

## **UNIT 1 CONTENTS OF THIS SECTION**

### **Aerated Grit Chambers & Blowers**

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## **UNIT 1 PROCESS DESCRIPTION**

### **Aerated Grit Chambers & Blowers**

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#### **Material going into this unit**

Untreated sewage from the collection system enters the grit chamber.

#### **Process that takes place in this unit**

The unit removes sand and gravel and other road debris which can be abrasive and damage the plant's equipment if discharged into the facility. The grit chamber allows the grit to settle by gravity. The rolling action of the air maintains the sludge in suspension while allowing the grit to settle to the bottom. The grit is disposed of at a landfill.

#### **How this unit is controlled**

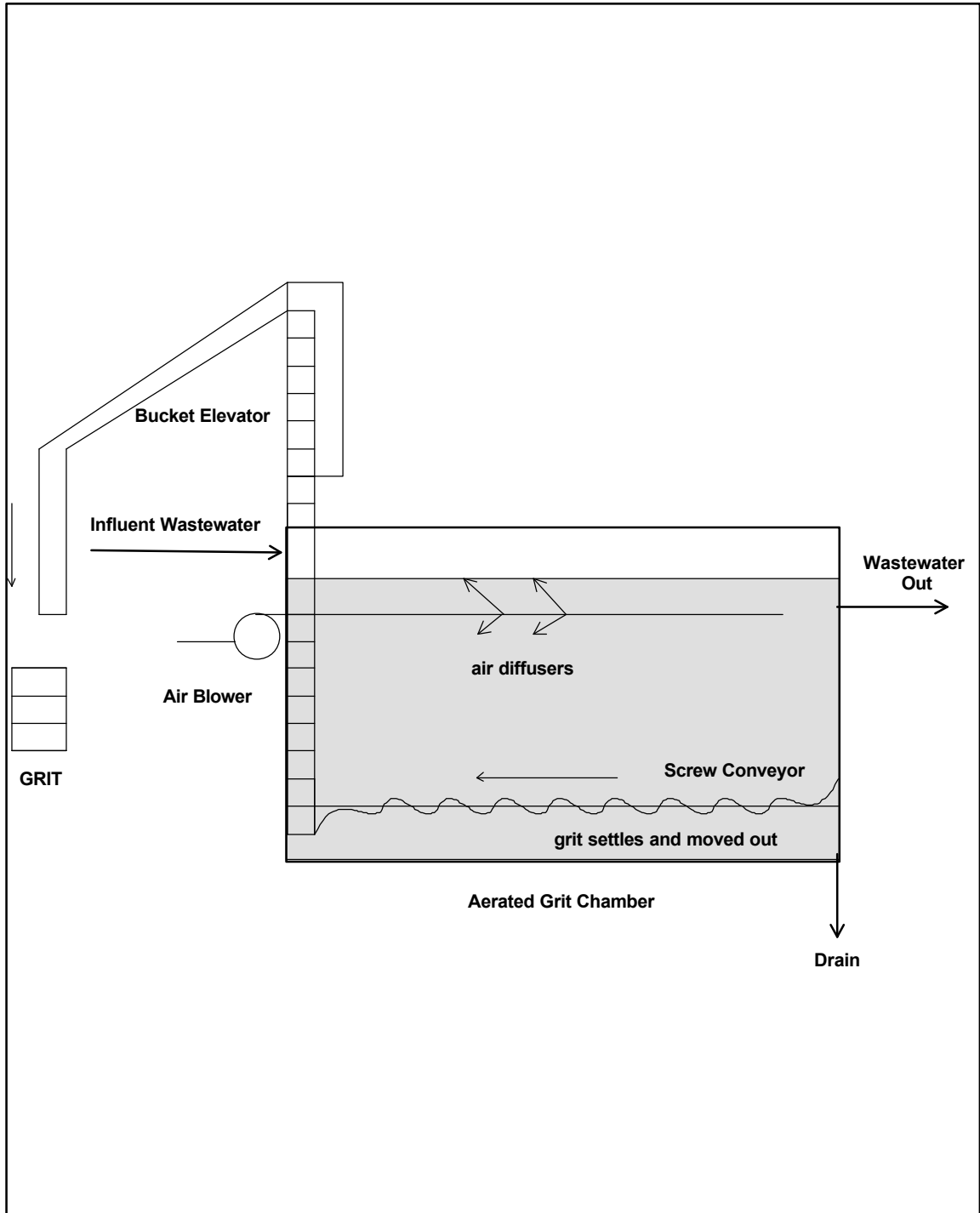
On-off switches and local panels control this unit. Control is manual.

#### **Material that leaves this unit and where it goes**

The degritted waters emerging from the degritting chamber flows into the primary clarifier.

## UNIT 1 PROCESS SCHEMATIC

### Aerated Grit Chambers & Blowers



## UNIT 1 EQUIPMENT LIST

### Aerated Grit Chambers & Blowers

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|         |                              |
|---------|------------------------------|
| A-101   | AERATED GRIT CHAMBER         |
| 3-T01-5 | AERATED GRIT CHAMBER BLOWERS |

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## UNIT 1 EQUIPMENT DATA SHEETS

### Aerated Grit Chambers & Blowers

#### Aerated Grit Chamber

Equip.No: A-101

Tag Num.:

quantity: 2

#### Description

Provides volume to reduce the speed of the wastewater as it enters allowing the grit to settle.

#### Equipment Location

On the East end of the plant, upstream of the setting tanks.



#### Components

Two chambers can be used alternatively.

Data                      date purchased

**CAPACITY RATING:**

12 MGD

**DIMENSIONS:**

50x100 feet

**WEIGHT:**

**Manufacturer**

## UNIT 1 EQUIPMENT DATA SHEETS

### Aerated Grit Chambers & Blowers

#### Aerated Grit Chamber Blowers

Equip.No: 3-T01-5

Tag Num.:

quantity: 3

#### Description

To blow air through the carbon beds

#### Equipment Location

Near the grit chambers towards the bottom



#### Components

Blowers and motors

Data date purchased

**CAPACITY RATING:**

100 CFM

**DIMENSIONS:**

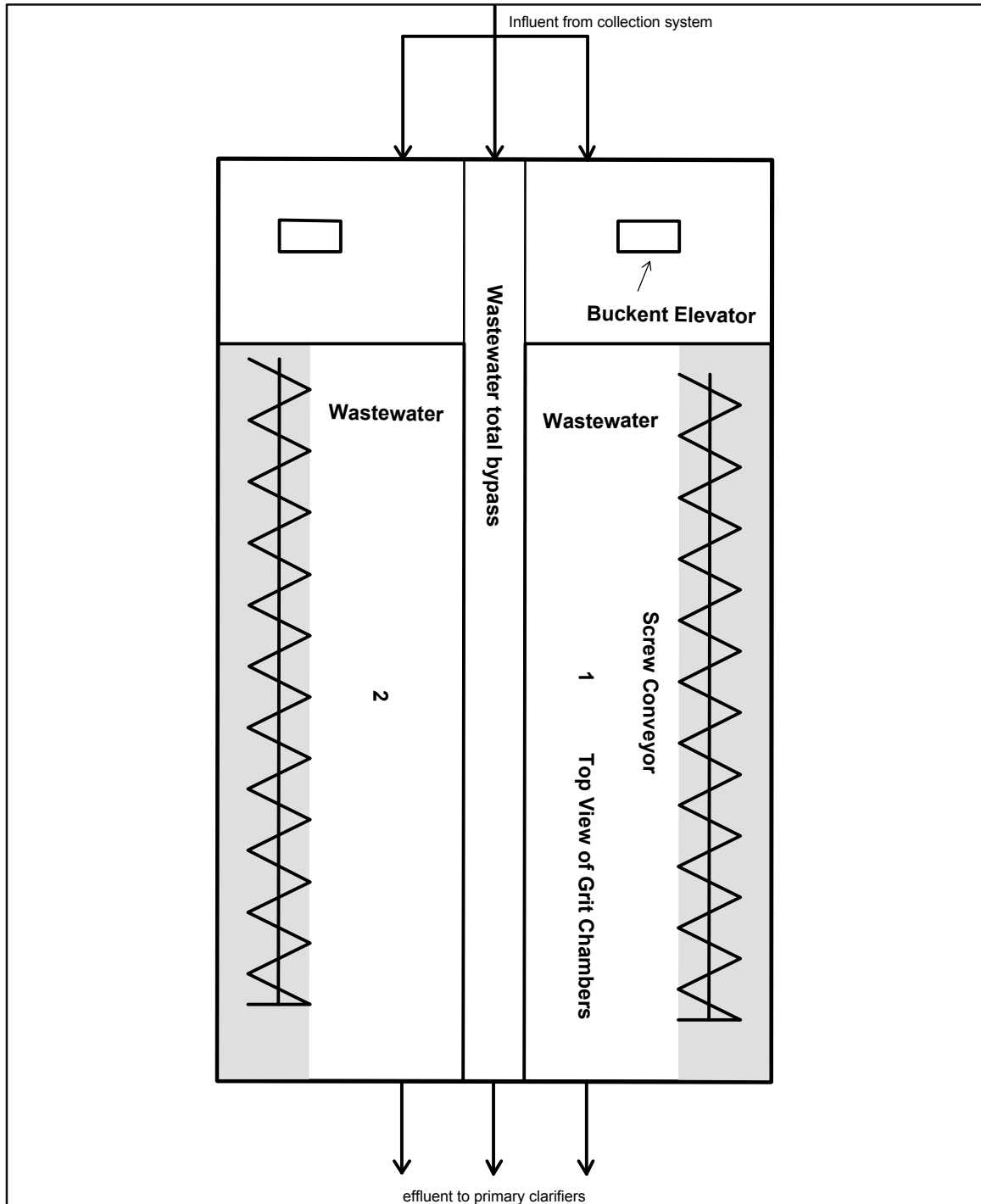
**WEIGHT:**

**Manufacturer**

# UNIT 1 EQUIPMENT SCHEMATIC

## Aerated Grit Chambers & Blowers

### A-101 Aerated Grit Chamber



## **UNIT 1 OPERATING PROCEDURES**

### **Aerated Grit Chambers & Blowers**

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**3-T01-5      AERATION TANKS**

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#### **1 STARTUP PROCEDURE**

##### OBJECTIVE

This an example of a procedure created with the Creation Tool. The objective of this procedure is to startup the chlorination equipment

##### PREPARATION

Before you begin, make sure all debris is clear and that you are wearing your mask and gloves.

##### CONTROLS

Controls should read normal before you begin. Do not proceed if any out of the ordinary lights are on.

##### AUTHORIZED PERSONNEL

Only trained personnel are permitted to use this procedure.

##### SAFETY PRECAUTIONS

Respiratory protection and chlorine safety procedures apply.

##### STEP BY STEP PROCEDURE

- 1) Verify that the flow has started.
- 2) Verify that it is moving.
- 3) Call the operator
- 4) See that it is running
- 5) Make sure noone is around



**UNIT 1 OPERATING PROCEDURES**

**Aerated Grit Chambers & Blowers**

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3-T01-5      AERATION TANKS

## UNIT 1 OPERATING PROCEDURES

### Aerated Grit Chambers & Blowers

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T-101

FINAL CLARIFIER TANK

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## 2 NORMAL OPERATING PROCEDURE

Under normal conditions, one of two aerated grit chambers will be in continuous service with a continuous influent flow.

During operation of the aerated grit chamber, routine inspections should be made daily. The grit color, quantity, and consistency should be checked. Too much organic matter may indicate that the air rate needs to be increased.

### Controlling the operation

**Flow Controls** The influent flow to the aerated grit chamber is determined by the influent flow to the Plant. During periods of heavy rain it may be necessary to place the second grit chamber on line.

The blowers are constant speed units. Control of air flow can be achieved by changing pulley sizes. This will change the blower operating speed and thus the air flowrate.

**Electrical Controls** The operation of the aerated grit chamber bucket elevator is controlled locally at the ON/OFF selector switch.

The operation of the blowers is normally controlled locally at the unit using the ON/OFF selector switch.

## UNIT 1 OPERATING PROCEDURES

### Aerated Grit Chambers & Blowers

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T-101

FINAL CLARIFIER TANK

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#### 5 ALTERNATE MODE

Two grit chambers have been provided. This allows for one of the units to be removed from service while maintaining flow to the other.

#### **Bypass, Shutdown and Drainage**

Before the aerated grit chamber tank is drained or dewatered, every effort should be made to identify the cause of the problem and to use available resources to correct it.

Bypassing the aerated grit chamber requires diverting the plant influent flow to the other grit chamber.

To remove the aerated grit chamber from service, the following steps should be taken:

1. Place the other grit chamber in service using the startup procedures outlined above.
2. Close the influent and effluent slide gates.
3. Open the tank drain leaving the air supply on while draining.
4. Hose down the tank walls as the liquid level drops.
5. When the tank is empty turn off the air blower and hose off the screw conveyor.
6. Close the drain valve.

## UNIT 1 TROUBLESHOOTING CHART

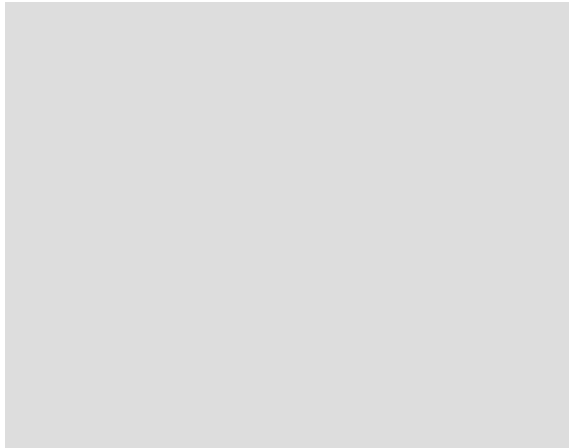
### Aerated Grit Chambers & Blowers

| Problem  | Cause   | Action   |
|--|---|--|
| <b>3-T01-5 AERATION TANKS</b>                      |   |  |
| Screw motors overheat                              | Debris impeding operation of screw and forcing motor  | Bypass flow to alternate grit chamber and service and clean the mechanical screw system. |
| <b>A-101 AERATED GRIT CHAMBER</b>                  |   |  |
| Odorous waters                                     | Debris that settled to the bottom is decomposing in the tank. The screw is not moving it out. | Divert flow to alternative chamber, empty this unit and service the screw conveyor.      |
| Dead spots in bubbling pattern or extreme bubbling | Possible plugging of diffusers with iron deposits   | Divert flow to alternative chamber and clean out diffusers.                              |

## UNIT 1 EQUIPMENT MAINTENANCE PROCEDURE

### Aerated Grit Chambers & Blowers

| A-101 Aerated Grit Chamber             |                        |                                |
|--|------------------------|--------------------------------|
| <b>FREQUENCY</b><br>every<br>1<br>days | <b>TAG NUMBER</b>      |                                |
|  | <b>PART NUMBER</b>     |                                |
|  | <b>PART MAINTAINED</b> | Tank walls and bucket elevator |
|  | <b>VENDOR MANUAL?</b>  | Yes                            |



*The aerated grit chamber needs to be hosed down*

#### BRIEF DESCRIPTION OF MAINTENANCE ACTION

Hose down the tank walls and clean any debris off the bucket elevator.

#### DETAILED MAINTENANCE PROCEDURE

1. Obtain hose from building B
2. Connect hose to water line A.
3. Hose down unit while in operation.

(note: this is an example only).