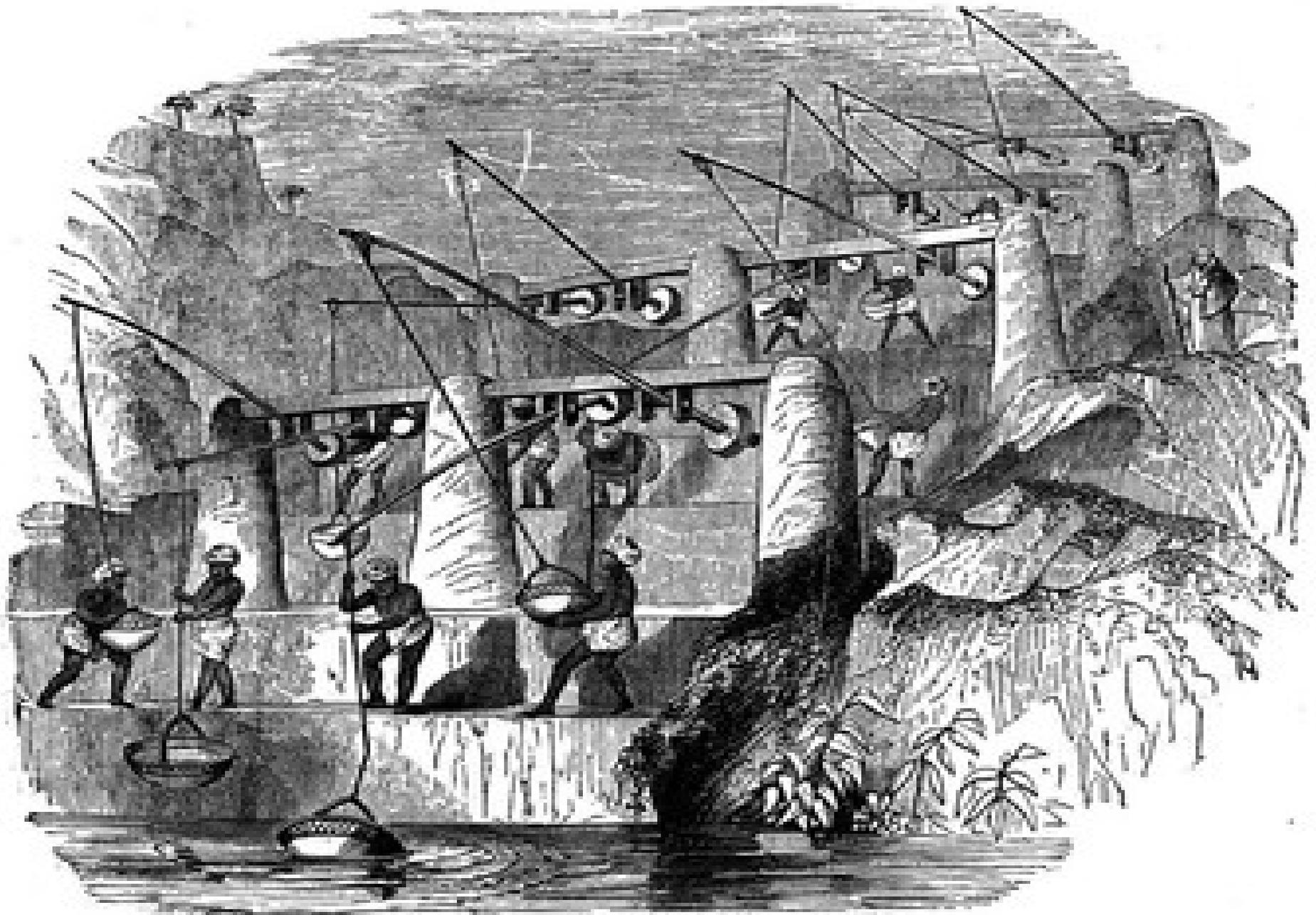


Irrigation Training Level One



Modern Shadoof.

Welcome



- What is your name
- What do you do?
- Which District are you from?
- What experience do you have in landscape irrigation?

Classroom Guidelines



- Class Date and Time
- Breaks
- Telephone & Restrooms
- Turn off Cell Phones and Pagers
- Keep Drinks in Covered Containers
- Clean Up any Spills

Ground Rules

- Participate
- Be on time
- Stay on task
- Share responsibility for training
- Listen when others talk
- Respect the opinions and attitudes of others
- Use flip chart for “Parking Lot”
- Turn off cell phones and pagers

Training Objectives

At the end of this course you will be able to.....



- Have a Basic Understanding of how an Irrigation System works
- Have a Basic Understanding of Irrigation Components
- Have a Basic Understanding of the Inspection of an ADOT Drip Irrigation System

Test Your Knowledge

1. Why do we irrigate desert plants?
2. What are the primary components of a drip irrigation system?
3. What is a backflow preventer?
4. What is a low pressure/volume system?
5. How is an irrigation system tested?

ADOT Construction Manual

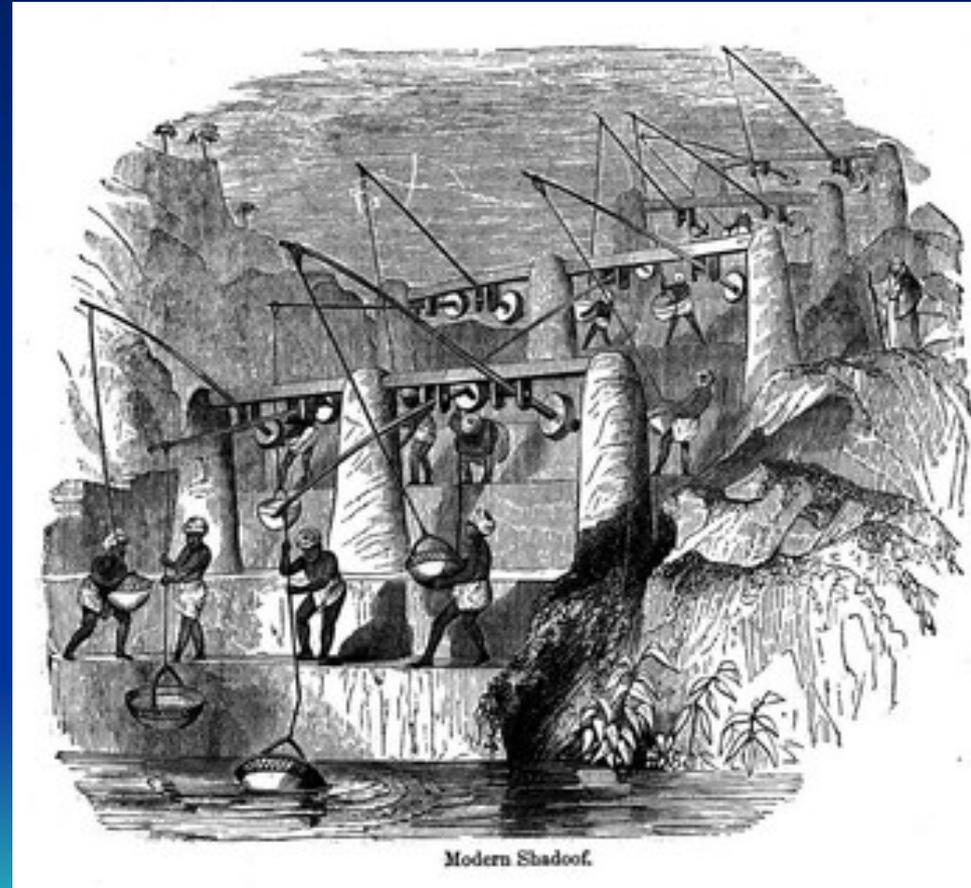
- Construction Manual Overview
- Section 808 Overview
- Glossary of Water Distribution Technology

Project Contract Documents

- Standard Specs & Drawings
- Special Provisions and Bidding Schedule
- Project Plans & Details

What is an Irrigation System

An Irrigation System is the controlled application of water to soil for the purpose of supplying the moisture essential for plant growth.



INSPECTION



Common Components of an Irrigation System

Water Meter

The water meter is the point of delivery of water to the irrigation system.



Common Components of an Irrigation System

Backflow Prevention

Backflow Definition

Backpressure

Backsiphonage

Backflow Prevention Process

Common Components of an Irrigation System

Backflow Definition

The unwanted reverse flow of liquids or solids in a piping system. Backflow can be caused by pressure of backsiphonage.

Common Components of an Irrigation System

Backpressure

Occurs when a pressure higher than the supply pressure is generated within the pipe system.

This could be due to elevation differences, a pump, or any other pressure-producing device.

Common Components of an Irrigation System

Backsiphonage

Occurs when atmospheric pressure forces water through a cross connection. This takes it into the potable water system in which a below-atmospheric pressure exists.

Common Components of an Irrigation System

Backflow Prevention Process

The process of separating the potable water from the irrigation system water. It is extremely important that the backflow prevention device be installed and maintained properly. Incorrect installation and/or maintenance can lead to the most potential legal issues of contamination of the potable water system.

Common Components of an Irrigation System

- ***Reduced Pressure Assembly***

A reduced pressure assembly (RPA) is designed to protect against backflow, back siphonage and backpressure. RPA is one of the highest forms of backflow prevention, and is used where there is a high degree of hazard such as an irrigation system.



Common Components of an Irrigation System

- **Pressure Vacuum Breaker**

A pressure vacuum breaker (PVB) is designed to protect against backflow and backsiphonage. A PVB is used where there is a moderate degree of hazard such as a small city maintained landscape area.



Common Components of an Irrigation System

- ***Atmospheric Breaker***

An atmospheric vacuum breaker (AVB) is designed to prevent back siphonage only. It is installed directly after a remote control or gate valve and is not meant to be under continuous pressure.



Common Components of an Irrigation System

Backflow Preventer Locations



Common Components of an Irrigation System

Definition

CONTROLLER

An electronic device used to automate an irrigation system and is the brain of the unit.

Common Components of an Irrigation System

Controller Types & Locations:

- *Motorola Irrinet (MIR-5000-i)*
- *Motorola Scorpio (MIR-5000s)*
- *Other Types of Electrical Controllers*
- *Solar*
- *Battery*

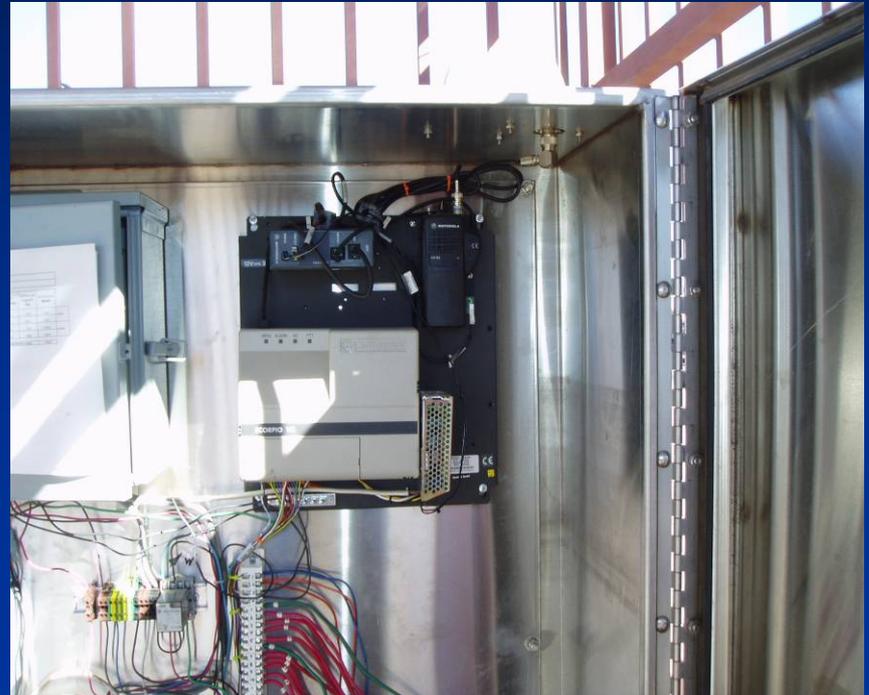
Common Components of an Irrigation System

*Motorola Irrinet
(MIR-5000-i)*



Common Components of an Irrigation System

*Motorola Scorpio
(MIR-5000s)*



Common Components of an Irrigation System

Other Types of Electrical Controllers



Common Components of an Irrigation System



Solar

Battery



Common Components of an Irrigation System

- Controller Locations
 - Large Projects
 - Small and City Projects

Common Components of an Irrigation System



Common Components of an Irrigation System

Filters

The purpose of the filter is to keep the irrigation system free of particles that could clog the system, blocking irrigation water resulting in the plant material dying.



Common Components of an Irrigation System

- Filters
 - Types
 - Locations

Common Components of an Irrigation System

- Filter Types
 - Screen
 - Media: uses sand, gravel, etc. to catch debris much like a swimming pool filter.
 - Disc: are composed of a series of stacked plastic discs.



Common Components of an Irrigation System

ADOT Specifies:

The most commonly used type of filters on ADOT projects are, **Screen Filters**, which can remove a wide range of contaminants. These filters use a metal screen (hence the name) to catch particles in the water, which are then flushed from the system.

Common Components of an Irrigation System

- Locations of Screen Filters



Common Components of an Irrigation System

Valves

A valve is a mechanical device for controlling the flow of water.

Common Components of an Irrigation System

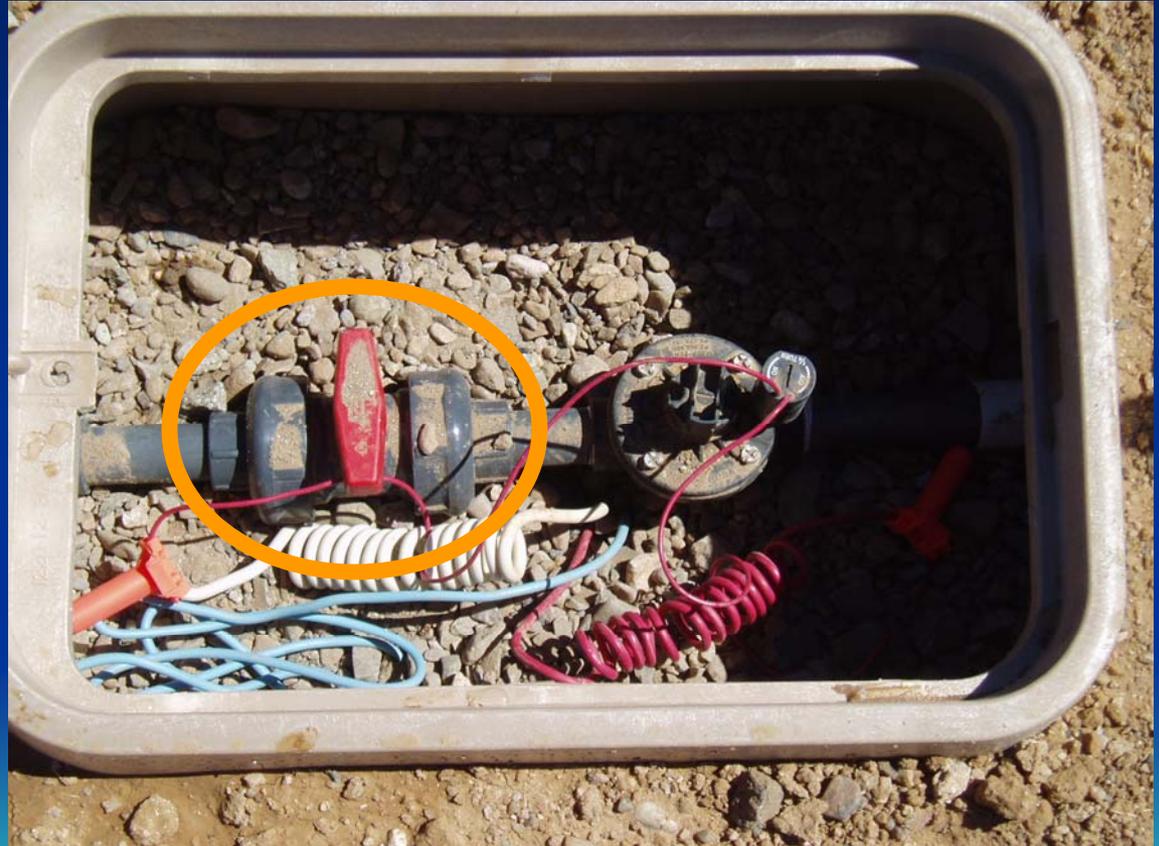
Manual or Isolation Valve Types:

➤ Ball

➤ Gate

Common Components of an Irrigation System

Ball Valve



Common Components of an Irrigation System

Gate Valve



Common Components of an Irrigation System

Electronic Valve Types:

- **Master**
- **Remote Control**

Common Components of an Irrigation System

Master Valve



Common Components of an Irrigation System

Remote Control Valve



Common Components of an Irrigation System

Other Valve Types:

- Pressure Release
- Check
- Blow Off
- Quick Coupler
- Schrader

Common Components of an Irrigation System

Pressure Release Valve



Common Components of an Irrigation System

Check Valve



Common Components of an Irrigation System

Blow Off Valve

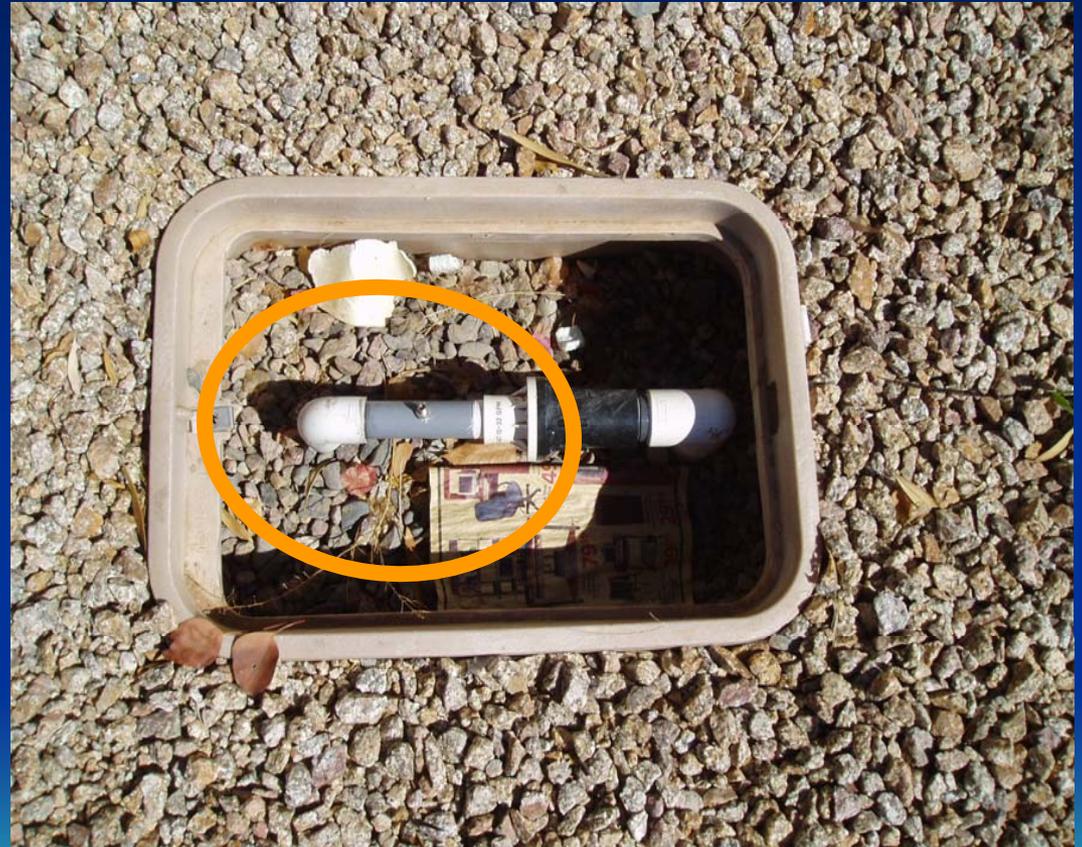
Common Components of an Irrigation System

Quick Coupler
Valve



Common Components of an Irrigation System

Schrader Valve



EXERCISE 1