DLC RESOURCES®
THE LANDSCAPE MANAGEMENT EXPERTS

First Steps in Assessing a New Property to Manage

Background

- Current Director of Water Management at DLC Resources
- Over 16 years of experience in the industry and has a strong background in irrigation design and water management for large-scale properties.
- Certifications include: Irrigation Association
  - CLWM, CID, CLIA, CIC
- U.S. Environmental Protection Agency WaterSense Partner, Tucor Factory Trained

Where do you start???

What’s the Goal?

The ability to provide:
The right amount of water at the right times for a healthy landscape. This is done through efficient irrigation application and proper water management.

How to meet the goal

The old adage….You can’t manage what you can’t measure!

How to meet the goal

Create a foundation to manage and measure!

- **Mapping**
  - **Irrigation components**
  - **Landscape Area**
  - **Water Source Mapping**
- **Data collection**
  - **Water bills**

At the completion of project

You want to measure what you manage!

Usage Reports/Progress Reports/maintaining within a <u>budget/great looking landscape</u>

= PROOF OF VALUE

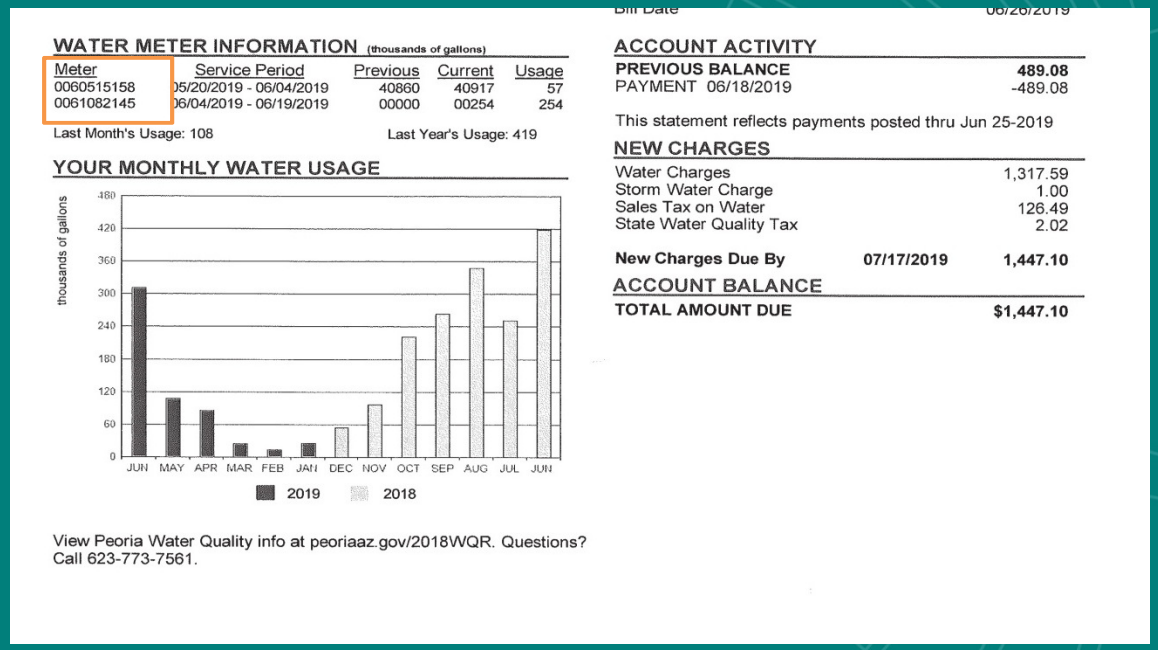
Where do you start???

Fact Gathering before kickoff

- As-builts, Construction Plans
- Any available maps
  - Google Earth
- Utility Bills
- Gate codes, Keys, combination locks
- Remote capability of existing controllers

Learn the Property

- **Map Water Meter**



Bill Date 06/26/2019

WATER METER INFORMATION (thousands of gallons)

Meter	Service Period	Previous	Current	Usage
0060515158	05/20/2019 - 06/04/2019	40860	40917	57
0061082145	06/04/2019 - 06/19/2019	00000	00254	254

Last Month's Usage: 108 Last Year's Usage: 419

YOUR MONTHLY WATER USAGE

View Peoria Water Quality info at peoriaaz.gov/2018WQR. Questions? Call 623-773-7561.

ACCOUNT ACTIVITY

PREVIOUS BALANCE		**489.08**
PAYMENT 06/18/2019		-489.08

This statement reflects payments posted thru Jun 25-2019

NEW CHARGES

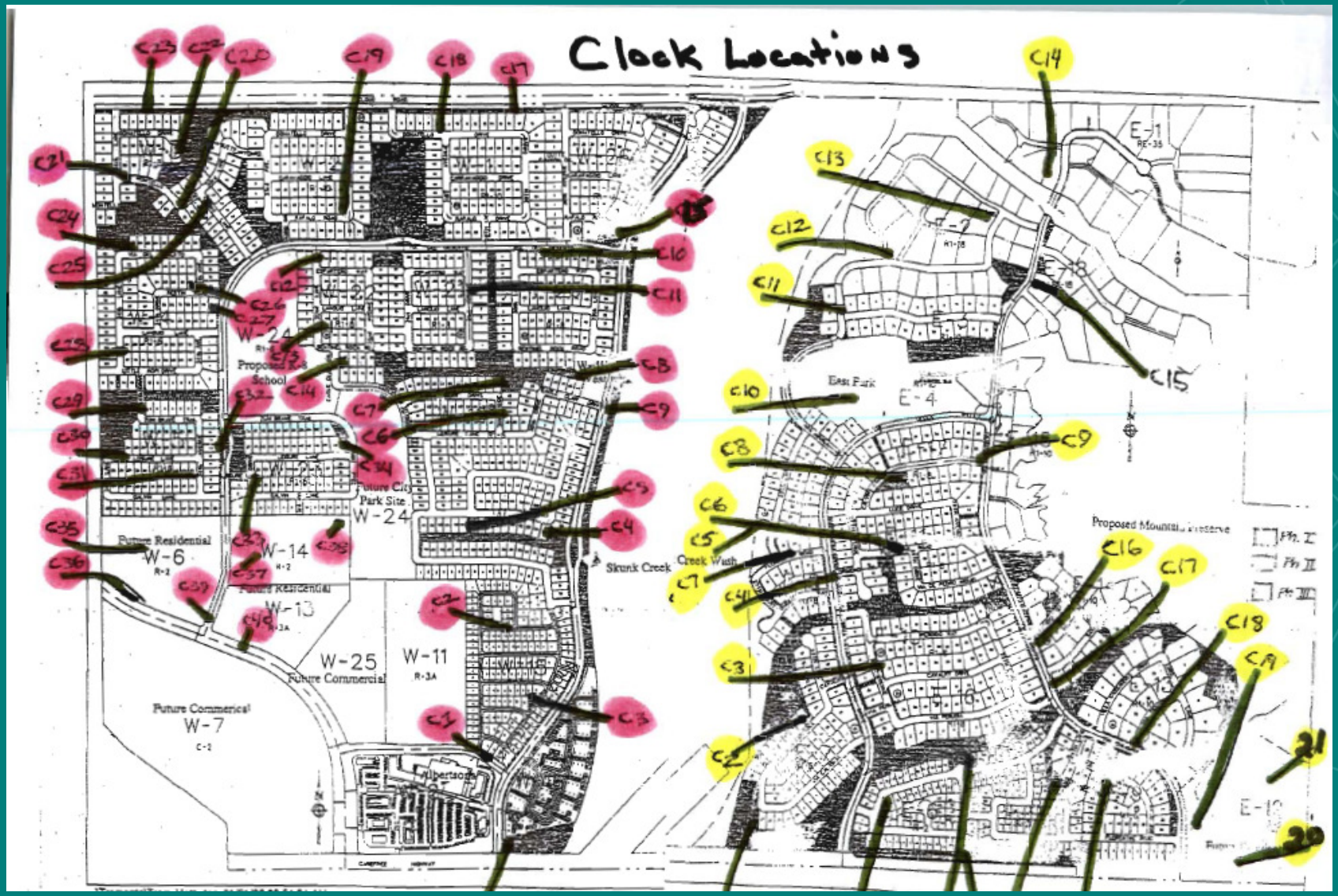
Water Charges		1,317.59
Storm Water Charge		1.00
Sales Tax on Water		126.49
State Water Quality Tax		2.02
New Charges Due By	**07/17/2019**	**1,447.10**

ACCOUNT BALANCE

TOTAL AMOUNT DUE	**$1,447.10**

Learn the Property

- **Map and Quantify Major Components**



Learn the Property

- **Map and Quantify Major Components**

Irrigation Components

- Controllers - 107
- M Corp Controllers - 7
- Back Flows - 132

Meter Status

- Landscape - 113
- Non-Landscape - 1

Notes:

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Map All Major Components

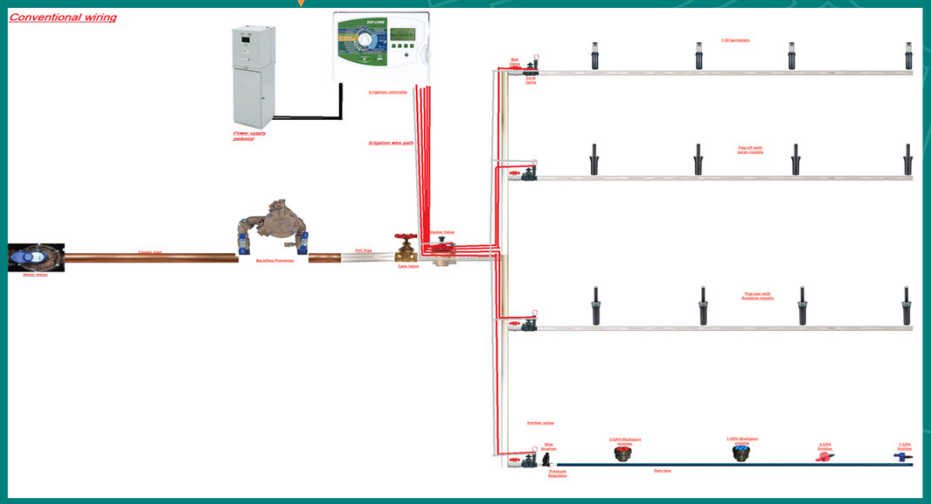
Mapping (Major Components)	1	**Water Source**	
		Potable Systems	
		a	Water Meters
		b	Backflows
		Non-Potable/Reclaimed Systems	
		a	Pump Station
		b	Isolation Valves
	2	**Controllers**	
		a	Standalone Controllers
		b	Cloud Based Controller
		c	2 Wire controller/Decoder System
		d	Central control system
			Weather Stations

Now that all major components are mapped

- Next Step
- Assess the functionality of the irrigation system

Irrigation Assessment

Organization is essential



Irrigation Assessment

Organization is essential

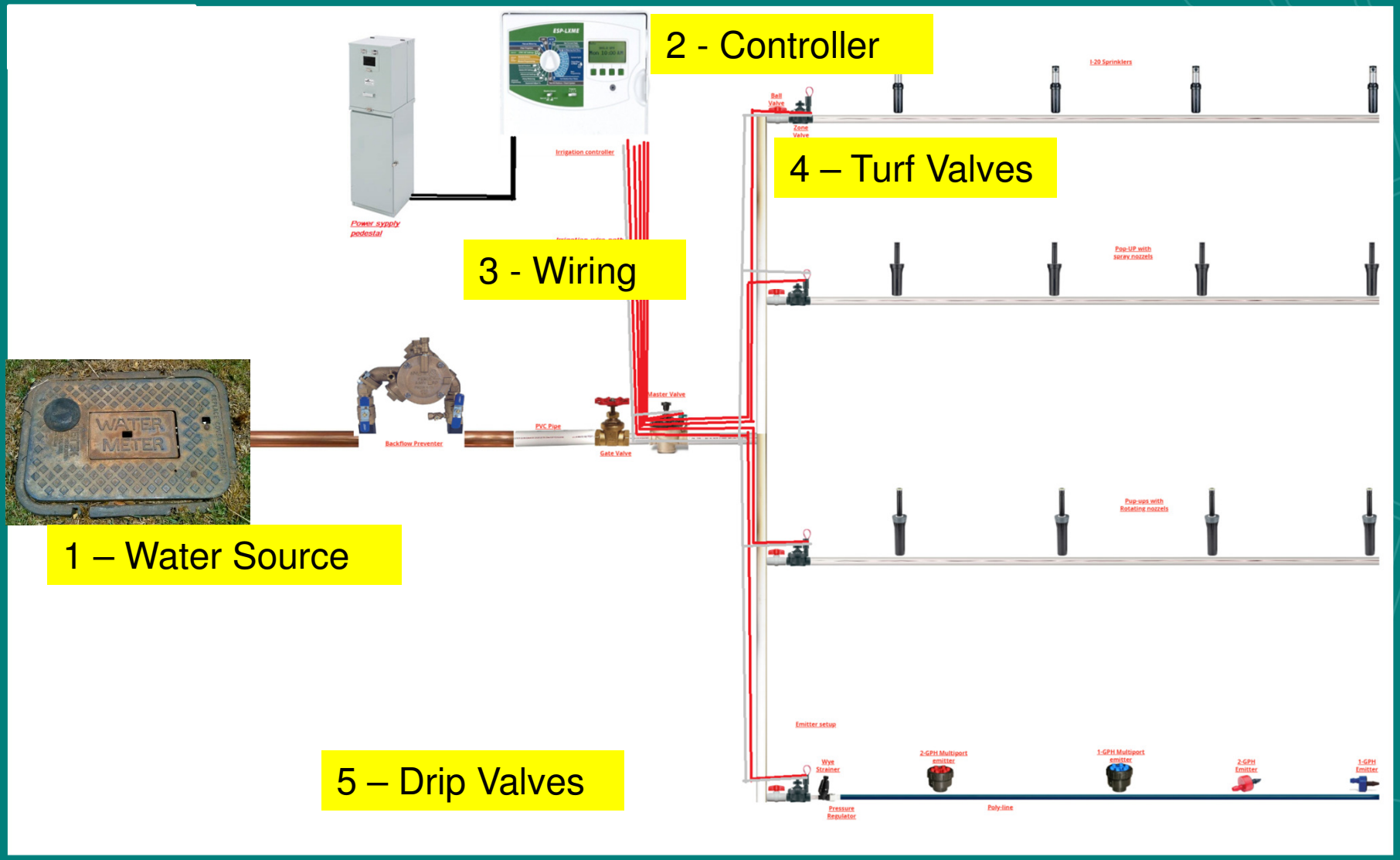
Job #

Date:

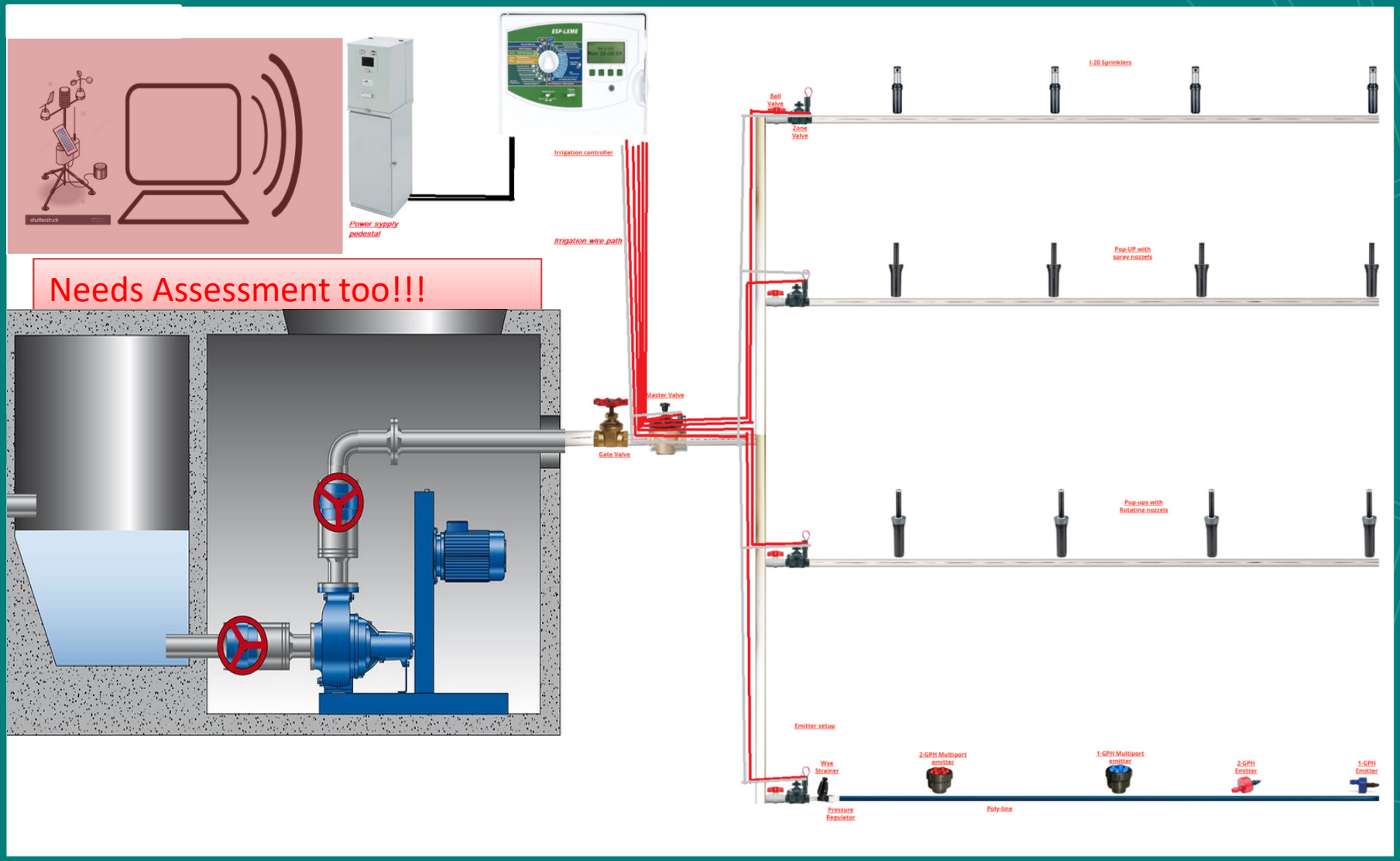
Clock # ***Make:*** ***Model:***

Valve station	Total Min per Week	Run Times					Head Type			Performance	
		A	B	C	D	E	Rotor (Mixed, Full, Half) Spray, Drip	Rotor Brand and Series *(Example - Hunter I-20)*	Nozzle #	PSI	Precip Rate
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											

System Overview



System Overview



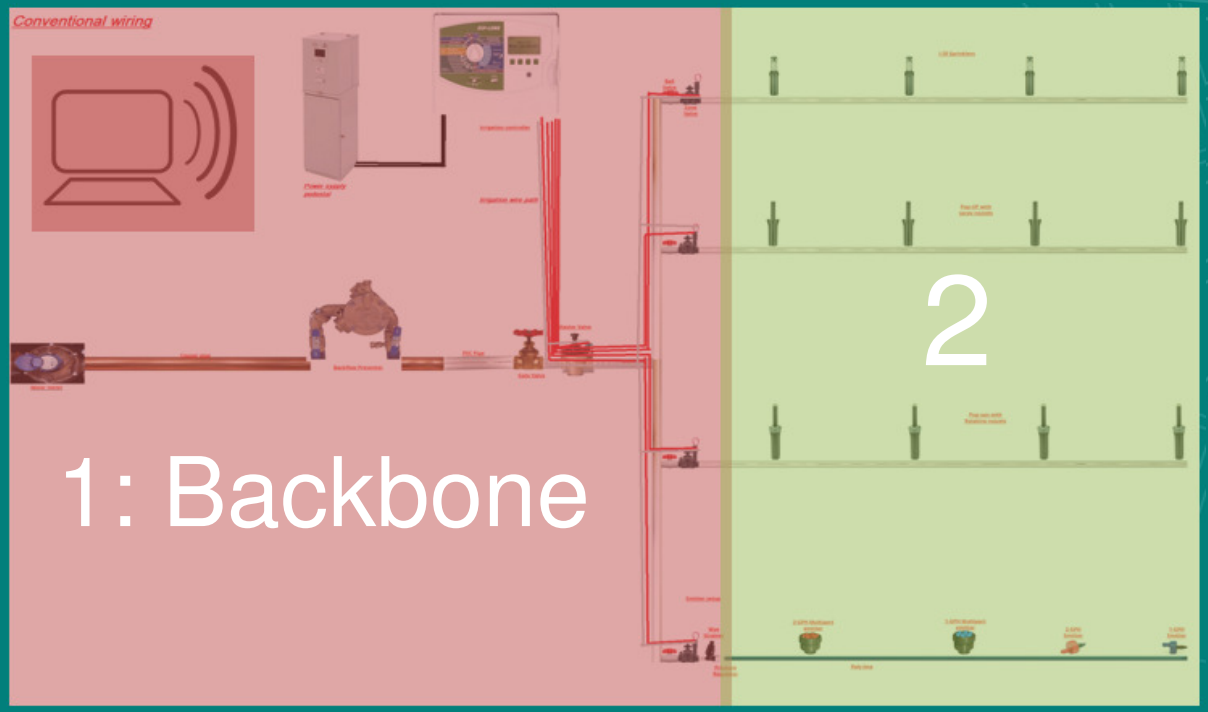
Backbone Assessment

The Backbone of the system

- Includes everything upstream of the valve. It must all work otherwise #2 does not matter.

Downstream of the Valve

- Once the backbone of the system is solid and it all works, then downstream of the valve (#2) can be focused on. This relates to the efficiency of the system.



Backbone Assessment

- Water Source Assessment

Potable Water Source or Non-Potable

Backbone Assessment

Potable Water

– For each Water Meter, what is the Pressure and Meter Size?

This will help determine the potential of the irrigation system and will help with future trouble shooting.

– Is the water meter needle moving while the controller is off indicating problems?

Backbone Assessment

Backbone Assessment

- Water Source Assessment

Potable

GPM FOR METER VS PSI

SERVICE LINE SIZE	METER SIZE	GPM @ 40 PSI	GPM @ 50 PSI	GPM @ 60 PSI	GPM @ 70+ PSI
3/4"	5/8"	8	8	9	9
3/4"	3/4"	10	10	12	14
1"	1"	18	18	20	24
11/2"	11/2"	30	38	40	45
2"	2"	50	60	68	72

This is just a guide!

Backbone Assessment

- Non-Potable Water
- Who is responsible for assessing this?

Backbone Assessment

Non Potable Water

- In most cases, the pump station and water source (i.e. lake, wells, etc.)is not maintained by the landscape contractor.

However……

- Water quality directly impacts the irrigation system performance and quality of landscape.

Backbone Assessment

Non Potable Water

- Work with the community on getting an assessment completed on all aspect of the Water Quality and Pump station.
- The result of the assessment should include recommendations to fix all aspects.

Backbone Assessment

Non Potable Water

This includes assessing:

- Water Quality
- Pump Station
- Fertigation System
- Acid Injector
- Fertigation

Backbone Assessment

Does it connect???

Backbone Assessment

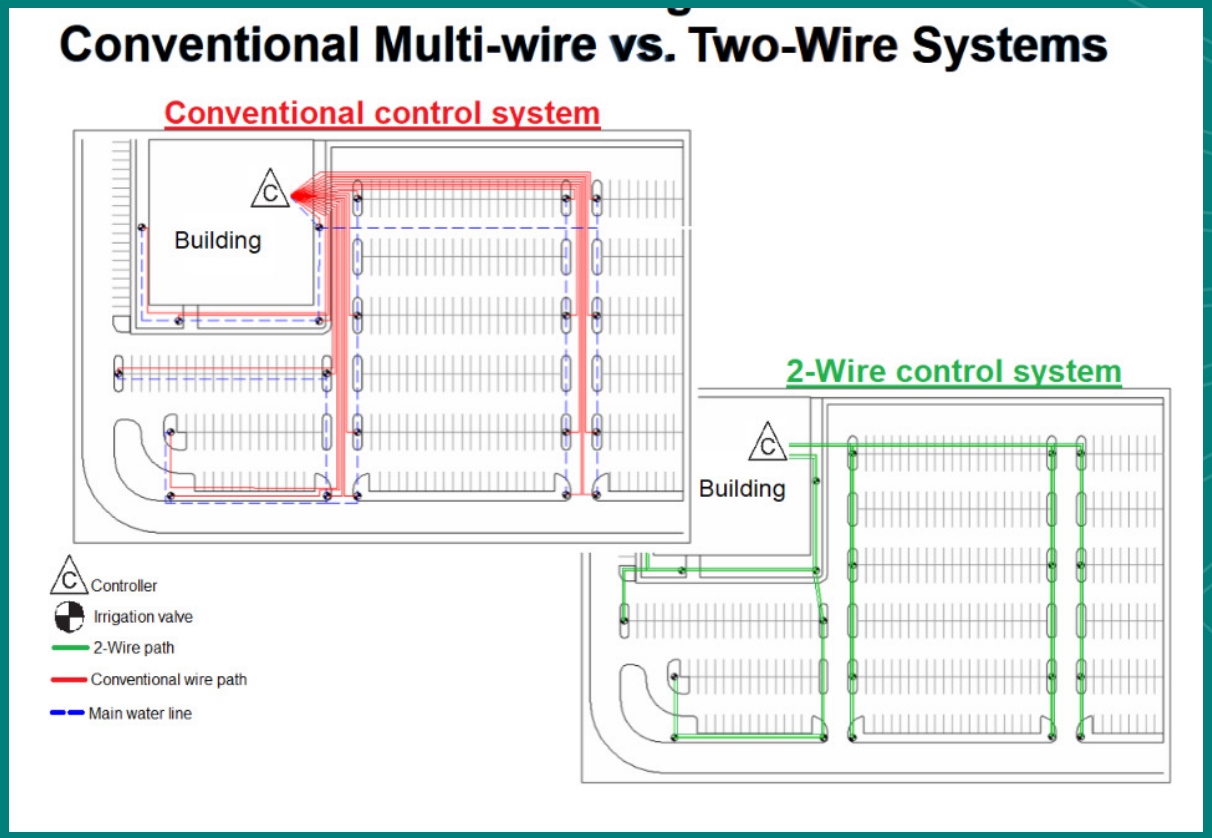
- Communication Assessment
  - Could include:
    - Cell cards
    - Modems
    - 2 wire communication line/phone line
    - Radios
    - Computers/hardware components
    - Unpaid dues!
  - Get the vendors involved to help the assessment if there are communication problems

Backbone Assessment

- Controller Assessment
  - Make & Model
  - 2 wire system or conventional?
  - How many stations are hooked up?
  - Are there sensors installed and functioning?
    - Rain Sensor
    - Flow Sensor
  - Controller Map or Station Legend?
  - Correct Date and Time
  - Is controller grounded?

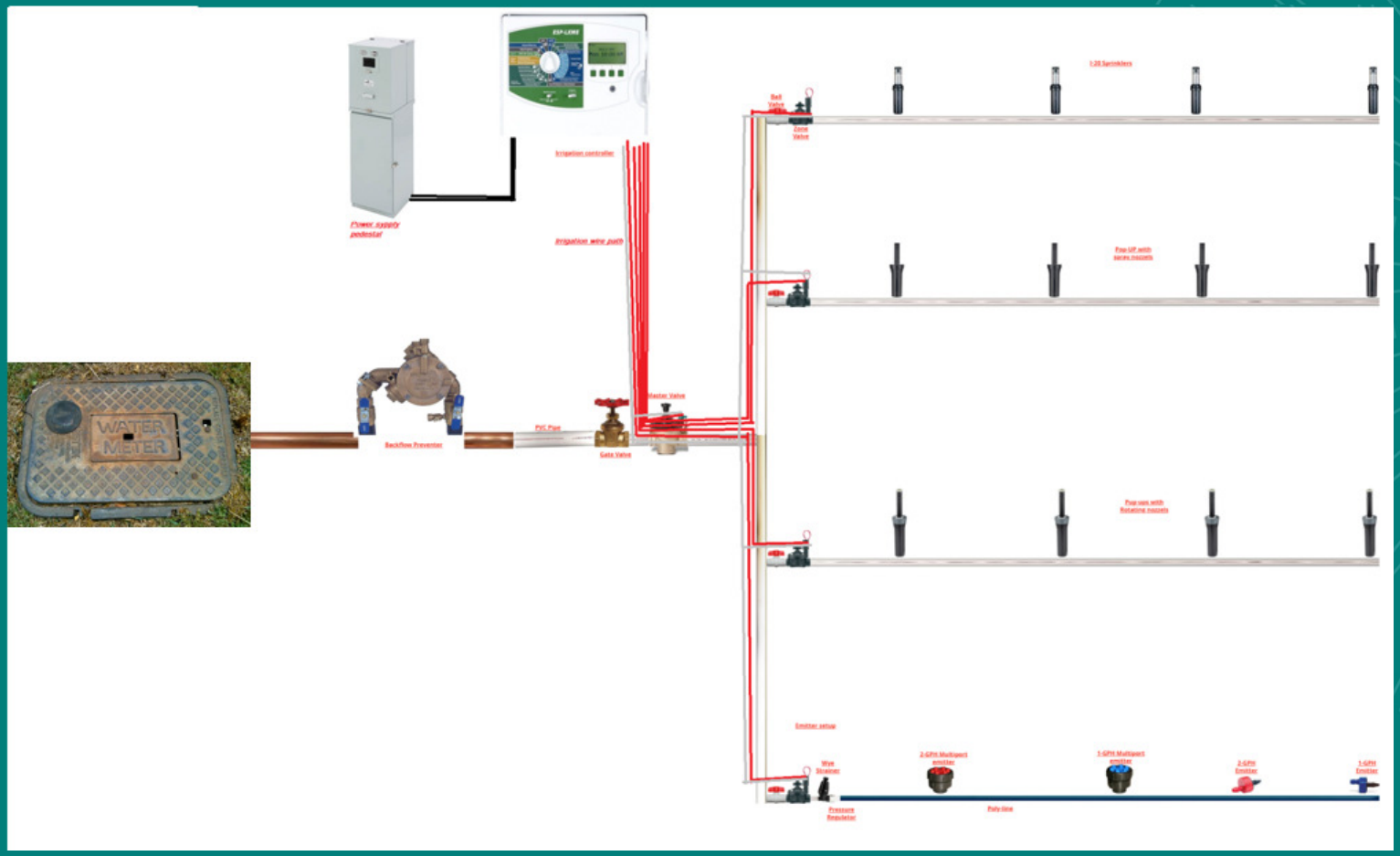
Backbone Assessment

- Wiring Assessment



Backbone Assessment

- Conventional Wire

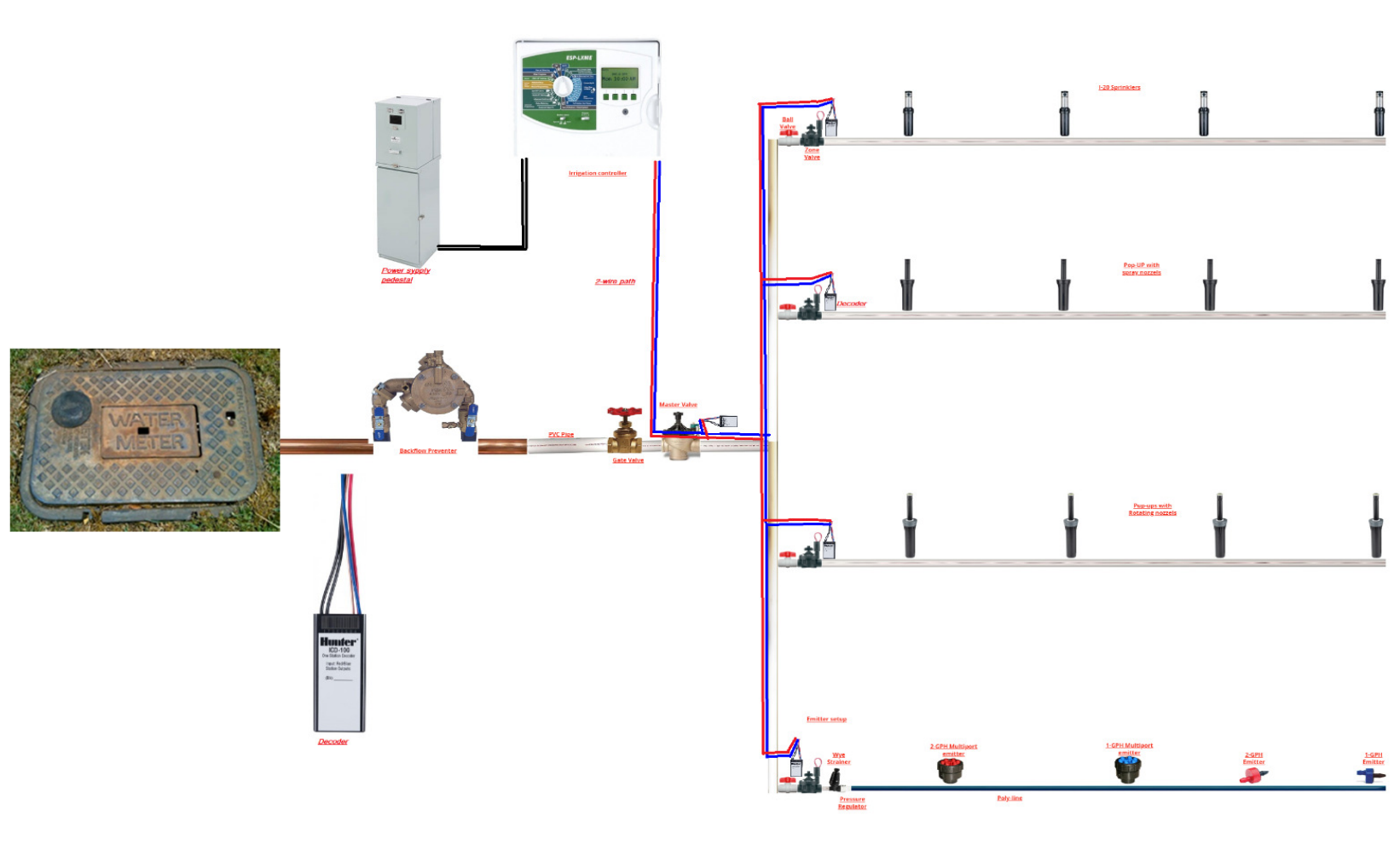


Backbone Assessment

- Conventional Wire Assessment
  - Controller Diagnostics
  - Continuity test (from the controller)
    - Good (20 – 60 ohms)
      - Rainbird = 33 ohms
      - Irritrol (economy valve)= 21 ohms
      - Hunter = 24 ohms
    - Short (20 and under)
    - Open (60 and over
  - Document the # of station Wires
  - Flow Check (with a remote)

Backbone Assessment

- Two Wire System



Backbone Assessment

- Two Wire Assessment
  - Controller Diagnostics
  - Flow Check (with a remote)
  - Asbuilts???

Backbone Assessment

- Locate/map all the valves
  - Consider locating the turf valves first.
    - Turf uses 5x-10x more water then DG
    - Expectation for turf is that it is wall to wall green
    - In many communities Turf is king!

Goal is to make sure the turf valves operate without problems

Backbone Assessment

- Each valve box should be opened and inspected.

Backbone Assessment

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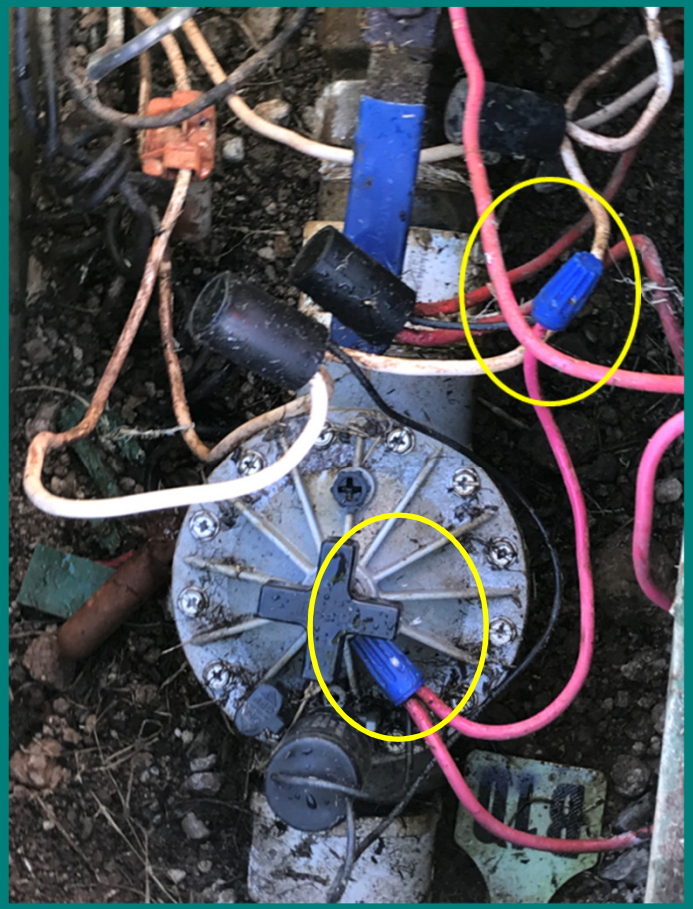
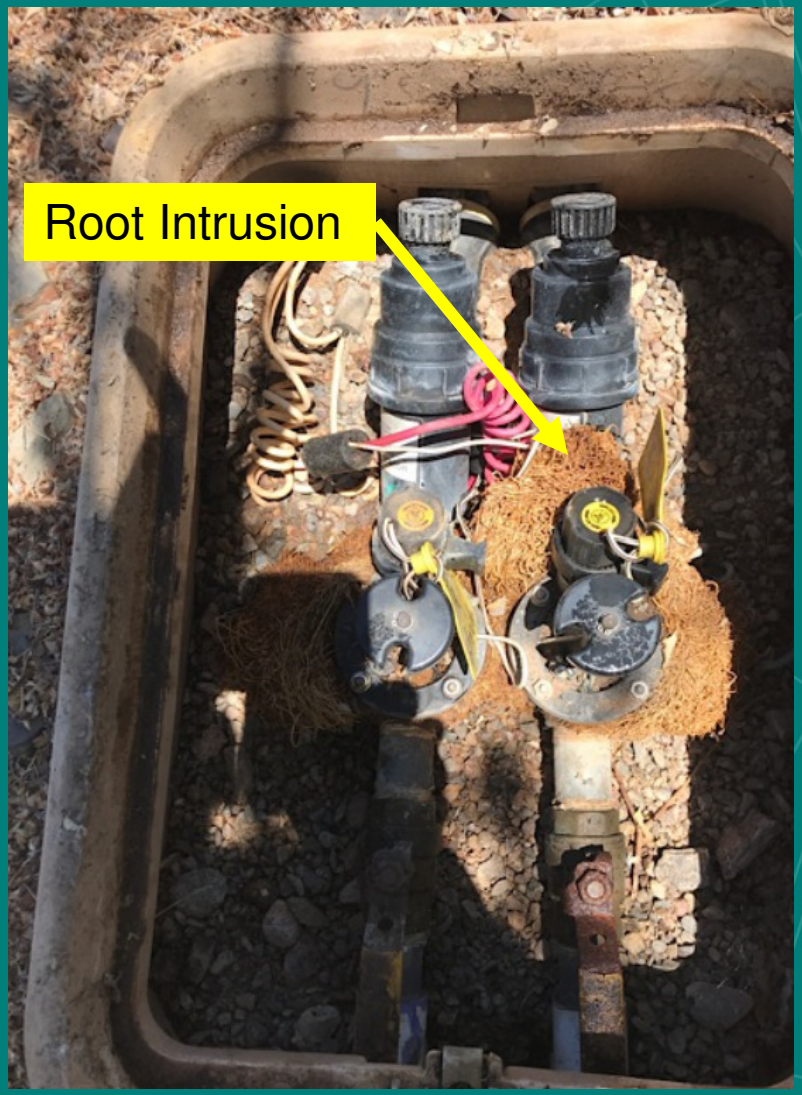


Backbone Assessment

Backbone Assessment



Backbone Assessment

Backbone Assessment

Backbone Assessment

Stuck valve or
Downstream Issues???

Backbone Assessment

What's wrong with this valve?

Backbone Assessment

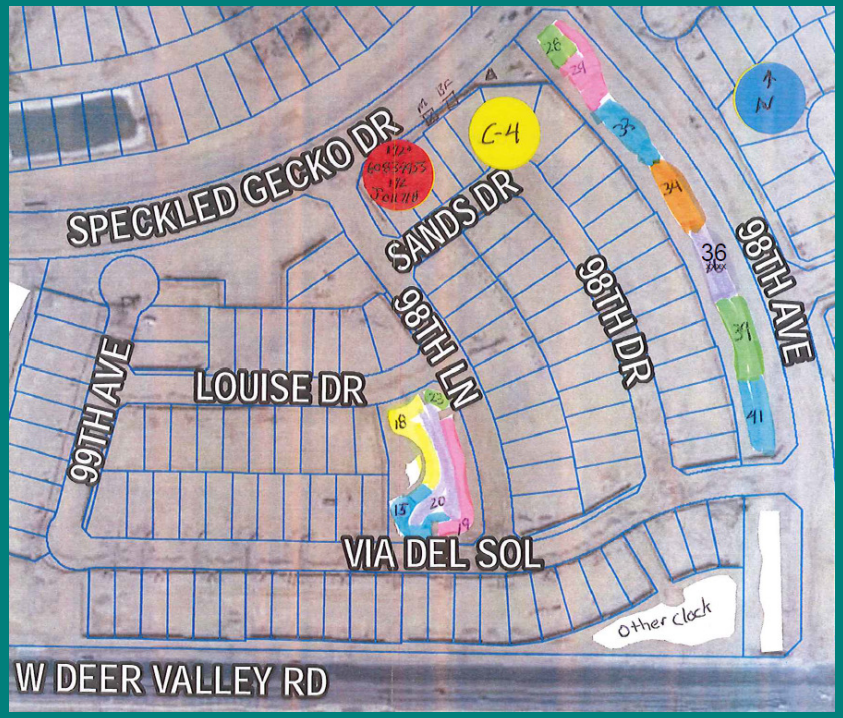
What's wrong with this valve?

Nothing!!!

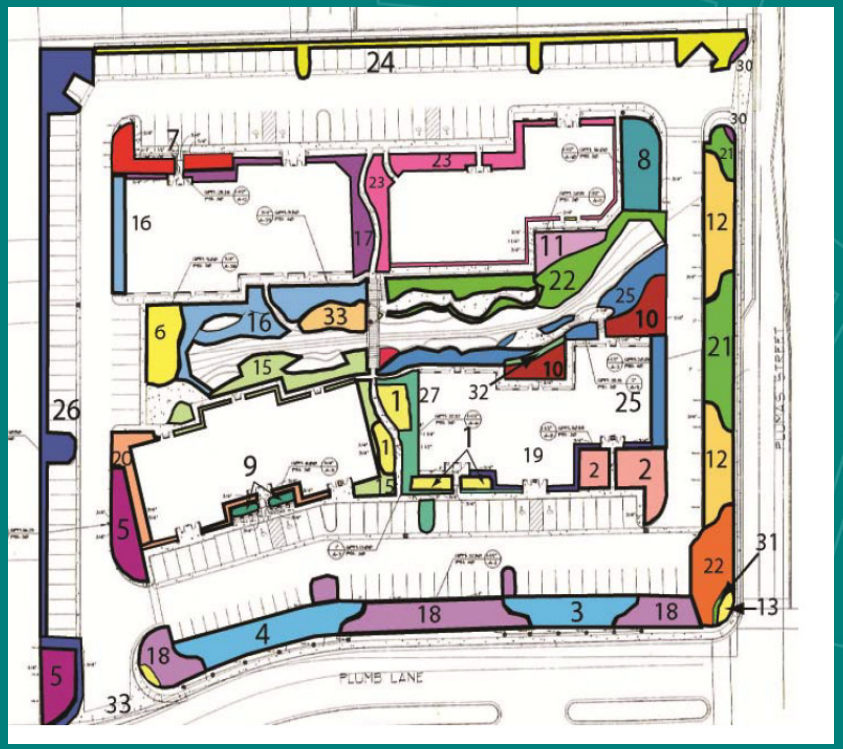
Backbone Assessment

- At the completion of inspection
  - Christy Tags in the valve box?
    - If not, mark with a sharpie.
  - All valve/electrical issues documented
  - Plain and simple…..Does the valve operate?

Zone Mapping



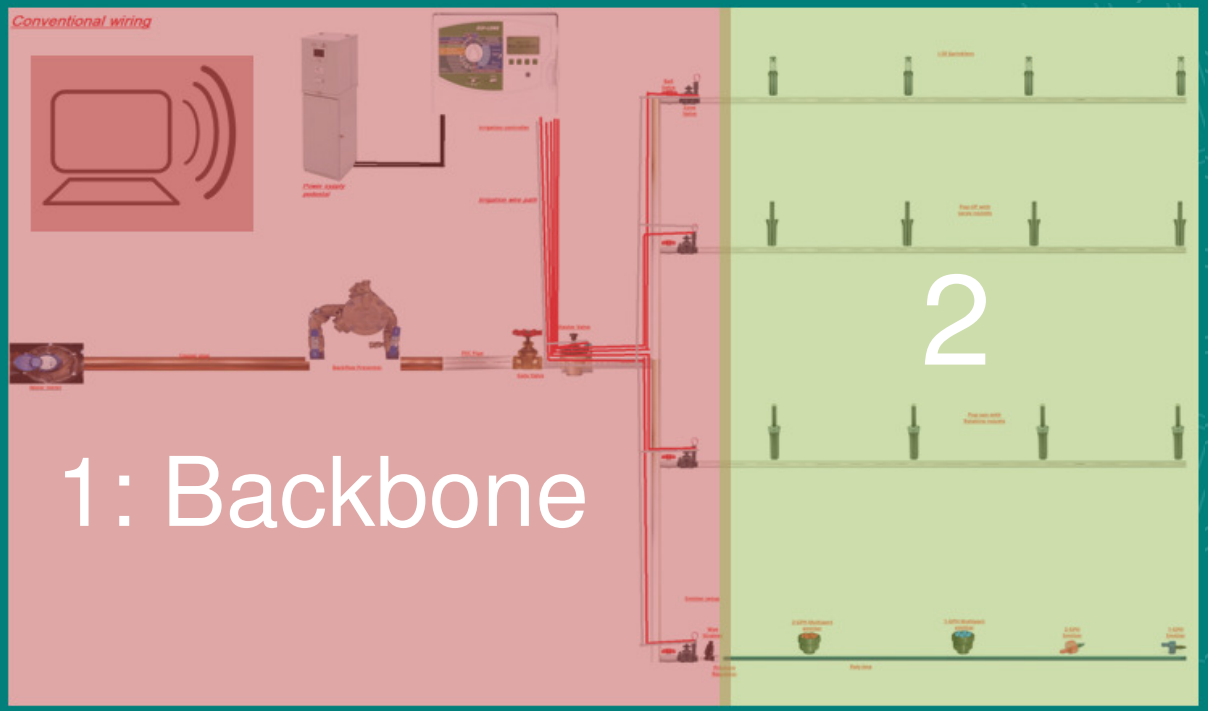
1. Consider rewiring for easier system checks?
2. Map the zones



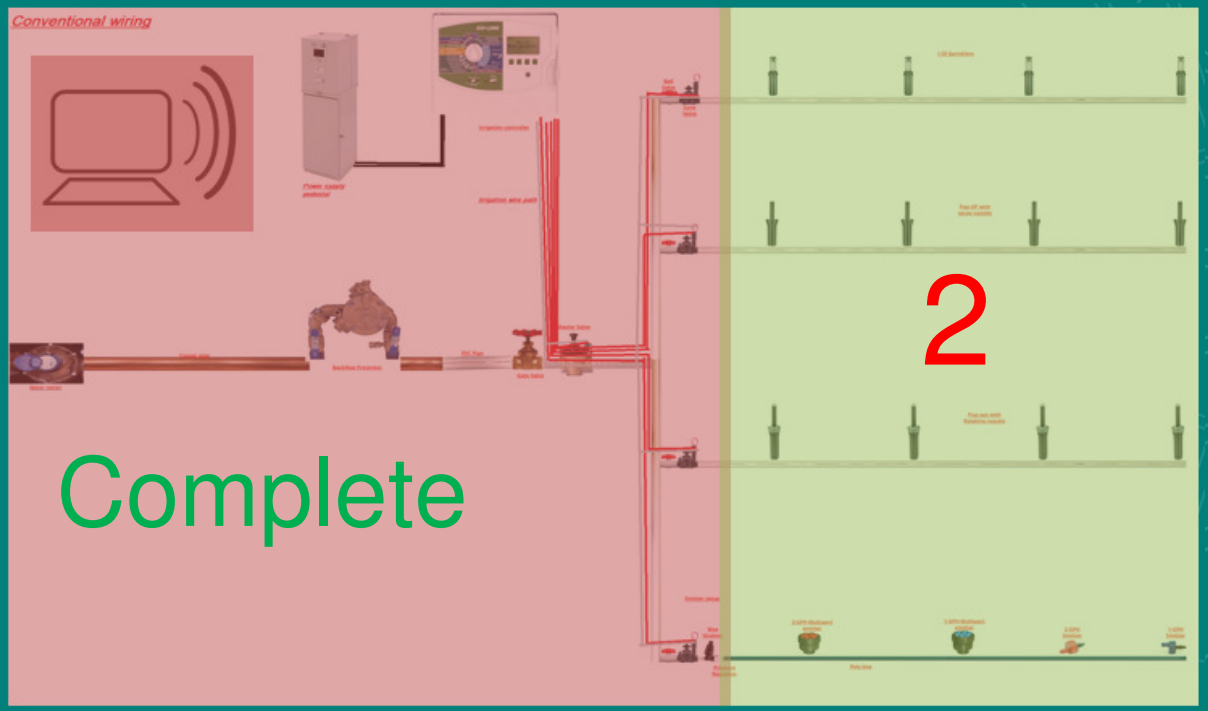
Program for the Current Season

- Identifying Leaks with Drip
  - Smaller systems- physically inspect
  - Large Systems- run drip during daytime

Backbone Assessment

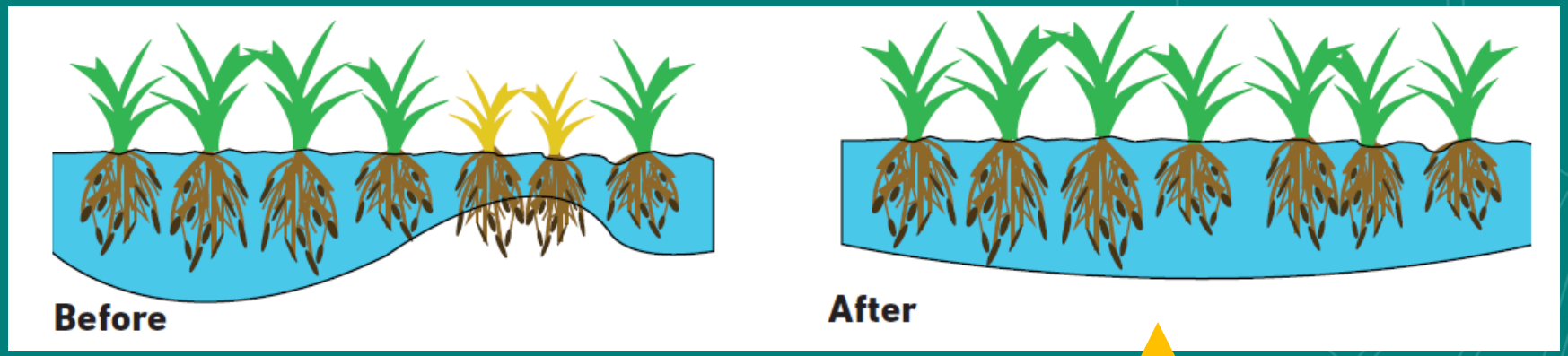


Downstream Assessment



Turf Irrigation Inspection

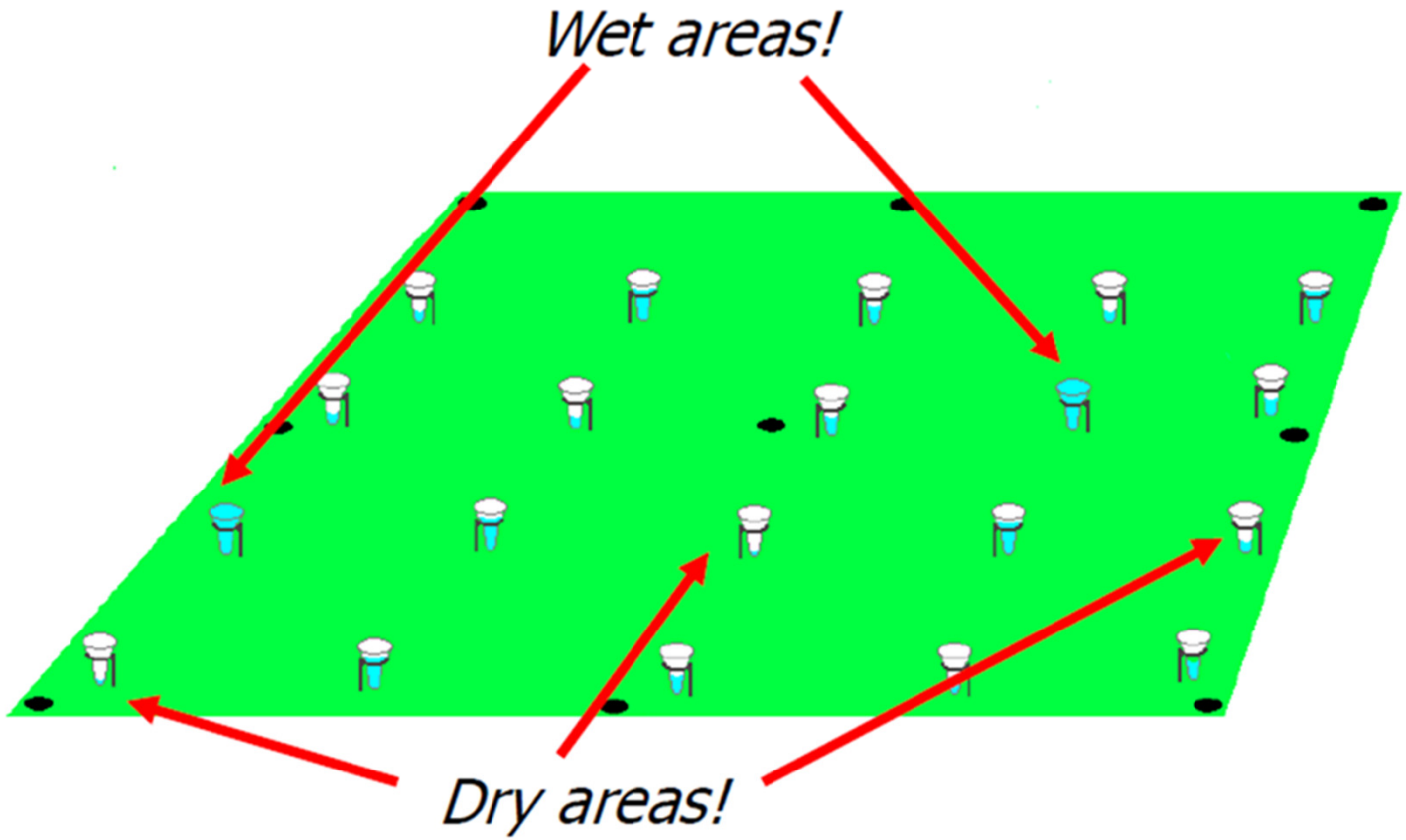
Even water application is essential to proper water management of turf which is achieved by having a system with a high efficiency rating (Distribution Uniformity).



A Well Balanced System!!!

Turf Irrigation Inspection

Distribution Uniformity – Poor Uniformity
(difficult to manage, results in excessive water use)



Turf Irrigation Inspection

Causes to an "Imbalanced System"

Low Head – Notice green ring

Leaning Heads

Grass taller than spray

Turf Irrigation Inspection

Causes to an "Imbalanced System"

- **Mismatched Nozzles**

Turf Irrigation Inspection

Causes to an "Imbalanced System"

- Nozzles Fanned Down

Drip Irrigation Inspection

Drip Valve

- Is the Drip Filter installed and serviceable?
- Is there a pressure regulator?
- Are Wire connections correct?

Drip Irrigation Inspection

Emitter Considerations

- Is the layout consistant from zone to zone?
  - Emitter count per plant
  - Location of emitters ok?
  - Is shrub valve seperate from trees and if not, have the emitters been compensated?
  - Can trees be capped?

Drip Irrigation Inspection

Piping Considerations

- Flush Caps
- PSI
- Acceptable Pipe Size

Polyethylene (Poly)

Polyvinyl Chloride (PVC)