



Fred Pape  
Specialty Projects Manager



# Phipps Conservatory                      Pittsburgh, PA

## Center for Sustainable Landscapes

One of Earth's  
Greenest Buildings!

- LEED Platinum
- Living Building Challenge Certified
- 4-Stars Sustainable Sites Initiative
- WELL Building Platinum



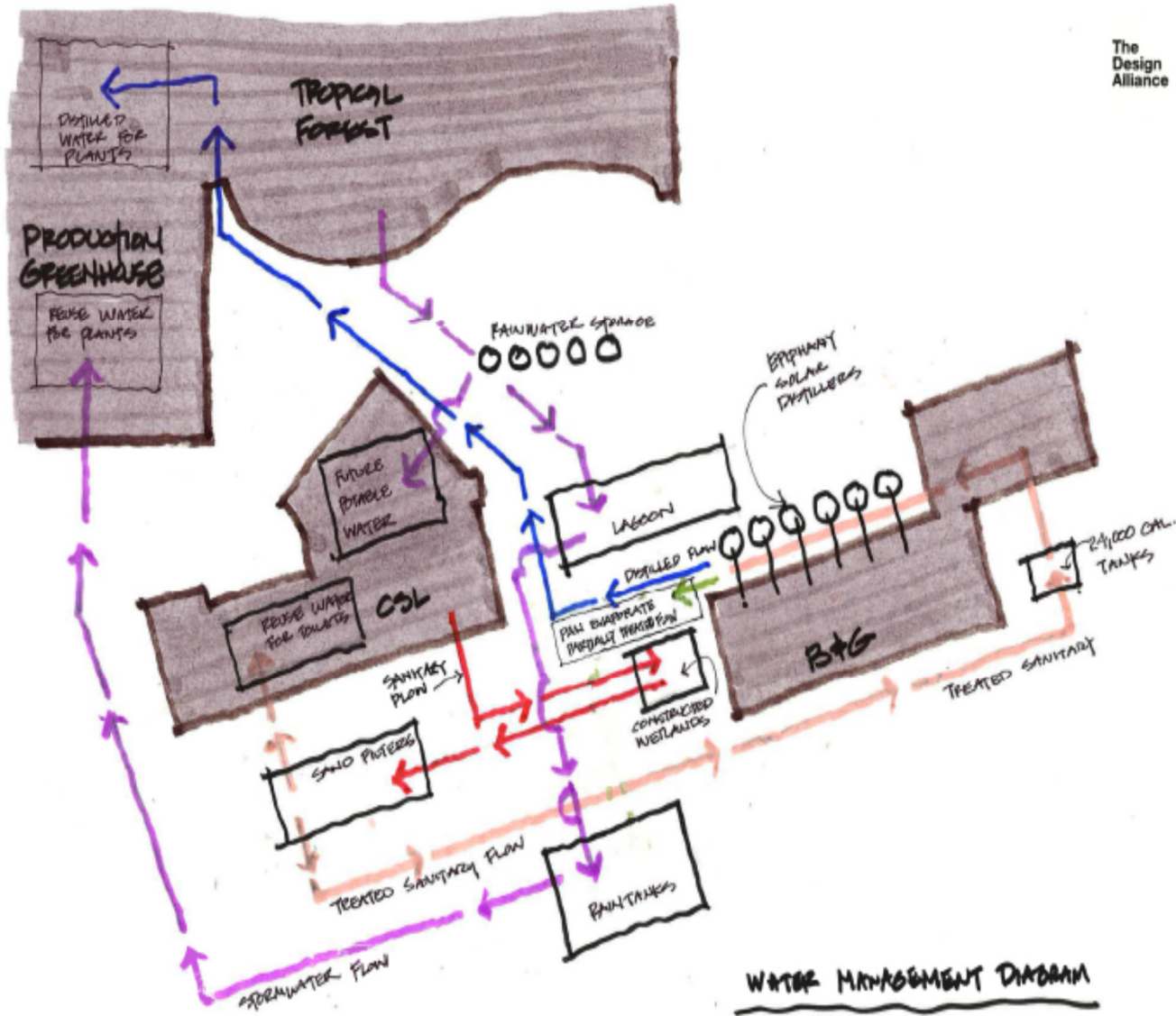




# Water Management Plan

- capture all runoff from upper campus
- store small amount in reuse tanks for graywater use in the building
- filter stormwater through a decorative lagoon
- overflow into underground storage tank
- pump to upper campus for use in production greenhouse





The Design Alliance

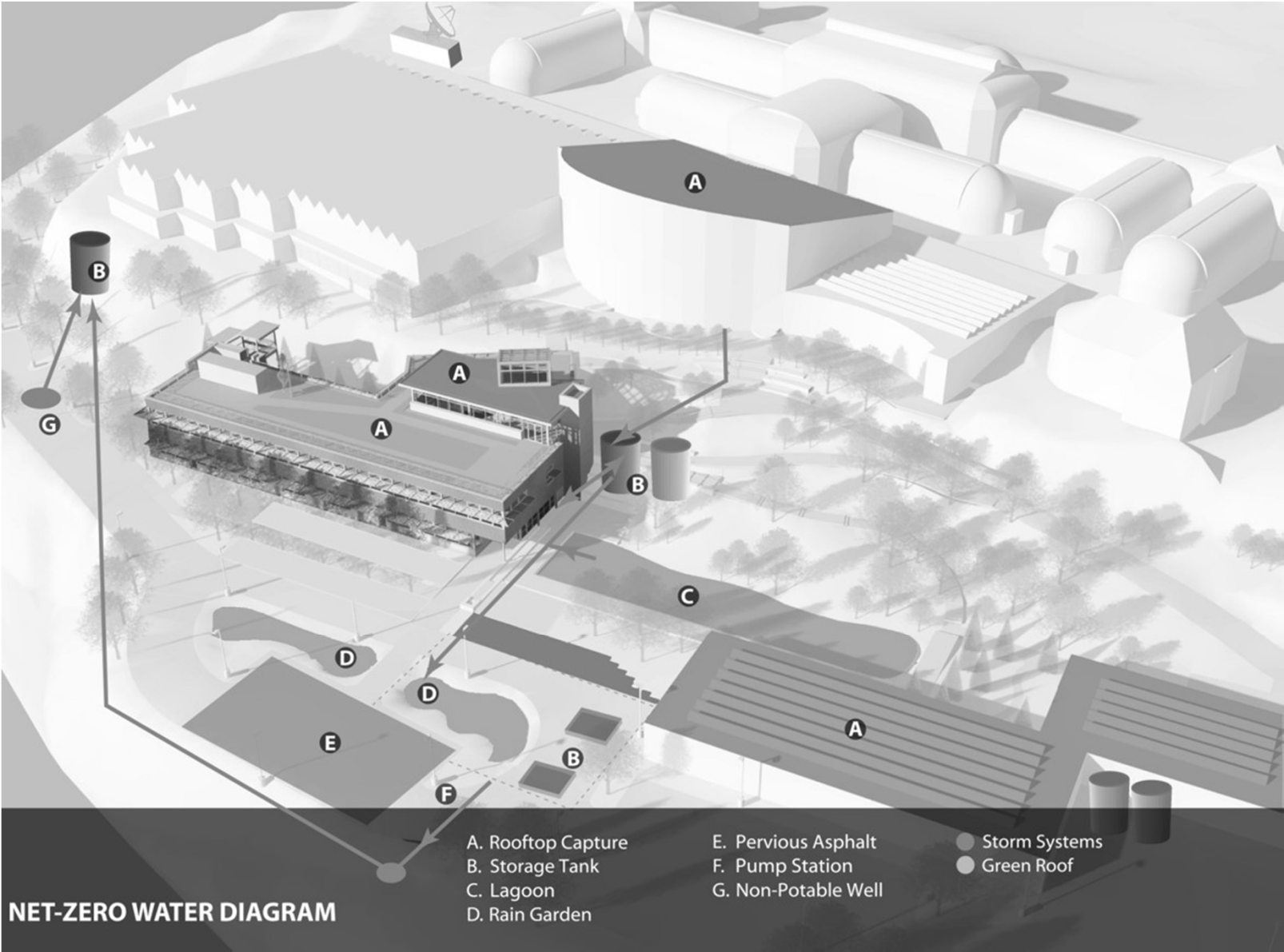
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WATER MANAGEMENT DIAGRAM





# Stormwater Lagoon

- Captures water from the entire upper campus.
- Water is pumped through a constructed wetland which removes nutrients, pollutants, and heavy metals from the run off.
- System is designed to fluctuate with stormwater events.
- System will overflow to the Raintanks sending clean water to be stored for re-use.







Constructed Wetland

















# Stormwater Inlet

- large pipe conveys stormwater from upper campus
- cut out in wall allows surface flow from patio area to enter lagoon
- waterfall covers pipe from view





















# Re-use and Infiltration tank design

- 64,000 gallon re-use tank and 16,000 gallon infiltration tank
- Utilized Atlantis Rain Tank for strength, modular design, ease of install, recycled content, etc.
- Full traffic loading (system is directly under the driveway)
- Large overflow component
- Infiltration tank handles surface flow from driveway
  - Runoff is directed through rain gardens then into tank





Over 2400 Raintanks had to be put together











# Engineered overflow system





Ready for backfill and cover material





Main tanks complete!





...and what it looks like today.



# Upper Campus Tank

- A couple of hundred feet of elevation prevented directly pumping from lower tank to production greenhouse
- Decision was made to put a smaller (20,000 gallon) tank next to the production greenhouse
- A smaller pump could slowly fill that tank using less energy
- Space was a premium
- Creative layout was needed to optimize storage capacity







Laying it out

-Raintanks allowed for the greatest storage capacity in the irregular layout













# Questions???

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