sub>O<sub>2</sub>) (3)</i>	<i>TBA</i>
<i>Gas stripping (3)</i>	<i>TBA</i>
<i>Ion exchange (3)</i>	<i>TBA</i>
<i>Adsorption – granular activated carbon (3)</i>	<i>TBA</i>
<b>Disinfection</b>	
UV, NaOCl, Cl <sub>2</sub> gas, ClO <sub>2</sub> gas	UV, chlorination tank, dosing system
<b>Sludge line</b>	
Sludge storage tank before thickening	sludge pump, blower
Polymer dosing	polymer preparation unit, dosing pump
Mechanical thickener	
Gravity thickener	
Sludge storage tank before anaerobic digestion	sludge pump, mixer
<i>Thermal hydrolysis (3)</i>	<i>TBA</i>
Anaerobic digester (Mesophilic, Thermophilic (3))	mixers, desulphurization, Gas holding tank, gas engine, gas burner, boiler

Automated Design Tool

Process area	Associated items
<i>Aerobic digester (2)</i>	aeration system, mixers, decanter
Sludge storage tank before dewatering	sludge pump, blower
Dewatering (centrifuge, belt press)	Sludge container, return flow pump
<i>Side-stream treatment (S2EBPR, Nutrient recovery, Anammox) (3)</i>	TBA
<b>Odor Control</b>	
Biofilter	fan
<i>Gas Stripping (3)</i>	TBA
<i>Adsorption (GAC) (2)</i>	TBA