

# City of Santa Monica SWIP: Project Overview

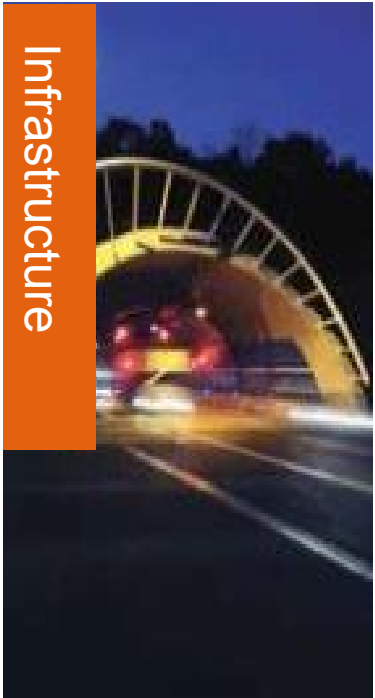
Brent Alspach, PE, BCEE  
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April 9, 2019

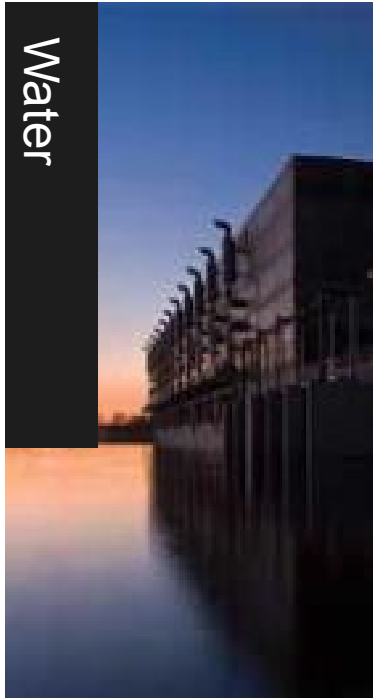
# About Arcadis

## Design & Consultancy for natural and built assets...

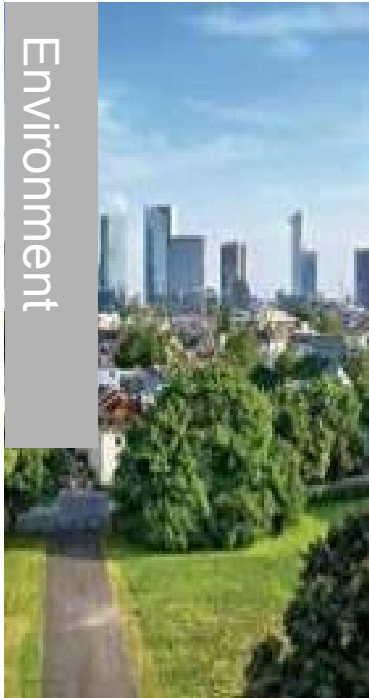
Infrastructure



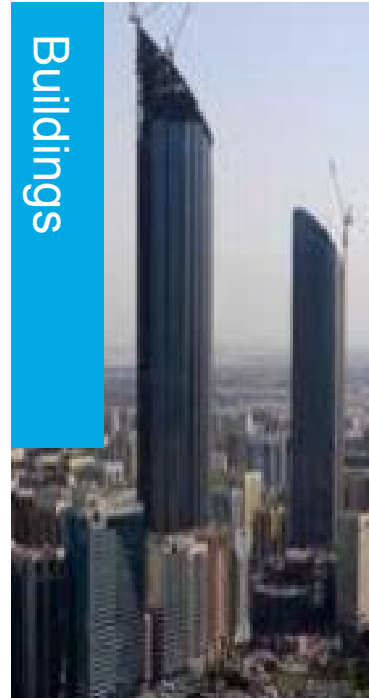
Water



Environment



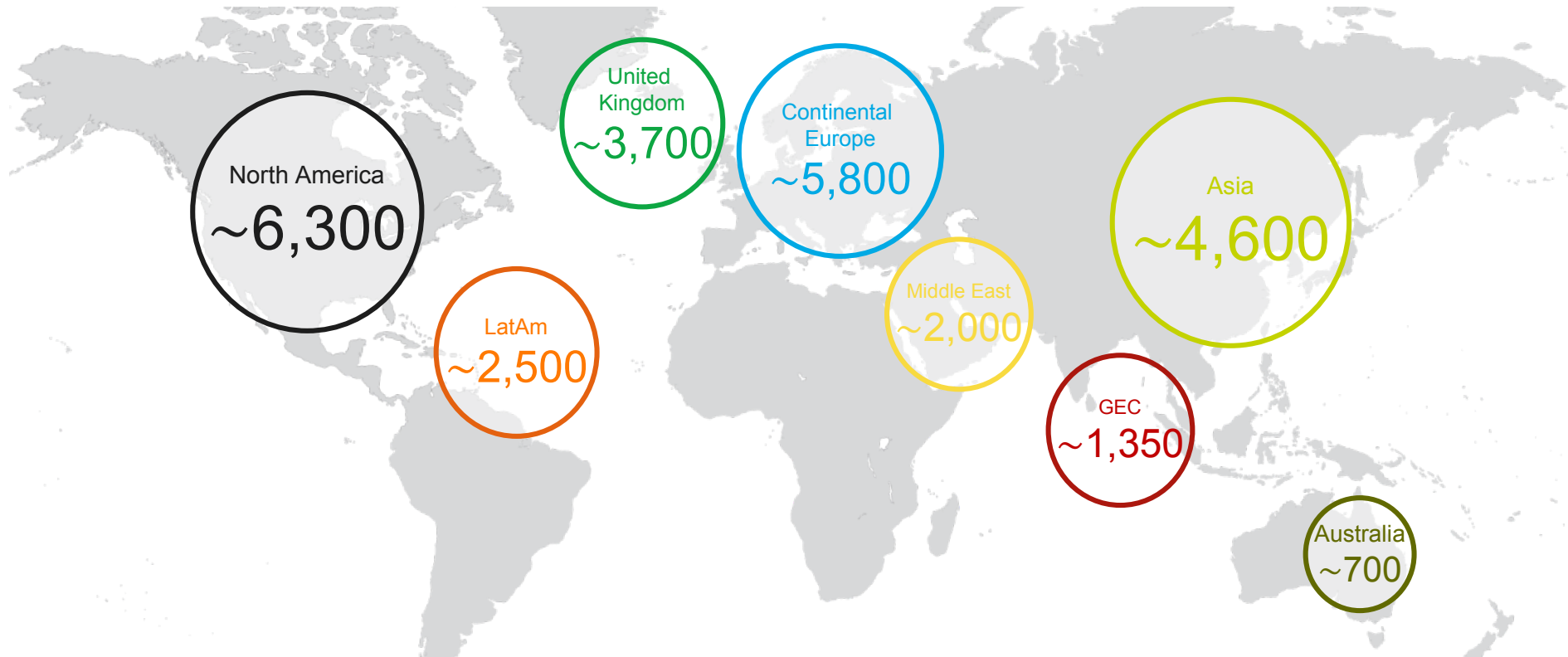
Buildings



- Dutch roots date to 1888
- World's oldest engineering consultancy: **231 years!**
- € 3.3B revenues (2018)
- +30,000 projects

# About Arcadis

...with a seamless global reach!



~27,000 people | 300+ offices | 40+ countries

# About Arcadis

## OUR MISSION



To create exceptional and **sustainable** outcomes for our clients in natural and built asset environments

## OUR GOALS



- Create **sustainable** solutions
- Deliver exceptional outcomes
- Realize people's potential
- ✓ **Enjoy the journey**

## OUR PASSION



Improve quality of life and be recognized as the best

# **Sustainable** Water Infrastructure Project (SWIP)



**Owner /  
Project Proponent**

# Sustainable Water Infrastructure Project (SWIP)

**Progressive  
Design-Build Team**



# Key SWIP Elements



**Advanced Water  
Treatment Facility  
(AWTF)**



**Santa Monica  
Urban Runoff  
Recycling Facility  
(SMURRF)**



# Key SWIP Elements



## Advanced Water Treatment Facility (AWTF)

AWTF Overview	
Capacity	1.0 MGD
Sources	<ul style="list-style-type: none"><li>• Wastewater (~10% of City production)</li><li>• Stormwater / urban runoff</li></ul>
Treatment	<b>MBR → RO → UV-AOP → Cl<sub>2</sub></b>
Purposes	<ul style="list-style-type: none"><li>• Non-potable reuse</li><li>• Groundwater recharge (IPR)</li></ul>



# Key SWIP Elements



**Advanced Water  
Treatment Facility  
(AWTF)**



**Santa Monica  
Urban Runoff  
Recycling Facility  
(SMURRF)**

# Key SWIP Elements

SMURRF Overview	
Capacity	0.5 MGD
Sources	<ul style="list-style-type: none"><li>• Stormwater / urban runoff</li><li>• Brackish groundwater</li></ul>
Treatment	DAF → UF → RO → UV → Cl <sub>2</sub>
Purposes	<ul style="list-style-type: none"><li>• Non-potable reuse</li><li>• Groundwater recharge (IPR)</li></ul>

**UPGRADE**

**Santa Monica  
Urban Runoff  
Recycling Facility  
(SMURRF)**

# Key SWIP Elements

SMURRF Overview	
Capacity	0.5 MGD
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**UPGRADE**

**New Treatment  
Process**

# Key SWIP Elements

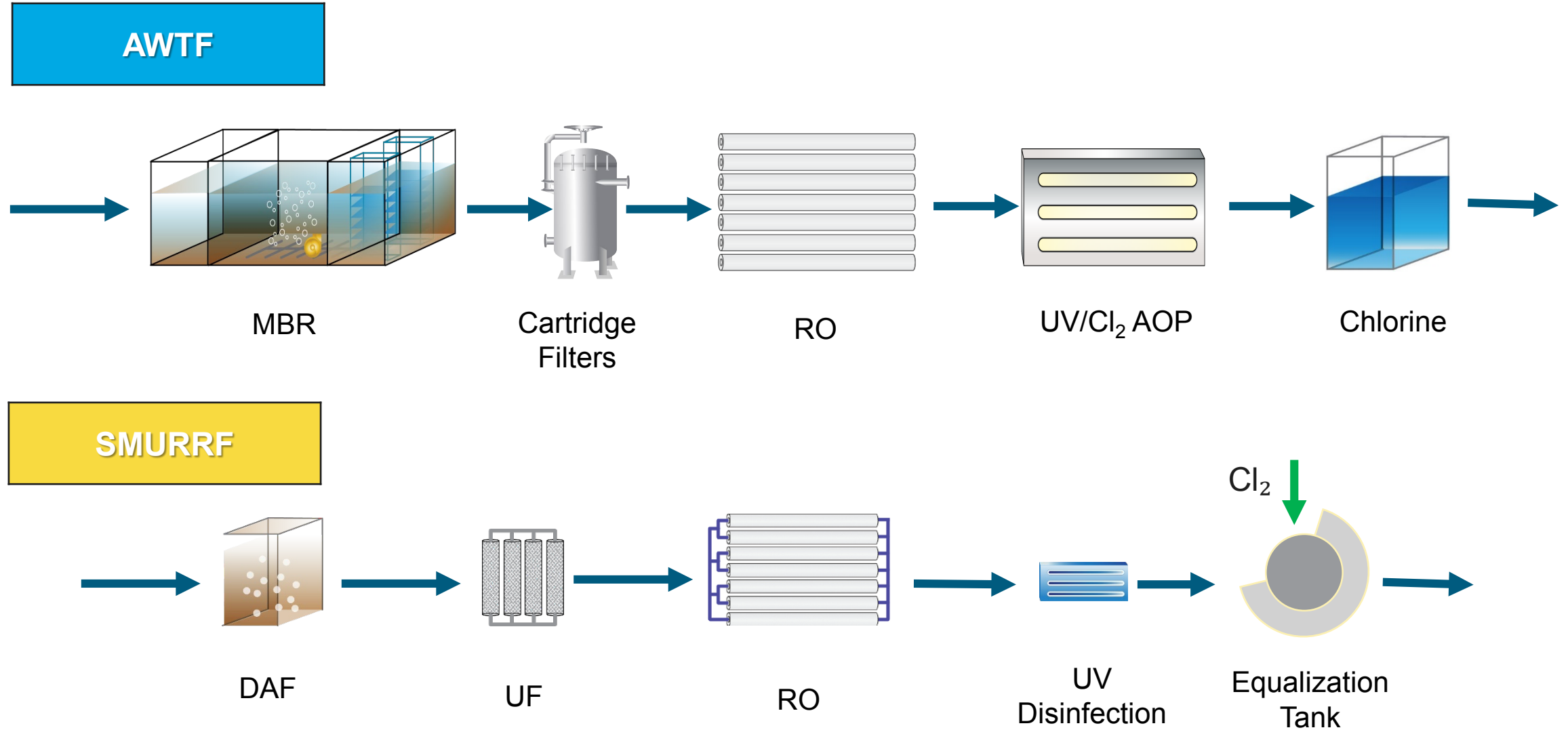
SMURRF Overview	
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Treatment	DAF → UF → <b>RO</b> → UV → Cl <sub>2</sub>
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**UPGRADE**

**RO Target Constituents:**

- TDS**
- PPCPs**
- PFAS**

# SWIP Treatment Facility PFDs



# Sustainability

## Key Sustainability Features

- ✓ Pollution control via stormwater diversion and treatment
- ✓ Beneficial use of what would otherwise be a lost resource
- ✓ Reduced external system demand
- ✓ Solar panels to harness renewable energy
- ✓ Envision certification  
(sustainable infrastructure)



# Challenges

## Key Project Challenges

- ★ Multiple sources with variable contributions
- ★ Variable quality of stormwater / urban runoff
- ★ Coastal brackish groundwater aquifer quality influenced by tidal cycle
- ★ Potential long-term increase in brackish groundwater salinity (SMURRF)
- ★ Minimal institutional knowledge





# Thank you for your attention!



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