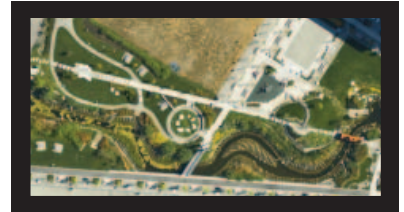


Southeast False Creek Waterfront and Hinge Park

Vancouver, B.C.

Ximena Bustamante and Susan Costa Paschke



Hinge Park

photo: www.pwlpartnership.com



client:

City of Vancouver

design team:

PWL partnership

Hayco

Stantec

Levelton

Geotility

Aqua-tex

SEFC Waterfront

constructed:

2005-2008

acres: 80

Hinge Park

constructed:

2006-2010

acres: 2.75

Context map and aerial view of SEFC (Millenium Water)

<http://maps.google.com/>

<http://www.thevillageonfalsecreek.com/Community.aspx>

The Southeast False Creek Waterfront development was created in two phases. Phase 1, was originally built to house the athletes for the 2010 Olympic Winter Games. Afterwards, the condos are sold at market value and affordable housing in a mixed-use, high density, sustainable neighborhood. The waterfront was a former brownfield, long used by industry such as railroads, lumber, machinery, metal works, and stone works. The new site integrates open spaces and pathways, links to adjacent neighborhoods, and maintains harmony among pedestrians, cyclists and transit. The waterfront area has become parkland, and includes the final link in the 22 km Seawall pedestrian-bicycle route. The development has re-established intertidal fish and shellfish habitats, native vegetation, and a bird habitat on a man-made island, and also provides for urban agriculture. At the northwest corner of the site is Hinge Park, a zero-waste water treatment plant. A constructed wetland winds through it with songbird houses and places where kids can climb on rocks and poke around in the mud. The design features serve more than one purpose. Storm water is used to irrigate and supply water for the sites features. Bridges and stepping stones are placed to stimulate creative play even while they satisfy visual and functional values. Wildlife habitat, natural play and aesthetic values are interwoven in the design fabric. The sewer pipe bridge and birdhouses subtly educate visitors about ecological past history, infrastructure, interconnectedness and sustainability.

“It’s artful, capricious, fun to the senses, beautiful. The landscape architecture of the Olympic Village waterfront is a thousand times more progressive than other waterfronts we’ve done.”

- Larry Beasley, former Director of Planning, City of Vancouver

Design Principles

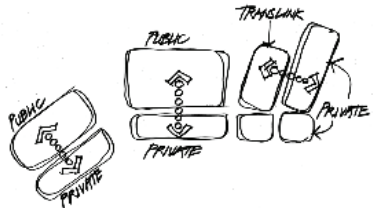
OVERALL BASIN FORM LEGIBILITY

Create a form that reinforces the idea of the False Creek “basin” with lower buildings near the waterfront stepping up to higher buildings. Higher buildings frame significant public parks and terminate views through and across SEFC.



DISTINCT NEIGHBORHOOD PRECINCTS

Precincts derive their form from the historic patterns and uses of SEFC, adjacent communities, and False Creek.

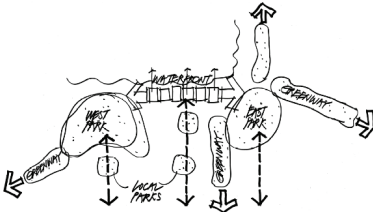


INTEGRATED COMMUNITY

Integration of all areas through street pattern, ground plane design, and overall building form.

STREET HEIRARCHY

The street network provides access but discourages through traffic circulation.

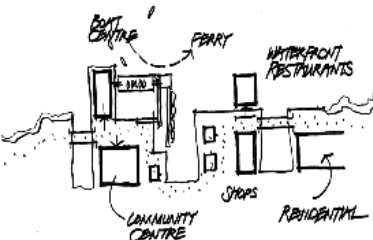


CONNECTED PUBLIC SPACES AND OPEN PARK

Parks and public open spaces are central organizing features, connecting with adjacent areas by foot and bicycle paths to create a walking and cycling friendly neighbourhood.

HERITAGE RECOGNITION

Preserve buildings with heritage significance and recognize the historic patterns of former industrial uses.



WATERFRONT ANIMATION

Engage and animate the public waterfront through the selection of land uses and design of shoreline features.

INCREMENTAL VARIED DEVELOPMENT

Encourage land parcelling and a co-ordinated parking strategy at a variety of scales.



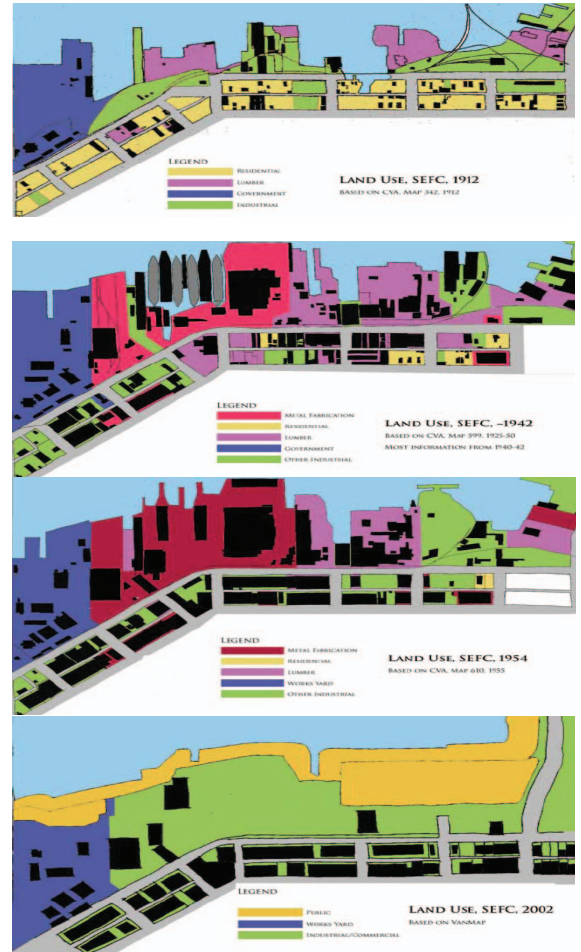
DEMONSTRATED SUSTAINABILITY

Demonstrate a comprehensive approach to sustainability reflected in both open space and building design.

Diagrams and principles from <http://vancouver.ca/commsvcs/bylaws/odp/SEFC.pdf>

History

The land along South East False Creek and Hinge Park are formerly marine estuarine wetlands. Historic descriptions of the area describe tidal grasses and swamps at low levels, while higher upland there were dense bushes of Pacific crabapple. Early First Nation people came to the shores of the lands to fish, hunt and harvest the native plants. Thru the late 1880s and into the 1st decades of the 20th Century, a rise in settlement, later an increase in European and Japanese immigrant population, economic growth of BC, and the arrival of rail, serious ecological changes began to occur. The wetlands and creek were dredged into a 350' wide canal used for local and regional trade. At low tide the canal was designed to have a 20' depth. This was the area near Main Street. The increase and importance of lumber in BC, created a need for the waterways to become a lumber storage zone, as well. The 1950s thru the 1970s pushed through a need for an extensive fill of these shores. The growing need for transit and traffic management was the main drive behind this. Throughout the industrial and population growth of Vancouver, the lands and waterways of the False Creek along with the Frazier River watershed were severely compromised. In the late 20th Century and the recent 21st Century, the need for healthy and ecologically sound human built environments have led the way for a new design approach to sustainable Vancouver urban center. The Master Plan for Vancouver's SEFC development included the community members, public artists, urban ecologists, designers and all others who have a future in its implementation and its future success.



maps: <http://vancouver.ca/commsvcs/south-east/documents/pdf/privatelandscharacter.pdf>

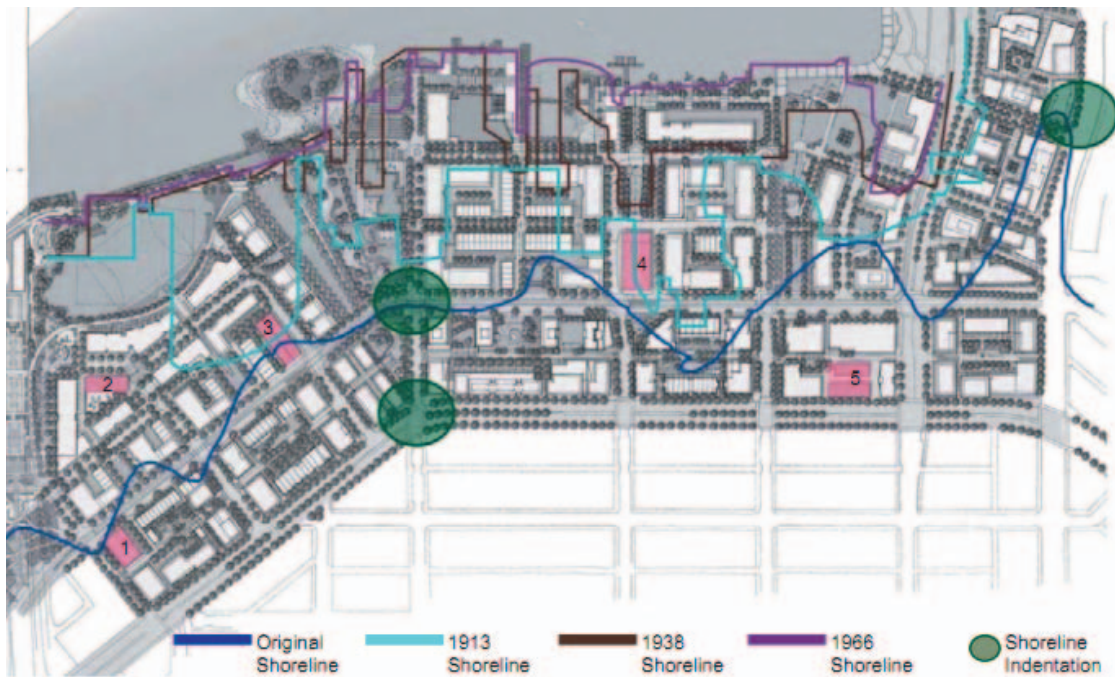


photo: SEFC Master Plan Vancouver Commonwealth
<http://vancouver.ca/commsvcs/southeast/documents/pdf/publicrealm.pdf>

“This was a completely different model from others in the city. The City developed these public spaces, as opposed to working with a developer to develop them and then turning them over to the City. This proved to me that the City has stepped up to the plate to develop public spaces as they want to see them done. They set the bar.”
- Margot Long, PwLpartnership, Landscape Architect

Design Features

Ecology

Much of False Creek has been infilled over the century to accommodate industry and residential properties leaving the area without a natural shoreline. Because the development was to fill a portion of the waterfront, the Vancouver required compensation by a margin of two to one. 60,000 cubic meters of left over site-excavated rock, cobble, gravel, sand, and boulders were used to build the .5 acre Habitat Island, shoreline, and inlet. A path of stepping stones and gravel allows people to walk out to the island during low-tide, otherwise the stepping stones are submerged during higher tides. Habitat Island has aquatic, riparian, and upland ecologies, endemic to the Pacific Northwest. Vertical snags, native vegetation, and a natural shoreline have attracted wildlife above and below the water, such as bald eagles, a variety of waterfowl. This area is vital habitat for local and migratory birds. It is part of an Important Bird Area known as English Bay and Burrard Inlet. Fish are returning, too. Herring is spawning for the first time in many years here. Trees are planted along the seawall to bring vegetation back to the shoreline using Deep Root SilvaCells that give the trees room to grow and absorb nutrients in uncompacted soil.



Habitat Island



Bald Eagles have been seen nesting. Herring eggs laid along the shores of Habitat Island.



The stepping stones out to the island



Trees have soils to grow

all photos: www.pwlpartnership.com, except bald eagle: SPaschke

Water

Rainwater management at SEFC is part of an integrated resource management system. Design elements interact to complete “functional-ecological” cycles. Rooftops are green, designed to absorb/filter rainwater. What is not absorbed or evaporated is collected in basement cisterns to flush toilets, irrigate the gardens, and supply water feature throughout the SEFC neighborhoods. Water collected from the roads, impervious surfaces, and any overflow from the cisterns is moved into the constructed wetland or underground gravel/sand infiltration cells. The movement of water in the wetland aerates it, exposes it to sunlight and it comes out into Flase Creek cleaner. The movement is beneficial to humans’ delight, as it is a playful and aesthetic design element throughout. According to William Patrick Lucey, Aquatic Ecologist and Urban Geographer, consulting with the SEFC development design team, IRM (integrated resource management) serves to capitalize on the by-products of urban dwelling within “closed-loop” systems. The intent for the future is that urban centers will not only save money in energy costs, resource costs, and maintenance costs but also cities will turn a profit. This design intent is an example of mimicking natural systems and working with the native ecology of place and not against it. The use of permeable surfaces and effective impermeable areas contribute to the IRM’s success. Lucey, attributes success of this model to economically productive, environmentally neutral, and socially responsible solutions.



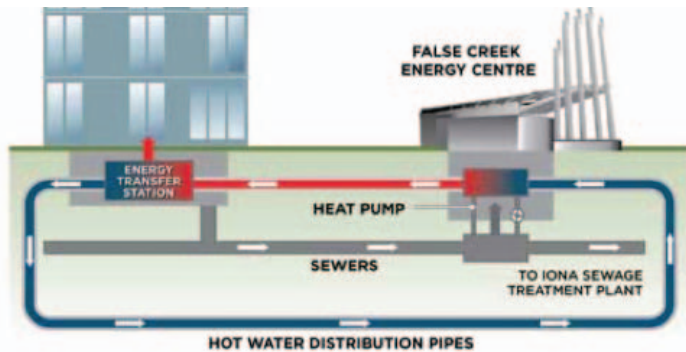
Constructed wetland cleans the wetland, provides habitat for wildlife, and education about the water system. Water returns to the watershed cleansed from its urban toxicity.



Aerial view of constructed wetland at Hinge Park
all photo: PWLpartnership

Energy Conservation

The Neighborhood Energy Utility provides **70% of total thermal energy** demand for the SEFC community. The rest comes from solar modules and efficient natural gas boilers. With the plan to have a facility on site, neighbors expressed concerns regarding the effect of an industrial facility in their neighborhood. Design engineer Ausenco Sandwell integrated the facility's operation with public art. The architectural exhaust flutes respond to the neighborhood's energy consumption by using LED lights that change from blue in times of low energy consumption, to red for high demand. It cost \$28 million dollars, serves



wastewater-heat recovery system, above
lighted exhaust flutes, right

http://vancouver.ca/sustainability/documents/waEnTech_Dec10.pdf

Other energy saving measures include:

- Increased Wall and Roof Insulation
- High Performance glazing
- External Passive and Active Shading
- Thermal Mass
- Radiant Heating and Cooling
- Natural and Displacement Ventilation
- Occupancy Sensors
- Passive Ventilation Air Tempering/Heat Recovery Ventilation
- Heat Rejection via Parkade Exhaust
- High Efficiency Transformers
- Energy efficient lighting system design
- Low Flow Plumbing Fixtures
- Advanced Lighting Control System
- Heat Pumps/Variable Refrigerant Flow
- Solar Absorption Chiller

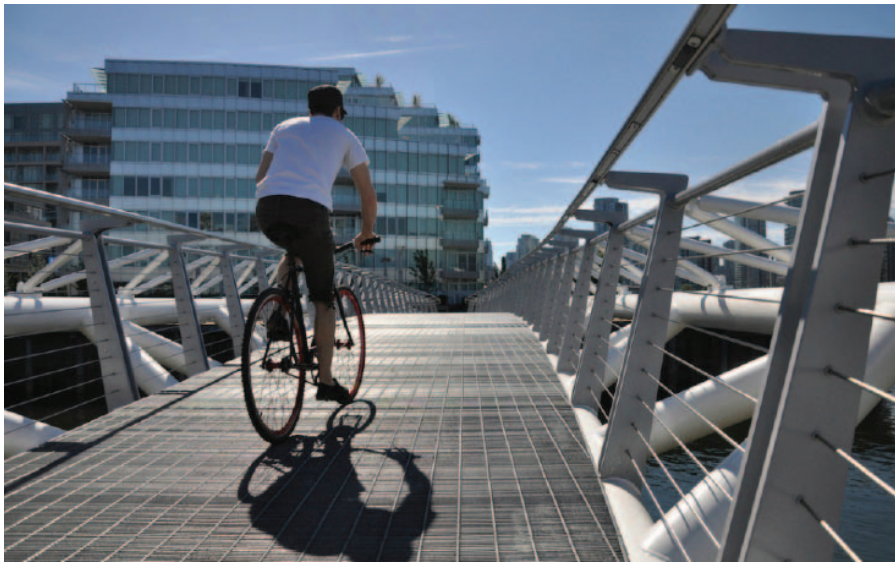
50% of roofs are greenroofs



Olympic-themed green roofs
<http://www.greenroofs.com/blog/2010/02/17/>

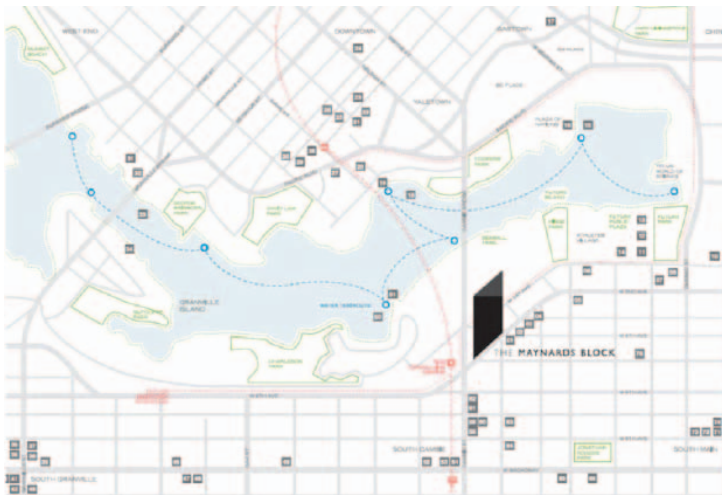
Connections

Bike lanes and pedestrian paths are found throughout the development and connect to other Vancouver areas. Vancouver's buses, SkyTrain, and AquaBus make up the network of public transportation links to the further 1800 square kilometers of Greater Mainland Vancouver.



The canoe-inspired bridge was intentionally built with a high degree of transparency to minimize the shadows cast on the marine life below, while allowing humans to look through to the water.

photo: <http://www.pwlpartnership.com/#/our-portfolio/waterfronts/southeast-false-creek-waterfront>



The SkyWay and AquaBus map showing the stops in the SEFC Waterfront area

photo: <http://www.vancouver-real-estate-direct.com/buzz/2010/07/vancouver-maynards-block/>



Because of parking restrictions the colorful AquaBus water taxis are more convenient and fun than driving.

photo: <http://members.virtualltourist.com/m/p/m/1ba27e/>

“Locating this artwork in an urban plaza not only highlights what has become the ‘natural’ environment of the sparrow, it also reinforces the ‘small’ problem of introducing a foreign species and the subsequent havoc wreaked upon our ecosystems.... The Birds reminds us of our past, but it aspires to challenge the future.”
 - Mcfanwy MacLeod, Vancouver Artist

Play

Whimsy, Eco-literacy, Historical references of place, and humor are created by design elements and the inclusion of Public Art works throughout Hinge Park and the outlying SE False Creek developed neighborhoods. Animation of place is featured through the use of water and native plantings to recall the natural history of the waterfront. Children and adults can explore, climb, roll, spin, run and rest in an environment rich in beneficial insects, diverse avian life, and a growing marine estuarine fauna and flora zone. Seating made of logs and varied plinths create habitats for animals and add a rich texture and sensory value to this urban setting.



Exploration and Eco-literacy at play
 photo: pwl partnership



Use of recycled materials as play equipment
 photo: pwl partnership



References to history by using artifacts found on site
 photo: pwl partnership



Creating awareness of human impacts on the environment with whimsy
 photo: http://vancouver.ca/commsvcs/cultural/publicart/2010/lg_thebirds.htm



Enticing seating along the waterfront
 photo: pwl partnership

Lessons Learned

Overall the waterfront is an integrated design of history, ecology, community, and sustainability. Stormwater is used throughout the site, waste-water is used innovatively, and the public is enticed to see how these principles all work together in an inviting, vibrant, beautiful landscape. The City of Vancouver also produce a Public Art Master Plan to encourage and direct developers to build interesting and fun public spaces. We found some criticisms of the development, but those mostly are directed towards the lack/cut of affordable housing in the area. The park and waterfront themselves seem to be well-used and loved by evidence of personal blogs and flickr photos. There could be some sustainability design flaws, however. There was not enough money to properly reinforce the sea wall, self repairs to the seawall are required, the pavers and materials were designed to easily pull them out. Besides maintenance costs, this could leave the site could looking neglected and become riddled with tripping hazards if these materials were to come loose. Pedestrian traffic on Habitat Island could trample sensitive plants and create budget concerns for the city of Vancouver.

Quotes from park users and designers:

“This project was once going to be used as a way to deal with the city’s issues and now it’s just making them worse,” said protester Maxim Winther. “With real estate speculation, rents are going up and people are being moved out of the city — people that live [and] work [here], and their community is here.”

<http://www.cbc.ca/news/canada/british-columbia/story/2010/05/15/bc-olympic-village-condos-sale.html>

“Parks are frequent, even along the open water by the seawall. This is a city that is well connected to most of its waterfront.” Lydia Heard, <http://www.lydiaheard.com/citywalker/citywalking/>

“We’ll see if it can be self-managed. It would be a huge headache for the (Vancouver) Parks Board.” - Margot Long, in regards to the sensitivity of the plants on Habitat Island to survive amid dog and pedestrian trappings.



Pipe Brudge above the wetland. References to history mixed in with play and gardens.
all photo: pwl partnership

Awards

Brownie Award for Best Overall Brownfield Project from the Canadian Urban Institute - October 2009

Honor Award from the Waterfront Center in Washington D.C. - October 2009

National Merit Award for the Waterfront Design from the Canadian Society of Landscape Architects - March 2009

National Urban Design Award for the Public Realm Plan from the Royal Architectural Institute of Canada - October 2006

Sustainable Transportation Award from the Federation of Canadian Municipalities - January 2006.

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March, 2007.