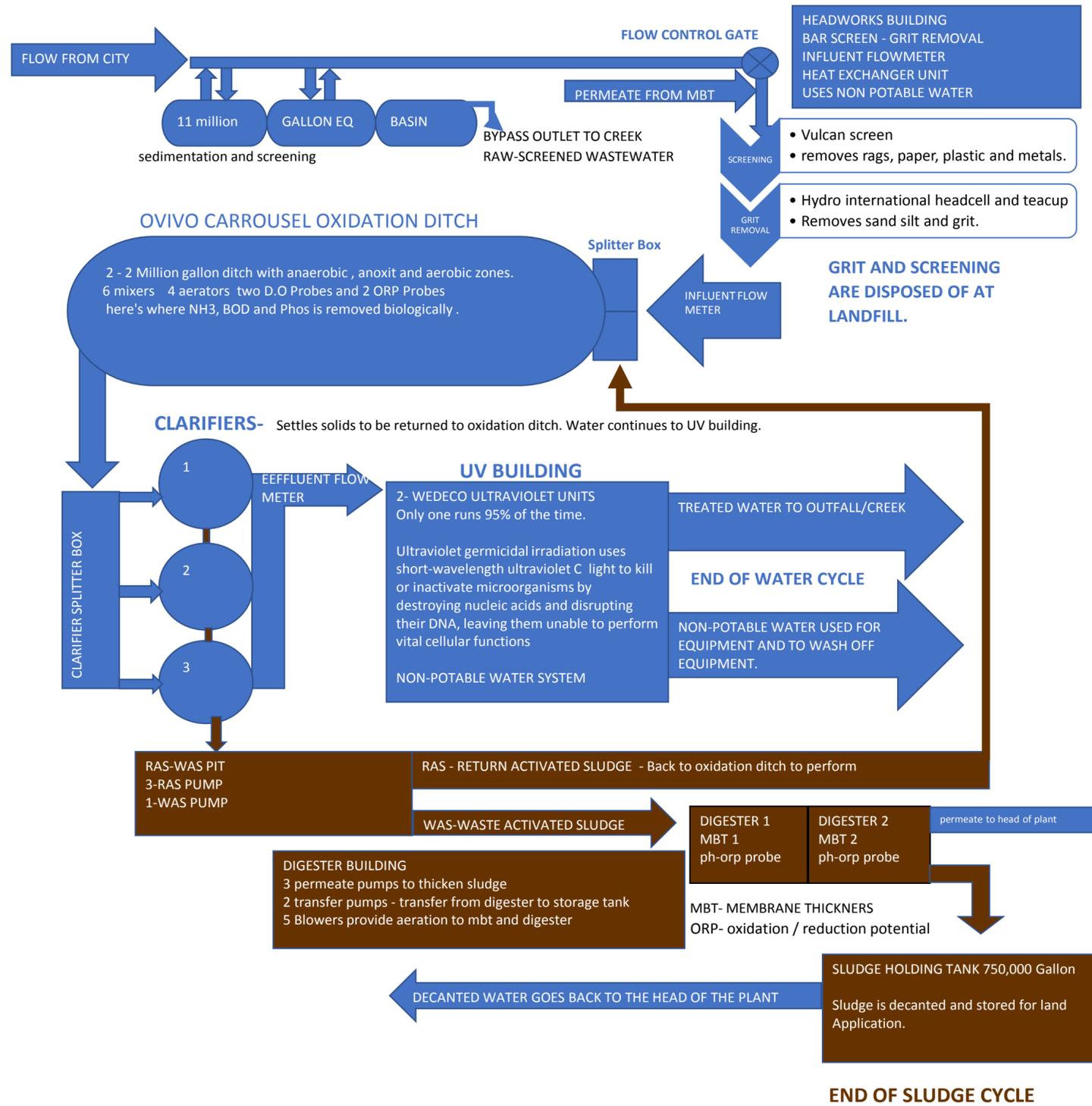


GRINNELL WATER RESOURCE RECOVERY FACILITY



AVERAGES

E.coli prior to disinfection 24,000 MPN/100ML
 E.coli after U.V Disinfection 10 MPN/100ML
 maximum mpn 03/15 - 11/15 = 630MPN/100ML

Biochemical Oxygen Demand 85% removal - maximum 883lb per day
 Influent B.O.D 150mg/l (1,876 lbs)
 New plant effluent BOD 4-10 mg/l (50-125lbs) 95-98 % removal
 Old plant effluent BOD 10-15 mg/l (125-187 lbs) 70-90 % removal

TOTAL NITROGEN NH3-NO2-NO3 no limits
 Influent 20mg/l (250 lbs)
 Old plant effluent 12mg/l (150lbs)
 New plant effluent 4mg/l (50lbs)

PHOSPHORUS - TOTAL P No limits
 influent 5mg/l (62.5lbs)
 Old plant effluent 4-5mg/l (50-62.5lbs) 10-20% removal
 New plant effluent 1-2mg/l (12.5-25lbs) 50-90% removal

NH3- Ammonia 1.0mg/l - summer up to 4.0mg/l winter
 Influent 20mg/l (250lbs)
 Old plant effluent 3mg/l (38 lbs)
 New plant effluent 0.1 mg/l (1.25lbs)

T.S.S - TOTAL SUSPENDED SOLIDS 85% removal required
 influent 200mg/l (2502lbs)
 Old plant effluent 10-20 mg/l (125-250lbs) 90% removal
 New plant effluent 10-20mg/l (125-250lbs) 90% removal

Nitrification 1.0-2.0 D.O
 For every lb of NH3 Oxidized to NO3
 4.18 pounds of oxygen are consumed
 7.14 pounds of alkalinity as calcium carbonate (as CaCO3) is consumed

Denitrification 0 - .5 D.O
 NO3 + Carbon source = N2 (nitrogen gas)

WATER STAYS IN THE SYSTEM AN AVERAGE OF 3 DAYS

SOLIDS- ACTIATED SLUDGE - STAYS IN THE SYSTEM BETWEEN 25-30 DAYS BEFORE IT IS WASTED TO THE DIGESTER

AVERAGE FLOW 1.5MGD

MAX WET WEATHER FLOW 10+MGD

OLD PLANT DESIGN CAPACITY

NEW PLANT DESIGN CAPACITY

1.371 mgd	ADW FLOW	1.666 mgd
3.711 mgd	AWW FLOW	4.236 mgd
5.0 mgd	MWW FLOW	6.538 mgd
2310lb	BOD LOADING	2931lb
194lb	NITROGEN LOADING	352lb
n/a	TSS LOADING	3820lbs