Monterey Bay Shores

Ecoresort, Wellness Spa, and Residences

WHAT IS AN ECORESORT?

Ecologically Sensitive Design
Understanding Site Conditions
Balance for Site Capacity
Restorative Approach to Site and Architecture
Biodiversity
Community
Celebrate Historic Dunes & Marine Environment
Spiritual Link to Land and Sea

EARTH ELEMENT: History

Former sand mine operations, 1972

Current dune condition (2007)

Earth

The architecture of Monterey Bay Shores will work to achieve integration with the site by embracing the topography, orientation and scale of the existing and restored dune formations.

Water

Monterey Bay Shores will maximize water conservation with several strategies: efficiency of use, on-site graywater recycling, complete stormwater management and the utilization of captured rain water for non-portable uses such as laundry and irrigation.

Air

Monterey Bay Shores will extensively utilize the site's clean Pacific breezes to provide natural ventilation while protecting against prevailing winds.

Light

Monterey Bay Shores will capture the site's extensive daylighting to maximize the interior quality of the buildings while reducing power consumption.

Energy

Monterey Bay Shores will reduce its consumption by more than 50% through efficiency in design and by producing more than 30% of its energy needs from on-site renewable energy.

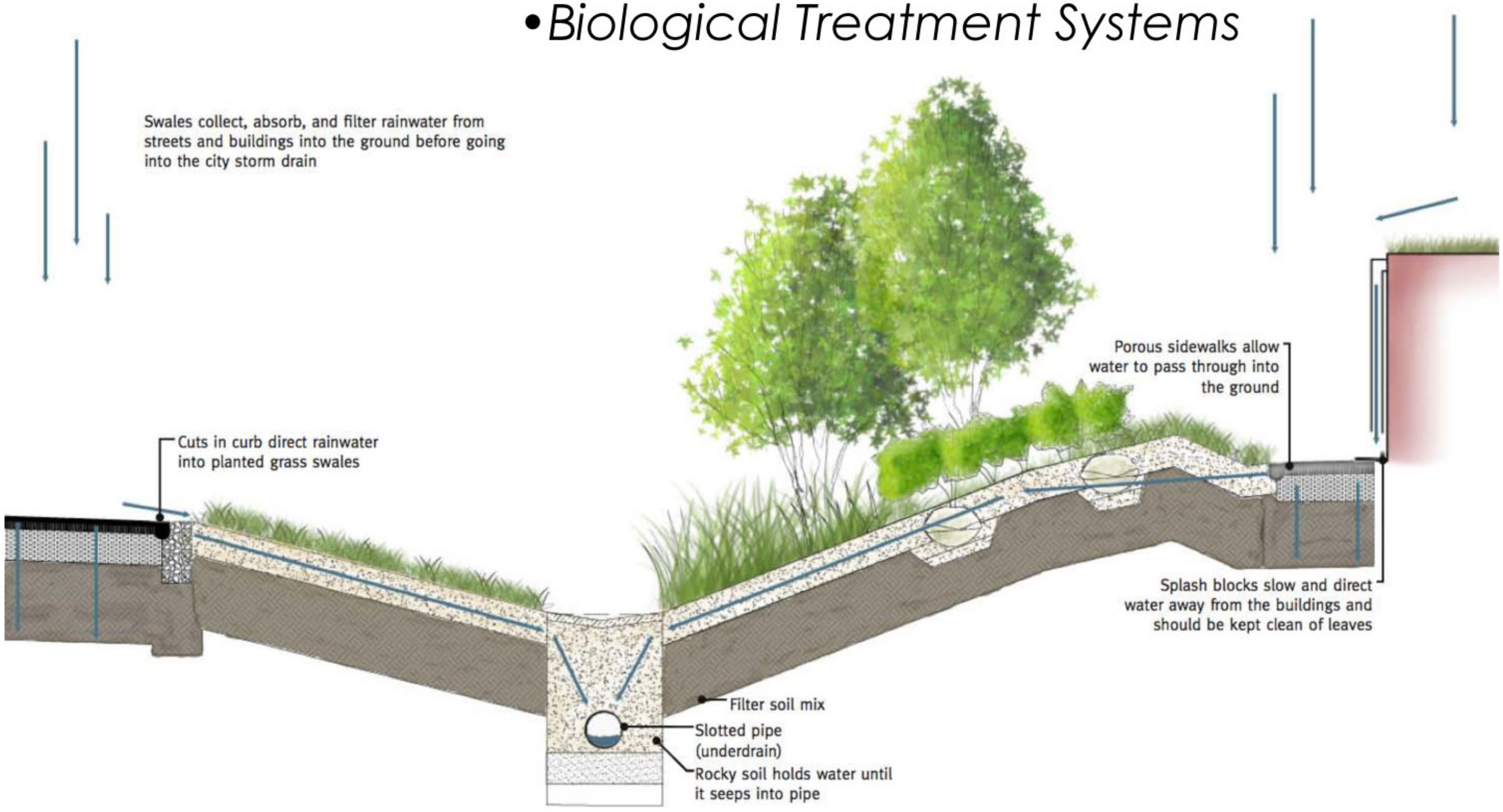
Elements of an ecoresort

Water

Monterey Bay Shores will maximize water conservation with several strategies: efficiency of use, on-site graywater recycling, complete stormwater management and the utilization of captured rain water for non-potable uses such as laundry and irrigation.

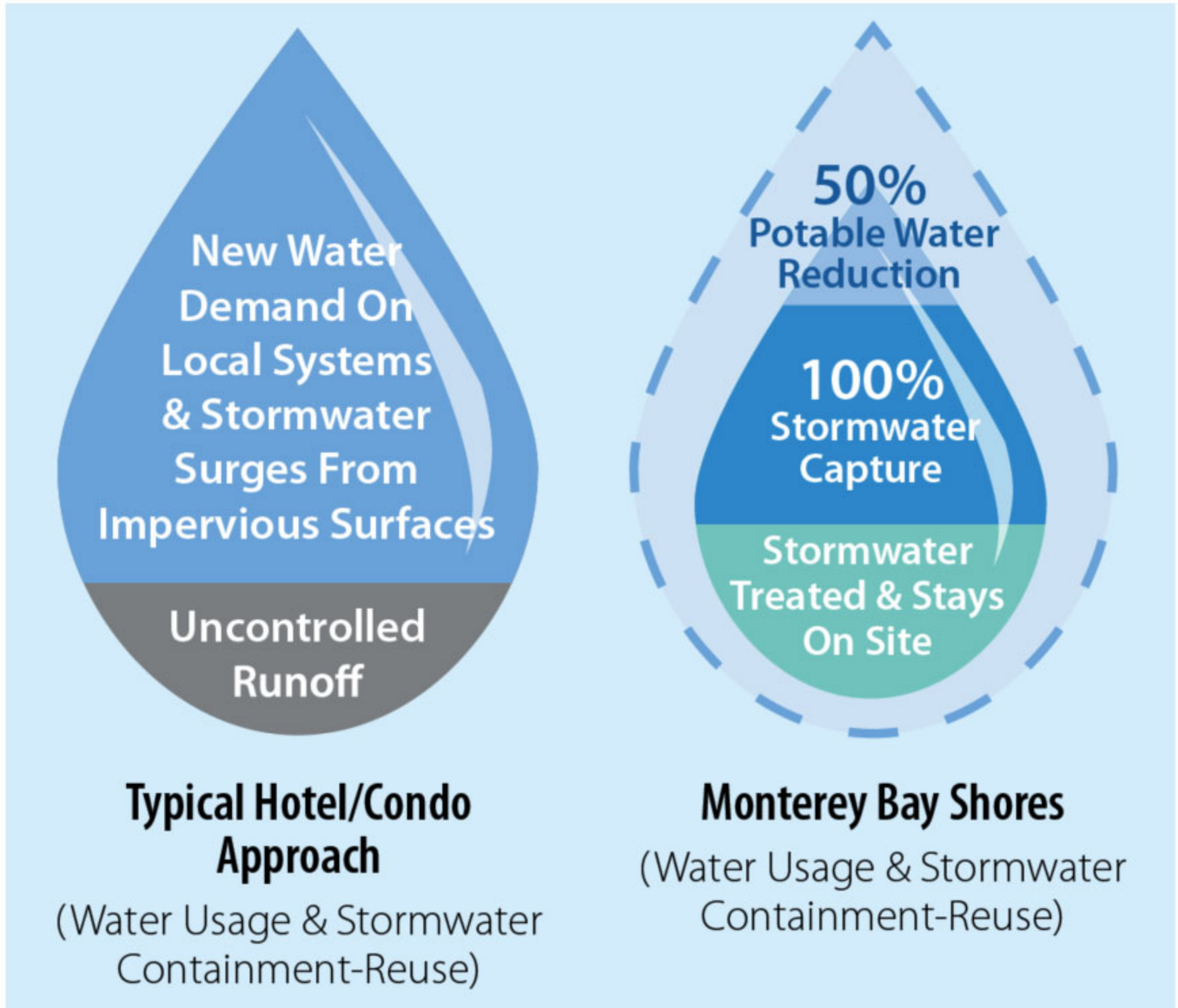
WATER ELEMENT: Low Impact

- *Zero Stormwater Runoff*
- *Less than 5% of the site is impervious*
- *Biological Treatment Systems*



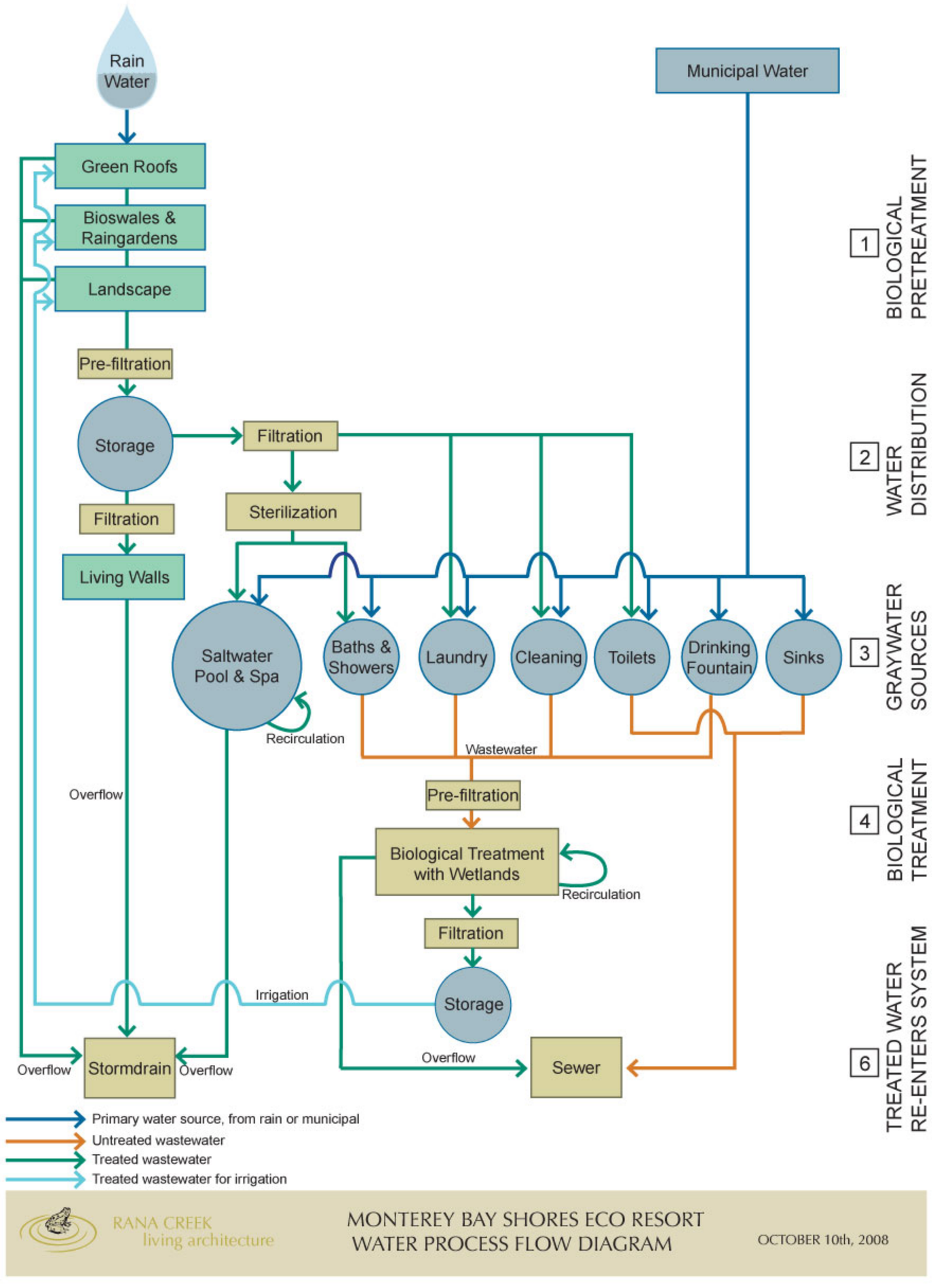
WATER ELEMENT: Reduce & Reuse

- *No potable water used for irrigation*
- *Unused rain & treated water feed wetlands & aquifer*
- *47% reduction in water demand over prior proposal*



Typical Hotel/Condo Approach
(Water Usage & Stormwater Containment-Reuse)

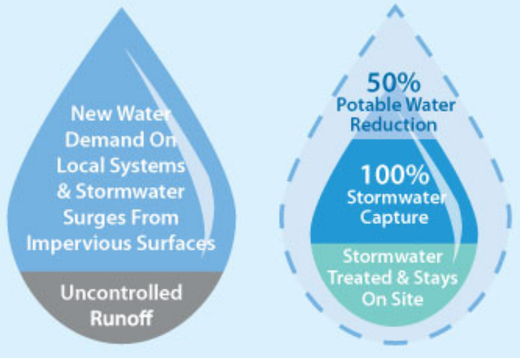
Monterey Bay Shores
(Water Usage & Stormwater Containment-Reuse)


Rain Water
Municipal Water
Green Roofs
Bioswales & Raingardens
Landscape
Pre-filtration
Storage
Filtration
Sterilization
Filtration
Living Walls
Saltwater Pool & Spa
Baths & Showers
Laundry
Cleaning
Toilets
Drinking Fountain
Sinks
Recirculation
Wastewater
Overflow
Pre-filtration
Biological Treatment with Wetlands
Recirculation
Filtration
Irrigation
Storage
Overflow
Overflow
Stormdrain
Overflow
Sewer
1 BIOLOGICAL PRETREATMENT
2 WATER DISTRIBUTION
3 GRAYWATER SOURCES
4 BIOLOGICAL TREATMENT
6 TREATED WATER RE-ENTERS SYSTEM
Primary water source, from rain or municipal
Untreated wastewater
Treated wastewater
Treated wastewater for irrigation
RANA CREEK
living architecture
MONTEREY BAY SHORES ECO RESORT
WATER PROCESS FLOW DIAGRAM
OCTOBER 10th, 2008

The Water Element

No potable water will be used for irrigation and all unused rain water will feed restored wetlands and recharge the local aquifer.

- Efficiencies achieved through conservation and well designed water systems.
- On-site facilities treat all excess stormwater.
- Impervious surfaces cover less than 5% of the site.
- Vigilant protection of Monterey Bay National Marine Sanctuary.
- Over 13 acre-feet of treated graywater will recharge the aquifer each year.
- Rain water catchment system will be integrated with the municipal water supply.



Typical Hotel/Condo Approach
(Water Usage & Stormwater Containment-Reuse)

Monterey Bay Shores
(Water Usage & Stormwater Containment-Reuse)

***5 LEED™ Points** (Water Efficiency)*

Respect for water, the most precious resource of Earth, is expressed throughout the design of Monterey Bay Shores. Water brings life to the site, sustains its productivity, and supports the maintenance of its ecology. By integrating wise water use technologies and embracing innovative storm and wastewater treatment and recycling methods, Monterey Bay Shores demonstrates its commitment to water conservation.

Water Supply & Saltwater Intrusion

The Seaside Basin water supply is derived from local ground and surface water sources. While entitled to more than ample water for the needs of any resort, Monterey Bay Shores is designed to maximize conservation and efficiency of use, employ on-site water recycling, stormwater pre-treatment, and wetland and groundwater recharge. The resort will harvest rain water from its living roof systems for non-potable uses such as swimming pools and laundry.

For many years there has been concern on the Monterey Peninsula over the prospect of saltwater intrusion as a result of coastal wells overdrawing the local aquifer. Monterey Bay Shores will endeavor to not use the well on-site, but rather, have California American Water pump the project's water from wells located further inland so as to reduce the potential of saltwater intrusion into the aquifer.

Minimize and Reuse

Stormwater

The innovative LEAF™ approach of "assess/design/build/monitor" integrates with techniques of Low Impact Development (LID), Best Management Practices (BMPs), and the California Coastal Commission Model Urban Runoff Program (MURP). Monterey Bay Shores will be a zero-runoff site and all stormwater will be captured and pre-treated for on-site use and infiltration. This will result in reduced erosion and beach impact while supplying restored wetlands and recharging the aquifer.

Graywater Treatment

The resort will use a combination of mechanical and biological waste treatment systems to treat and reuse wastewater within the site and greatly reduce the amount of effluent produced. These systems will combine aerobic and anaerobic technologies, such as advanced fixed media, microbacteria digestion, hydroponics, and constructed wetlands; in order to meet California Title 22 standards for re-use. This water will be used for toilet flushing, irrigation and other non-potable uses.

Surplus graywater and excess stormwater will be polished to high quality standards before being infiltrated into the groundwater supply through sand infiltration swales. The measures taken by the resort will enhance and protect the Monterey Bay National Marine Sanctuary.

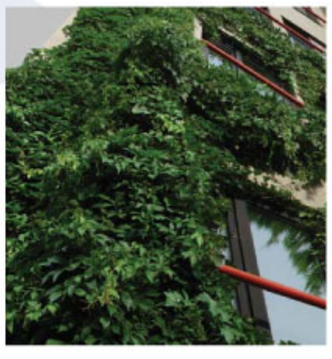
A Living Approach

Green Roofs

A vegetated living roof system covers nearly all of the resort. This system will help to moderate building temperature, contribute to ecological restoration and habitat biodiversity, and act as a natural filter media for rain water. Vegetated roof systems help to reduce the quantity of stormwater runoff and delay the rate at which runoff does occur, resulting in decreased need for, and stress on, stormwater infrastructure during peak rain events. Water from small rain events will be retained and absorbed by the vegetated roofs before returning to the atmosphere through transpiration and evaporation. Studies indicate that well-designed vegetated roof systems will retain up to 60% of annual rainfall.

Green Walls

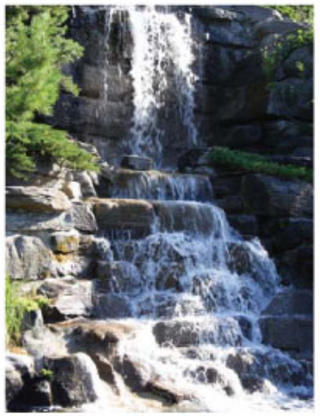
Interior vegetated wall systems will add to air filtration capacity, provide interior amenities and additional treatment for water recycled for non-potable uses.



Living Wall Example

Natural Pools

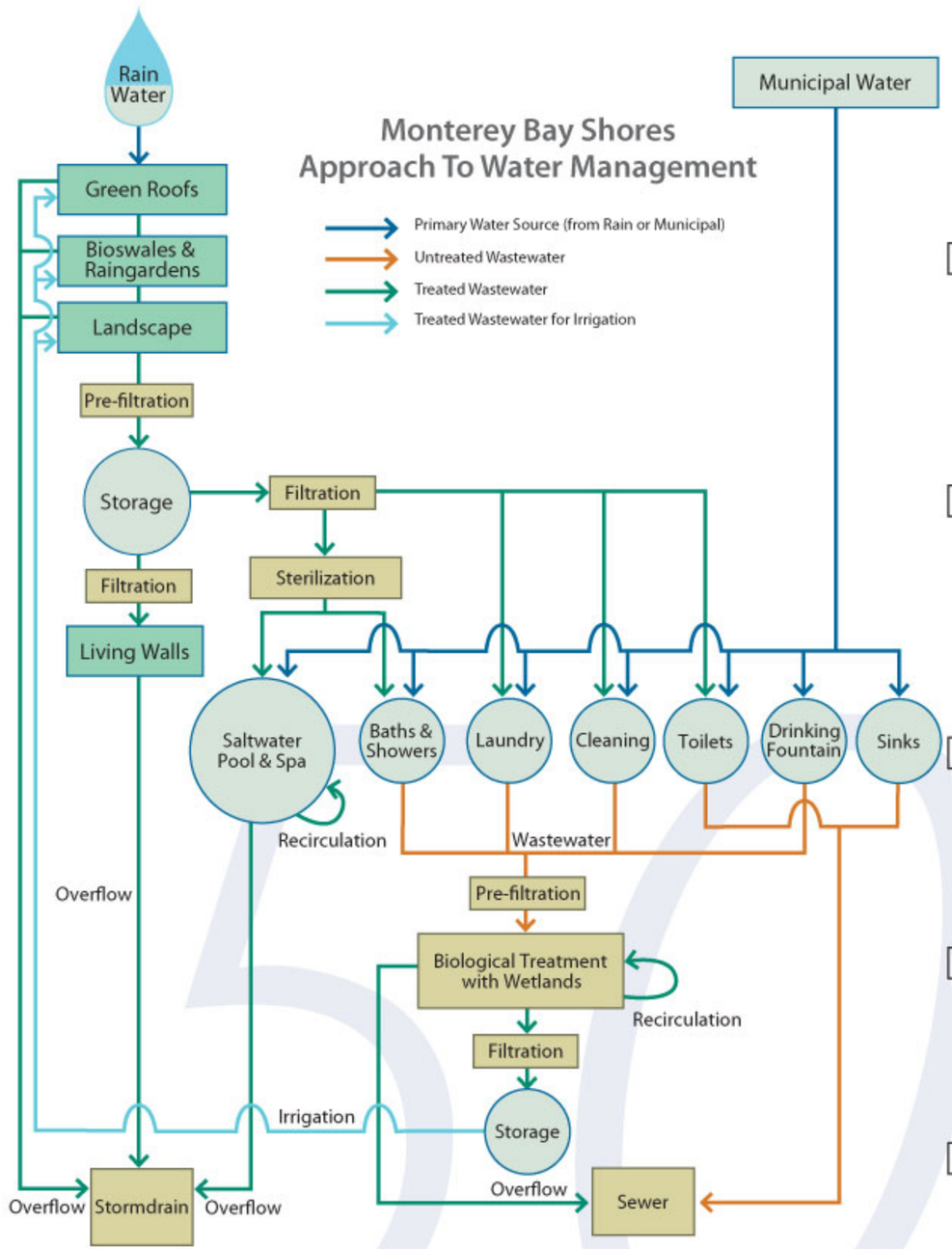
The resort's swimming pools and water features utilize saltwater and natural wetland filtration processes to maintain water quality. These systems, pioneered in Europe and installed in over 4,000 locations, will be integrated into the landscape creating additional habitat areas and amenities.



Water Feature Example

Natural pool systems create functional amenities and increase available habitat.

*Over **50%** of rain water will be used by the resort.*



Bioswales

Excess treated water will be contained in bioswales designed to infiltrate into the soil profile. This process will provide additional filtration, delivering high quality fresh water to aquifer recharge.

Celebration

Well being is reflected by the celebration of nature. Celebrating the environment is expressed by integrating life giving restorative landscapes into the built environment. The residents and guests will experience a natural, healthy, and relaxing environment as they celebrate their visit to Monterey Bay Shores.

Celebrating Water Example

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