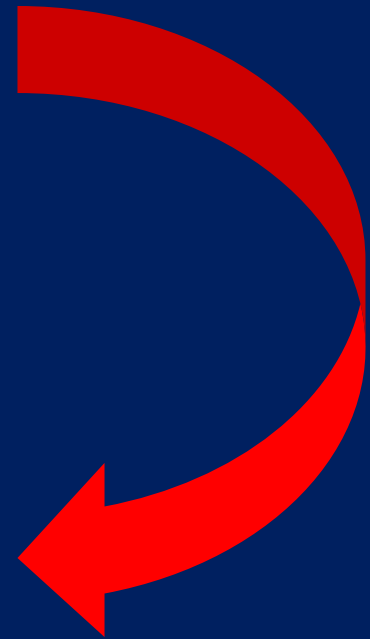


Next....



Kirby EII



High Efficiency Irrigation Standard

Save Water & Improve Landscape
Health

Kirby Ell CLIA, Kore Irrigation



How Much Water **should** an Irrigation System Use?



1 Acre Inch per week



102,000 L / Week



1 Acre Property
(If 100% Efficient)



2,040,000 L / Year

How Much Water **Does** an Irrigation System Use?



1 Acre Property
(If 50% Efficient)



4,080,000 L / Year
(4,080 m³)

1.63 Olympic Pools

FACT: Most of The Commercial Landscape Irrigation Systems Designed and Installed in the 90's and 2000's Have Been Operating at 50% Efficiency (or Less)

High Efficiency Irrigation Standard (HEIS)

- A. Created to use irrigation water more efficiently
 - 💧 What does Efficient Irrigation mean?
- B. It takes a holistic approach to water conservation
 - 💧 Considers ALL factors that impact water efficiency
 - 💧 Not just the design & installation of irrigation systems



Online HEIS Rating Tool

HEIS Project Point Accumulation Tracker

■ Mandatory
 ■ Minimum 1 of 2 required
 ■ Optional
 ■ To achieve project rating

Preliminary Project Information (required)

Site
IIABC Professionals

Steps

1	181	<u>IIABC Base Standards (Minimum of 100 required)</u>	Info
2	▼ 100	<u>Water Use Allocation Budget</u>	Info
3	▼ 80	<u>Design Capacity Worksheet</u>	Info
4	82	<u>Product Component Rating</u>	Info
5	▼ 0	Irrigation Management - Scheduling Worksheet	Info
6	0	<u>IIABC Certified Professionals</u>	Info
7	▼ 10	Complete Irrigation System Proficiency Assessment	Info
	84	Irrigation System Efficiency Rating	
8	▼ 100	Soils Condition Assessment / Recommendation	Info
9	▼ 0	Conservation Enhancements / Water Collection - Reuse	Info
	50	High Efficiency Water Use for Project	

Points are achieved for following IIABC Standards

HEIS Project Point Accumulation Tracker

■ Mandatory ■ Minimum 1 of 2 required ■ Optional ■ To achieve project rating

Preliminary Project
Information (required)
Steps

1

181

Site
IIABC Professionals

IIABC Base Standards (Minimum of 100 required)

[Info](#)

STANDARDS FOR HIGH EFFICIENCY LANDSCAPE IRRIGATION SYSTEMS

March 2014 Edition

IRRIGATION INDUSTRY ASSOCIATION OF BRITISH COLUMBIA

Project Compiler

General

Section Score Tracker

7 4 1 4

Entire Standards Score Tracker

42 4 4

- ☑ 1. **Scope of Work**
 - Supply and install all components of an automatic irrigation system to efficiently cover the landscape.
 - Utilize the IIABC's HEIS system components calculator to confirm the system is of sufficient efficiency.
 - Provide a scaled design drawing
- ☑ 2. **Quality Assurance**
 - The combination of the following IIABC Certified Professionals must be used (see HEIS calculator):
 - Certified Irrigation Contractor
 - Certified Irrigation Designer
 - Certified Irrigation Technician - Level 2
 - Certified Irrigation Scheduler
 - The contractor is a member of the IIABC
 - A written guarantee of a minimum of one year is provided to the owner
- ☑ 3. **Submittals**
 - Provide a scaled as built drawing showing controller location, master valve, zone control valves, main water connection, blow out connection, pump and other pertinent features.
 - Provide an operating and maintenance manual.
 - Provide a base schedule based on evapotranspiration for the location of the project.
 - Provide information on how to obtain local evapotranspiration data.
 - Provide an operating schedule for all zones for the peak time of year with suggested run times for seasonal changes.
 - Provide special tools required to service installed equipment.

Initial Planning

A. Site Evaluation

- What is the local climate like?
 - North exposure, southern exposure...
- Does the location have adequate soil?
- Is wind a factor?



Initial Planning - Drought Tolerant Plants



Initial Planning – Water Budget

- B. How much water is available
 - ◆ Municipal service
 - ◆ Watering restrictions
 - ◆ Well / Aquifer capacity
- C. Calculate an initial water budget
 - ◆ How much water will the landscape need?
- D. Is the water supply large enough to satisfy the needs of the landscape?
 - ◆ Is the initial concept still feasible?



A water budget is easily calculated

To calculate the LWR for the site, enter the information requested below (enter data in white cells only).

Step 2A - Enter The Annual Precipitation At The Site (R)

Average annual precipitation at site (inches/year)

STEP 2B - COMPLETE TABLE 1 BELOW (enter data in white cells only)

Enter the area of the hydrozone (square feet). The total area must equal the landscape area entered in Step 1A.

Choose the plant type from the dropdown list (source data is displayed in Table 2). Note, you may add additional plant types and associated KL values if you prefer.

Choose the irrigation type from the dropdown list (source data is displayed in Table 3).

Landscape Water Requirement

Zone	Hydrozone/Landscape Feature Area (sq. ft.)	Plant Type or Landscape Feature	Landscape Coefficient (K_L)	Irrigation Type	Irrigation Efficiency (IE)	LWR _H (gal/yr)
1	<input type="text" value="10000"/>	<input style="border: none;" type="text" value="Cool Season Turfgras"/>	<input type="text" value="0.8"/>	<input style="border: none;" type="text" value="Rotor"/>	<input type="text" value="80"/>	<input type="text" value="82092.19"/>
2	<input type="text" value="20000"/>	<input style="border: none;" type="text" value="Ground Cover"/>	<input type="text" value="0.5"/>	<input style="border: none;" type="text" value="Drip - Pre"/>	<input type="text" value="95"/>	<input type="text" value="75355.26"/>
3	<input type="text" value="20000"/>	<input style="border: none;" type="text" value="Scrubs"/>	<input type="text" value="0.5"/>	<input style="border: none;" type="text" value="Fixed Spra"/>	<input type="text" value="75"/>	<input type="text" value="95450"/>

Points are achieved if the water required is less than the water budgeted for site

2

100

Water Use Allocation Budget

Info

STEP 3B - REVIEW THE LWA AND LWR FROM PART 1 AND PART 2

LWA

299195.91

LWR

252897.45

OUTPUT - DOES THE DESIGNED LANDSCAPE MEET THE WATER BUDGET?

Yes

If YES, then the water budget criterion is met.

If NO, landscape and/or irrigation system adjustments need to be made and reflected in Step 2B - LWR.

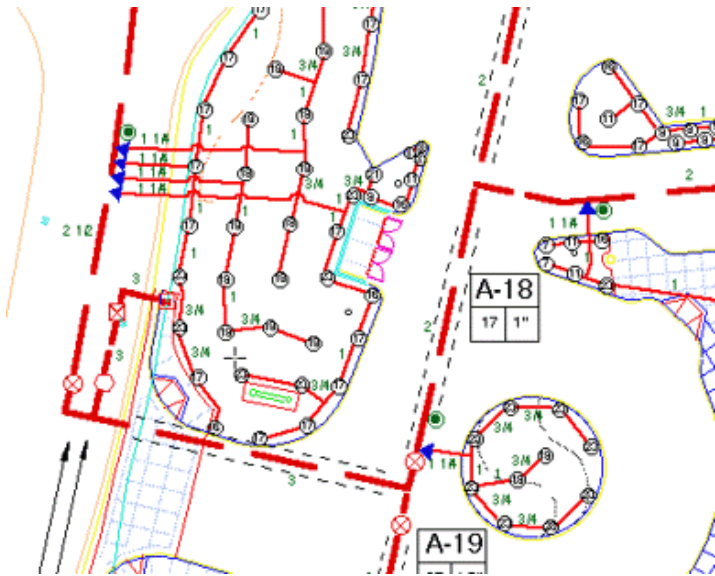
The designed landscape is

20

Turf

Design

- A. Certified Landscape & Irrigation Design
 - 💧 Ensures the design conforms to HEIS spec's



Design – Water Saving Layout

- B. Landscape layout should consider product limitations
- 💧 Limit curved planter beds
 - 💧 Turf dimensions equal to typical sprinkler radius
 - 💧 Minimum width of turf and shrub areas



Design – Water Efficient Products

- D. Ensure the irrigation system uses water saving products
- 💧 Efficient Sprinklers – min level of efficiency (DULO)
 - 💧 Check valves - prevent low-head drainage
 - 💧 Pressure regulation – misting & uneven coverage
 - 💧 Flow sensor - leak detection
 - 💧 Sensors – Rain, Moisture & Weather / Smart Controller



Irrigation Products are Rated by Performance and Features

4

82

Product Component Rating

[Info](#)

Product Rating Guide

Minimum of 80 Rating Average across all Product Categories on Project

2	82	1	Controllers		
1		1	Four (4) Program Capability		
3		3	Season Adjustment % by Program		
1		1	Multiple Programmable Sensor Inputs		
1		1	Master Valve Activation		
1		1	Flow Log Capabilities (Entered Flow or Actual Real Time Flow)		
3		3	Ability to self adjust station run times from current climatic / site data		
3		3	Ability to respond to flow sensor with system shut down & alert	13	13 150
1	82		Backflow Preventer	1	1 200
0	82	1	Master Valves	1	0 0
1	82	0	Flow Sensors	2	5 125
			Water Meter Size		
			FLOW SENSOR REQUIRED		
1	82	12	Solenoid Control Valves	5	5 100
		2	Flow Control		
		3	Pressure Regulation Compatible		
				5	5 100
				Site Static	
1	82		Pressure Regulator @ POC	135	psi
		1	Static PSI at POC over 75 PSI		
			PRESSURE REGULATION ADVISED		

Scheduling

A. Create an accurate schedule

- 💧 Soil, plants, sprinkler precip rates, current weather conditions...
- 💧 Use IIABC scheduling calculator

B. Evaluate System Performance

- 💧 Audit the irrigation system to ensure its performing as designed



System Pass Requires a Rating of 80

Preliminary Project Information (required) Steps

1	181
2	100
3	0
4	82
5	0
6	75
7	0
	73

Site IIABC Professionals

IIABC Base Standards (Minimum of 100 required)

Water Use Allocation Budget

Design Capacity Worksheet

Product Component Rating

Irrigation Management - Scheduling Worksheet

IIABC Certified Professionals

Complete Irrigation System Proficiency Assessment

Irrigation System Efficiency Rating

The End

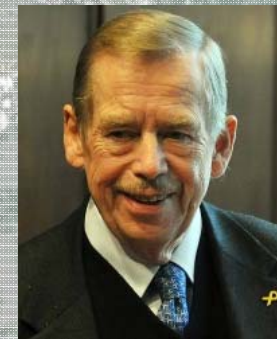
And in closing....



Eric Bonham

“Vision is not enough.
It must be combined with venture.
It is not enough to stare up the steps,
we must step up the stairs”

Vaclav Havel (1936-2011)
Essayist, poet, dissident, politician
Czechoslovakian President



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Living Water Smart
Page 73

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Road through Paris COP21 – Where to from here?



MITIGATION → ADAPTATION

WATER – The CONNECTOR

Urban
Settlement

Tourism

Business

Fisheries

Forestry

Habitat / Watershed
Protection

Water
Security

Agriculture

Mining

Industry



POLIS Project
on
Ecological Governance
University of Victoria

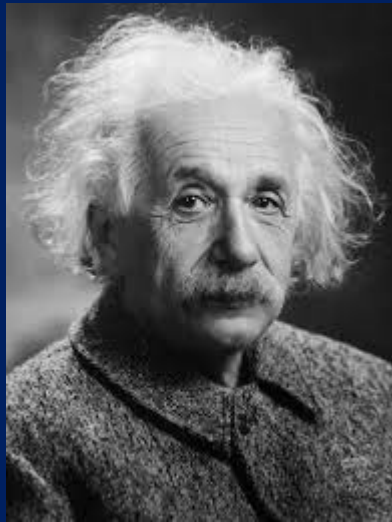
Awash with Opportunity

Ensuring the sustainability of British Columbia's new water law

OLIVER M. BRANDES, SAVANNAH CARR-WILSON, DEBORAH CURRAN, AND ROSIE SIMMS



Full report at www.poliswaterproject.org/awashwithopportunity



Albert Einstein

“No problem can be solved from
the same consciousness that
created it. We have to learn to
see the world anew “

Flood & Drought – Feast & Famine

Restoring the Balance

“A vision without a task is but a dream.
A task without a vision is but drudgery.
A vision with a task is the hope of the world.”

Church inscription
Suffolk, England 1786

Page 73