DEEP BAY DEVELOPMENT

SUSTAINABILITY INITIATIVES
INTRODUCTION

Baynes Sound Investments Ltd. proposes to develop a master planned residential neighbourhood and recreational vehicle resort community that supports best practices through employing a wide range of green building initiatives.

Throughout the design and development of the project, the core issues of sustainability will be addressed and sustainable design criteria and principles referenced.

Wherever possible the materials, methods and technologies that mitigate the negative impacts associated with energy and resource use will be considered, which supports the Regional District of Nanaimo toward becoming a leader in Sustainable Communities.

PROJECT OVERVIEW

Located within the Deep Bay Community north of Nanaimo, within the Regional District of Nanaimo, the Deep Bay Development project site consists of three parcels of land (Lots A, B and C) totalling approximately 341 acres. The site lies to the east of the Deep Bay Harbour and to the west of Gainsburg Road. The Nanaimo Railway dissects Lot A and Lot B and the Island Highway dissects Lot B and Lot C. The development site is accessed to the off Crome Point Road to the north of Lot A and can be accessed off the Island Highway along the southern boundary of Lot B.

Lot A and Lot B are separated by the Nanaimo Railway which dissects the property east to west. As there is a proposed public road planned to run north south through both Lot A and B a full level crossing has been planned at the railway intersection.

There are some ravines and steep embankments along the west coastal area of the property, however no development has been planned for this area. Within the developable land area, there are no severe topographical challenges on the site.

The University of Vancouver Island has a campus located on the southwest boundary of Lot A. The LEED platinum campus building serves the Shellfish Research Station of the university. The proposed road access off the Highway will provide the necessary vehicular transportation route to the University Campus.

Historically the site has been vacant with intermittent logging. The last logging activity took place approximately eight years ago and the site is now experiencing a scrubby re-growth. In 2004 Lot A and Lot B were removed from the ALR due to relatively poor agricultural capacity and the potential of damage to the Shellfish industry in the adjacent waters to the west as a result of various forms of agriculture.
Due to the physical character of the site and the close proximity to the Village of Bowser and the Vancouver Island University Research Station the proposed development on Lot A will consist of up to 386 units of mixed housing types, a small commercial/retail area, a large community central green space, a passenger train station, a transit loop for a future local transit connection, vehicular, bicycle and pedestrian circulation, natural open spaces, public trail corridors, and small neighbourhood parkettes.

The proposed Lot B development consists of a Master Planned RV Resort. This proposed Resort has been designed to become one of the top RV Resorts on Vancouver Island. Once fully phased in, the resort will have the capacity for 292 Units, 70 of which will be pull through. The resort has been designed to accommodate large rigs with careful attention paid to the vehicular routes and personal safety. The RV lots have been designed in small neighbourhoods with green space and large setback buffers allowing the Resort layout to sit naturally within the larger Deep Bay community.

A full range of amenities are planned within the resort including a 6500 sq foot lodge with an indoor pool as well as an outdoor pool, hot tub and lap pool, bocce ball, horse shoe pits, tennis, basketball, volleyball, badminton, putting green, secured pet areas and walking trails are highlighted amenities to be offered within the resort.

The overall master plan combines both lots into a larger neighbourhood community providing the Deep Bay area with social and recreational amenities, affordable housing opportunities, economic opportunities and a master planned community with a deep commitment to green building best practices.
Sustainability, by definition is the capacity to endure (Wikipedia, 2009). The dimensions of sustainability are most often referred to as environmental, social and economic. Sustainable development then can be measured by the achievements in three areas:

- Environmental Sustainability
- Social Sustainability
- Economic Sustainability

The “three spheres” of sustainability as shown indicate that the spheres are mutually reinforcing, and illustrate that sustainable projects must strike a balance between social, economic and environmental issues.

While a great deal of work is being done in every department at the Regional District, the RDN currently has no adopted sustainability document in place to support the Regional Growth Strategy. Within the proposed Deep Bay Development, we have kept the concept of sustainability in the forefront throughout the planning phases for the project. We have created Sustainability Principles that will be adopted and adhered to as this project unfolds. This Principles document will be supported by Design Guidelines, which will integrate the sustainability principles as adopted by the team.

The Deep Bay Development Sustainability Principles will draw from the three spheres of sustainability, and they will focus on the following:

- land use, density and layout,
- climate change - clean technologies and transportation (all aspects), energy use and carbon emissions,
- solid waste management and recycling,
- environmental protection – ecology and wildlife, landscape and open space and water efficiency,
- responsible building, best practices
- economic opportunity and business practices

Our focus on the environmental aspects of sustainability include, but are not limited to, minimizing climate change gases through employing best practices throughout the design and implementation of our project, employing water use reduction technologies and implementing best practise storm water management techniques throughout the design and using those practices to restore the water systems on site.

Social sustainability can be measured by the overall well being of people. We link social well being with both mental and physical health. Our proposed development provides a walkable neighborhood community, green open spaces with an integrated trail network, small parks with gathering areas, community garden spaces, recreational amenities, and a retail commercial area for additional social gathering opportunities.
Economic sustainability is achieving a sufficient economy to sustain the population. Within the Deep Bay Development project we have focussed on improved economic prospects for the local community and the larger Region, such as developing affordable housing opportunities, and creating job opportunities not only through the build out of the project, but opportunities that can be realized on site and sustained in the long term. There will be excellent investment opportunities and revenue from property assessments and taxes, the RV Resort will provide long term economic opportunities and gains for the Regional area, and there are longer term economic benefits of the sustainable technologies and practices that will be used within this development. Additionally, the design guidelines will specify to use local materials wherever possible.

The Deep Bay Sustainability Principles have been developed referencing several key documents:

Canada Sustainability Primer, Step by Natural Step, 2009;
Standards and Best Practices for Instream Works, 2004;
Canadian Green Building Council – LEED ND, LEED for Homes, LEED NC;
Smart Growth BC;
Randall Arendt’s Conservation Principles;
RDN Regional Growth Strategy;
Bowser Town Centre, 2010
Our Vision is to build a residential neighborhood community that demonstrates and celebrates a sustainable vision, utilizing best practices throughout the development, including walkable neighborhood design, green buildings, water efficient landscape design and best practice storm water management.

The development will be a safe and health centred neighborhood that respects the natural environment and the larger community, focusing development on sections of the site that have been altered through past uses, and preserving the undisturbed and ecologically significant areas of the site.

This will be an inclusive community plan, providing residents with the best advantages to live, play, work and enjoy nature’s best gifts of pristine drinking water, clean air, walking trails, a beautiful landscape and stunning ocean views.

Our development will support the Regional District vision for Growth and Management, into the future.
The Deep Bay Development Preliminary Sustainability Check List:

- protects the coastal shoreline and provides public access to the waterviews;
- preserves & enhances environmental areas;
- provides long term economic benefits to the Regional District;
- provides attainable housing & a variety of housing choices into the market;
- provides opportunities for residents to live, work and play;
- encourages pedestrian movement to a commercial node;
- encourages alternative transportation;
- promotes health & well-being by promoting an active lifestyle;
- removes servicing operations and responsibility from the Regional District;
- reduces infrastructure costs required to service the development;
- provides a comprehensive approach to stormwater management through a connective, multi-functioning infrastructure for harvesting water, restoring biodiversity, and enhancing the community’s sense of place and identity;
- proposes a comprehensive approach to the management and disposal of sewage;
- preserves over 50% of site as greenspace; and
- creates a series of new recreational trails.
PRINCIPLES

While the proposed neighbourhood community development and the Recreation Vehicle Resort development in general can be viewed as two different development types, the overarching sustainability principles outlined within this document were used to design both areas of the development, as we recognize the strengths within the principles and the need to incorporate these into our development in order to create a sustainable community.

The following principles outline the guiding sustainability initiatives that Baynes Sound Investments Ltd. is employing to ensure that the proposed development is designed and developed in a sustainable manner:

- **Social Amenities:**
  - We will include a variety of housing types to enable citizens from a wide range of economic levels and age groups to live within the proposed neighborhood development,
  - Within the RV Resort, we will include a variety of lot sizes which in turn will be reflected in the market rates for each lot size, making the RV resort more affordable for potential users,
  - We will include specialized open spaces in the form of public squares, greens and parks, community gardens, as well as naturalized riparian corridors and open spaces,
  - Public spaces will be designed incorporating the Crime Prevention Through Environmental Design (CPTED) principles, encouraging the attention and presence of people at all hours of the day and night,
  - Walking trails will be incorporated throughout the design, as well as bicycle paths. Existing trails along the eastern property boundary shall remain in place with connections made to the proposed development,
  - Design Guidelines will ensure that products and materials to be selected throughout the development will be free of substances that could be harmful to occupants (specifically adhesives, sealants, paints and coatings, carpets, composite wood products, door cores, and agrifiber products will be targeted),
  - We will continue to actively consult with the local community, the First Nations and local interest groups to understand their views and concerns.

- **Economy**
  - New economic opportunities will arise from the Deep Bay Development through: short term direct employment opportunities; the spin off economic benefits that are derived from development; and the longer term economic benefits of the sustainable technologies and practices that will be used within this development.
  - The Deep Bay Development will result in significant tax revenues, direct and spin-off impacts to the Regional economy, significant jobs for the area and will bring retail dollars into the Regional District during the development period.
  - There will be excellent investment opportunities and revenue from property assessments and taxes.
  - The development will include a centrally located commercial/retail space to service the neighborhood and the larger community.
• Transportation:
  o Transportation is a key issue within sustainable development. While the location of the Deep Bay site negates addressing transportation issues directly through immediate local transit connections, as transit currently does not service the area, we have been in dialogue with Island Corridor Foundation and Southern Railway of Vancouver Island and have planned a passenger station on site to service the Deep Bay community as well as the University Shellfish Research Station.
  o The Deep Bay Development project team will work with the local transit authorities to bring bus service into the community, and the project has been designed to include the future development of the Public Transportation system into the area. Once the development is fully realized there is an economic potential for a shuttle bus service to be developed for residents and visitors.
  o We have ensured the development offers walkable, pedestrian friendly streets, with dedicated bicycle lanes within the circulation design, which do allow for a more sustainable mode of transportation for the future residents of this development. Dedicated bike lanes allow all members of the neighbourhood community to travel safely by bicycle and to have access to the Regional District’s larger cycling network.
  o We have incorporated traffic calming solutions into our street network design in order to slow or reduce motor-vehicle traffic, improving the safety for pedestrians and bicyclists and encouraging consistent, slow speeds without excessive acceleration or braking which will help to reduce automobile emissions and improve the environment for residents.

• Ecology and Wildlife:
  o In developing the Design Guidelines, the project team will follow the Standards and Best Practices for Instream Works, 2004 to clearly and concisely outline the Guidelines for water and natural resources.
  o The development team is committed to providing a minimum of 50% of the site to Park/Open space.
  o The project will include extensive natural corridors and open space to provide habitat for plants and animals and will reintroduce native habitat where possible as well as include some planned reforestation to occur in selected areas.
  o The project will retain wide riparian protection areas, control human access to aquatic and riparian ecosystems and through landscape install measures to protect wetlands, and marine sensitive zones.
  o Baynes Sound Investments Ltd. will identify all aquatic and riparian features and functions prior to any development and the design will maintain, restore or enhance aquatic and riparian ecosystems which will include daylighting culverted streams where possible.
• Solid Waste and Recycling:
  o Waste from construction will be recycled.
  o The Deep Bay project will include recycling and composting facilities that will service the entire community. The facility will include an allocated space to place household items for re-use.
  o The design team is currently researching designs which will stipulate that all kitchens support a three stream solid waste separation system (paper/containers, organics, and garbage).

• Clean Technologies:
  o The design team will use the best available design practices and technologies to address potential air, water, land, and light impacts of development.

  o The design will ensure that appropriate sediment and erosion control measures are in place protecting riparian vegetation and water quality during and after construction.
  o The project will manage rainwater to prevent runoff impacts on local streams through implementing best practices in stormwater management.
  o The proposed development will employ water efficient practices ensuring the minimum amount of water use possible for all applications including homes, buildings and landscape.
  o The design will provide an extensive tree planting program along the street ways and trail ways.
  o Baynes Sound Investments will provide a complete recommended planting list to the Regional District as well as a comprehensive planting plan for all areas within the proposed development.

• Community Infrastructure:
  o Walkable streets in this neighbourhood community development will connect services, amenities and homes which will allow people to move around without using cars.
  o Streets will be designed incorporating planted medians, boulevards and centre islands on traffic circles.
  o Streets will be narrower to reduce hard surface and will only permit parking on one side of the street, if at all.
  o Streets will be designed with built in traffic calming measures to encourage consistent, slow speeds without excessive acceleration or braking which will help to reduce automobile emissions.
  o The design will incorporate street trees, swales, rain gardens and will cite permeable pavement and pavers to be installed where possible.
  o Lighting will be designed adhering to the Dark Sky principles in order to mitigate light pollution and to ensure pedestrian visibility at night.
• Energy Use and Carbon Emissions:
  
  o The design guidelines will ensure that proposed buildings and infrastructure will employ energy efficient designs through implementing the following energy efficient recommendations:
    • High insulative capacity
    • High energy efficient glazing
    • Interior daylighting
    • Ventilation
    • Thermal resistance
    • Use of Energy Efficient technologies and appliances
  
  o The proposed buildings will follow the principles of passive solar design – to take the most benefit from the sun. Each home will be designed to maximize natural ventilation, sunlight and views,
  
  o The design guidelines will ensure that the buildings and infrastructure are designed for easy maintenance and long term energy efficient operation,
  
  o The impact of the heat island effect will be mitigated through the use of vegetation, the design of narrower street ways to reduce paving, selecting light coloured hard surface materials, and through roof design,
  
  o The design guidelines for the new homes will include using highly reflective (high-albedo) roofing materials to mitigate summer heat absorption into the homes, reducing the need for mechanical cooling systems.

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1 Heat island effect occurs from the hard surfaces absorbing and storing heat from the sun, which then causes the temperature within the area to rise. The result over time creates a community which can be expensive to cool and one that may become more prone to smog.
To help us track our sustainability initiatives, we will produce a detailed technical sustainability matrix of specific measures and approaches that we propose to adopt. Concise Design Guidelines will also be created for each aspect of the proposed development, helping to ensure a high quality development that adheres to the principles laid out and adopted by Baynes Sound Investments Ltd.

Our matrix and design guidelines will reference several key documents that have been referenced in forming our sustainability principles. Primarily the documents referenced are as follows:

- RDN Regional Growth Strategy Bylaw No. 1309, 2003
- RDN Electoral Area “H” Official Community Plan, Bylaw No. 1335
- Leadership in Creating Sustainable Communities, RDN 2006-2009 Strategic Plan
- Regional Growth Strategy (RGS) Background Report, “Understanding Our Choices”, June 2009
- LEED: CaGBC LEED Canada NC – 2004
- CaGBC LEED Canada for Homes – 2009
- Smart Growth BC

**LEED™**

The Leadership in Energy and Environmental Design (LEED) Green Building Rating System™ encourages and accelerates global adoption of sustainable green building and development practices through the creation and implementation of universally understood and accepted tools and performance criteria (CaGBC).

LEED is a point-based rating system that works by requiring a minimum level of performance through prerequisites, and rewarding improved performance in each of the measurable categories. Certification is based on the total point score achieved, following an independent review and an audit of selected Credits (CaGBC). The Canadian rating systems are an adaptation of the US Green Building Council’s (USGBC) LEED Green Building Rating System, tailored specifically for Canadian climates, construction practices and regulations (CaGBC).

**LEED NC in Canada:**

LEED for New Construction and Major Renovations assesses the overall performance of commercial and institutional buildings, i.e: buildings regulated by Part 3 of the National Building Code. It also applies to retail, mid- and high-rise multi-unit residential buildings (MURBs), public assembly buildings, and manufacturing plants (CaGBC). There are five principal categories (with the sixth being Innovation in design) from which to measure the performance:

- **Sustainable Site Development:** encourages site selection, planning, landscaping and design strategies that use land more effectively and minimize construction and operational impacts.
- **Water Efficiency:** encourages strategies that reduce the amount of potable water used for landscape irrigation, and building operations. Emphasises strategies that reduce infrastructure for the supply of potable water and removal of sanitary waste by reducing water use, deploying onsite rainwater harvesting and wastewater technologies.
- **Energy and Atmosphere:** reduce the depletion of non-renewable energy resources, reduce related
environmental impacts (particularly air pollutants) and encourage use of renewable energy sources with low environmental impacts.

- **Material and Resources**: encourage design strategies that reduce and reuse material resources and reduce construction waste, encourage the selection of materials that are environmentally preferable.
- **Indoor Environmental Quality**: incorporates indoor air quality, elimination of indoor pollutants, ensures thermal comfort and system controllability and incorporates daylighting and connections to the outdoors
- **Innovation in Design**: innovation in design, exceptional performance above LEED-NC requirements, and use of LEED AP professional.

**LEED Canada for Homes:**

LEED Canada for Homes is a rating system that promotes the design and construction of high-performance green homes. Performance is measured in eight categories as follows:

- **Innovation & Design Process**: Special design methods, unique regional credits, measures not currently addressed in the Rating System, and exemplary performance levels.
- **Location & Linkages**: The placement of homes in socially and environmentally responsible ways in relation to the larger community.
- **Sustainable Sites**: The use of the entire property so as to minimize the project’s impact on the site.
- **Water Efficiency**: Water-efficient practices, both indoor and outdoor.
- **Energy & Atmosphere**: Energy efficiency, particularly in the building envelope and heating and cooling design.
- **Materials & Resources**: Efficient utilization of materials, selection of environmentally preferable materials, and minimization of waste during construction.
- **Indoor Environmental Quality**: Improvement of indoor air quality by reducing the creation of and exposure to pollutants.
- **Awareness & Education**: The education of the homeowner, tenant, and/or building manager about the operation and maintenance of the green features of a LEED® home.

**LEED for Neighbourhood Developments:**

The USGBC has developed a draft of the LEED for Neighbourhood Development (LEED ND) rating system to guide and assess sustainable community development. The system was created as partnership between the USGBC, Natural Resources Defence Council and the Congress of New Urbanism. The Canadian Green Building Council is developing their own version of LEED ND. In the interim, Canadian projects will use the US version. LEED ND awards points and prerequisites based on a number of metrics and measures, grouped into the following categories:

- **Smart Location and Linkage**: (e.g. reducing automobile dependence, habitat and wetland conservation, transportation connectivity)
- **Neighbourhood Pattern & Design**: (e.g. compact and open development, walkable streets, housing diversity and density, public access to active space, employment, and alternative transportation)
- **Green Infrastructure and Buildings**: (e.g. energy and water efficiency in building, stormwater management, existing building reuse, on-site energy generation, light pollution reduction)
- **Innovation and Design Process**: (e.g. innovation and exemplary performance, LEED accredited professional)
Smart Growth BC

The “Smart growth” land use and development principles aim to enhance our quality of life, preserve the natural environment, and save money over time. The principles were developed to ensure that growth is fiscally, environmentally and socially responsible and to recognize the connections between development and quality of life.

Smart Growth BC was created as a joint project of the University of Victoria Eco-Research Chair of Environmental Law and Policy and West Coast Environmental Law Association.

Principles of Smart Growth:
• Mix land uses. Each neighborhood has a mixture of homes, retail, business, and recreational opportunities.
• Build well-designed compact neighborhoods. Residents can choose to live, work, shop and play in close proximity. People can easily access daily activities, transit is viable, and local businesses are supported.
• Provide a variety of transportation choices. Neighborhoods are attractive and have safe infrastructure for walking, cycling and transit, in addition to driving.
• Create diverse housing opportunities. People in different family types, life stages and income levels can afford a home in the neighborhood of their choice.
• Encourage growth in existing communities. Investments in infrastructure (such as roads and schools) are used efficiently, and developments do not take up new land.
• Preserve open spaces, natural beauty, and environmentally sensitive areas. Development respects natural landscape features and has higher aesthetic, environmental, and financial value.
• Protect and enhance agricultural lands. A secure and productive land base, such as BC’s Agricultural Land Reserve, provides food security, employment, and habitat, and is maintained as an urban containment boundary.
• Utilize smarter, and cheaper infrastructure and green buildings. Green buildings and other systems can save both money and the environment in the long run.
• Foster a unique neighborhood identity. Each community is unique, vibrant, diverse, and inclusive.
• Nurture engaged citizens. Places belong to those who live, work, and play there. Engaged citizens participate in community life and decision-making.