

# Sustainable Rural Land Development Checklist

## How to plan a safe, energy efficient and environmentally friendly project

### What is a Sustainable Rural Land Development Checklist?

This Sustainable Rural Land Development Checklist is offered to people applying for a rezoning/OCF amendment, development variance permit, or a building permit. The checklist is voluntary, and is intended to do the following:

1. Inform residents of development and building options that support and advance community sustainability objectives.
2. Inform residents of development and building options that can result in long term reductions in energy use and maintenance costs.
3. Inform residents of development and building considerations that may reduce the risk from natural hazards, and reduce negative impacts on the natural environment.

The Regional District's intent is to raise public awareness of some important development considerations that can improve the quality of development in the region. The goal is to encourage residents to develop their land in the most responsible and effective manner possible, for their own benefit, and the benefit of the greater community.

### What is sustainable development?

Sustainability is a concept relating to our ability to maintain or sustain a certain way of living for the long term.

When considered at the local level, increased sustainability requires that we find a way to develop that results in reduced negative social, economic, and environmental impacts on our land and our community.



**REMINDER:** It is important to consult with the Regional District of Bulkley-Nechako (RDBN) before starting a land development or construction project. Staff can guide you through the checklist and can help identify items that may require special consideration. Early consultation with the RDBN expedites the rezoning or permit application process and helps avoid unnecessary costs and delays.

### Why is sustainable development important?

Sustainable development is vital to the continued health of our communities, especially within the context of environmental impact and climate change. There are significant personal benefits such as savings from energy efficiency, reduced vehicle operation and maintenance, improved public health, and reduced threat from natural hazards.

Local governments play an important role in creating more sustainable communities. Land use and development patterns that result in more complete and self reliant communities are important considerations. However, many sustainable and smart development practices can not be effectively regulated. It is up to each property owner to voluntarily do what they can to improve their community, reduce their impact on their environment, and protect their property and themselves from hazards.

A sustainable community is a resilient, energy efficient, self sufficient, and healthy community. It is up to you!

# DEVELOPMENT REGULATIONS

When considering land development or building construction in the rural area, remember that there are multiple regulations that may apply.

## ZONING AND OFFICIAL COMMUNITY PLANS (OCPs)

In most areas of the RDBN land use is regulated by a Zoning Bylaw. Zoning regulations include use, lot size, density, and setback regulations. The long term vision or plan for a community's development is contained in the area's OCP. Zoning is the tool used to implement the goals contained in the OCP.

## BUILDING PERMITS

In most areas, new construction or building alteration requires a building permit from the Regional District. Building permits are not required if the property is outside the service area or if the proposed building is smaller than 25 square meters (269.1 ft<sup>2</sup>) in size. To find out if your property is within the building regulation area, please contact the RDBN Building Inspectors or the Planning Department.

## AGRICULTURAL LAND RESERVE

Lands within the ALR are subject to strict Provincial land use and subdivision regulations. Any proposed non-farm use or subdivision must undergo an application process to ensure that the area's agricultural interests are protected. Applications are processed by the RDBN and sent to Agricultural Land Commission for a decision.

## SEWAGE DISPOSAL

Residential on site sewage disposal systems must be designed by a person authorized under the Provincial Sewerage System Regulation. Property owners may install certain types of systems provided that a number of conditions are met. Be sure to contact Northern Health before you proceed.

## ARCHAEOLOGICAL SITES

In BC archaeological sites are protected by legislation. The Regional District can check if there is an identified site on a property. An archaeological site does not mean you can't develop, however, a permit may be required from the Province.

## REGULATION CHECKLIST

Have you checked that the proposed use is consistent with Regional District Zoning and ALR regulations?

Yes  No  N/A

Have you checked if building permits are required?

Yes  No  N/A

Have you contacted Northern Health for a list of qualified sewage system designers/installers?

Yes  No  N/A

Have you checked with the Regional District for identified archaeological sites (if present, follow up with the BC Archaeology Branch)?

Yes  No  N/A

## LAND USE CONSIDERATIONS

The land use decisions made today will have long lasting consequences and will determine the future shape of the built environment. The mistakes we make today will be paid for by future generations. We need to be smart and strategic. We need to use land efficiently. We need to protect the environment.

Infill or redevelopment of existing residential areas reduces sprawling land use patterns. Reduced sprawl results in less impact on the environment, and reduces our need to drive longer distances on a daily basis. Infill can help preserve the character of our rural and natural areas, and our quality of life.

Carefully diversifying the uses in existing residential areas can reduce transportation costs and enhance liveability. This may also provide new opportunities for employment and promote diversification of the local economy.



# SPRAWL:

*SCATTERED DEVELOPMENT THAT  
INVADES LANDS IMPORTANT FOR  
ENVIRONMENTAL AND NATURAL  
RESOURCE PROTECTION*

### LAND USE CHECKLIST

Is the development consistent with OCP?

Yes  No  N/A

Does the development fill in or redevelop pre-existing vacant or underutilized parcels of land?

Yes  No  N/A

Does the development increase the mix of housing types?

Yes  No  N/A

Does the development improve the mix of compatible uses within an area?

Yes  No  N/A

Does the development provide services or an amenity in close proximity to a residential area?

Yes  No  N/A

Does the development contribute to the positive character and function of a rural area?

Yes  No  N/A

Developing property effectively is important to the environment and the long term vitality of the community. By incorporating these suggestions into your development plan you protect your investment and prevent costly delays. In addition, sustainably developed property is aesthetically pleasing and requires less maintenance.

## ENVIRONMENTAL CONSIDERATIONS

Identify ecological and archaeological values before commencing a land development project. These features may be protected or regulated, which can significantly impact the development proposal. Ecological and wildlife values are identified in an area's OCP. Archaeological values are protected and regulated by the BC Archaeology Branch.

Clustering development to one area of the property minimizes site disturbance and can reduce infrastructure costs. Locate the driveway, septic system, house and outbuildings away from riparian areas. Where possible, retain natural buffers between the development and sensitive features such as riparian areas and important wildlife habitats. Runoff from disturbed soil has a significant negative impact on the watershed and can contribute to erosion.

If vegetation near lakes or watercourses is already disturbed, replant native species to improve the habitat and help stabilize the shore, which protects the property from erosion. Removing invasive plant species such as Canada thistle also improves native habitat and the aesthetics of the property.



Did you know that the BC Ministry of Environment and the Federal Department of Fisheries and Oceans recommends a minimum 15 meter area of undisturbed vegetation next to lakes and watercourses?

Both agencies require notification prior to any works within this area.

### ENVIRONMENTAL CHECKLIST

Does your site plan cluster development to one area of the property?

Yes  No  N/A

Do you plan to protect vegetation near lakes or watercourses or other designated environmentally sensitive features?

Yes  No  N/A

Do you provide for native species habitat restoration or improvement?

Yes  No  N/A

Do you plan to remove invasive plant species?

Yes  No  N/A

Will your proposal redevelop/revitalize an environmentally contaminated site?

Yes  No  N/A

Do you plan to use natural, water efficient landscaping with a reduced lawn area?

Yes  No  N/A

**HOBBY FARMS** need to be carefully managed to make sure they do not harm the environment. Domestic animals that use a creek, pond or lake for drinking water can trample plants that are important to that ecosystem. When possible, try to limit water access to a few small areas. Manure management is also important, because manure runoff can contaminate water sources including groundwater. Manure should be collected, stored and composted in a covered place away from drainage or runoff areas.

# NATURAL HAZARDS



People living in a rural area may be subject to increased risks associated with flooding, wildfire, snowstorms, and loss of access and communications. These risks can be reduced by careful consideration of how land is used and developed.



**FLOODPLAINS** are lowland areas that are susceptible to flooding. The best precaution against flooding is to avoid building in floodplains.

## FLOODPLAIN MANAGEMENT BYLAW

The Regional District's Floodplain Management Bylaw applies to all areas of the Regional District. This Bylaw specifies both elevation and setback requirements for certain buildings and structures to protect them from flood damage.

**GEOTECHNICAL HAZARDS** include slope instability, subsidence and weak soils. Check with the RDBN to determine if your property lies within a known hazard area. If a hazard is suspected, consider hiring a geotechnical engineer to evaluate the site. It is critical to manage these risks through appropriate site investigation, good building practices, and professional input. Protect your investments!

## WILDFIRES

Incorporating FireSmart principles into a development proposal is important because wildfires are a significant hazard in our region. The wildfire threat has increased due to dead timber associated with the Mountain Pine Beetle infestation and historic fire suppression practices. New development should be designed to provide adequate emergency vehicle access and alternate escape routes where practical. Property owners are encouraged to use non-combustible roofing and siding materials, keep roofs clean from combustible debris, keep combustible materials such as firewood at least 10 metres away from a principle building, and set back buildings away from the top of sloped lands. Refer to the FireSmart brochure for more detailed information.

**EROSION** from running water or waves can cause serious property and building damage. Protect shorelines by retaining natural vegetation. If an erosion problem exists, have it evaluated by an expert that can prescribe an appropriate remediation and protection strategy.

## NATURAL HAZARD CHECKLIST

Is the new development designed to provide adequate emergency vehicle access and alternate escape routes?

Yes  No  N/A

Are your house and outbuildings located away from the top of sloped lands?

Yes  No  N/A

Have you removed combustible materials within 10m of your house and outbuildings?

Yes  No  N/A

Are you using non-combustible roofing and siding materials, and are you keeping your roof clear of combustible materials?

Yes  No  N/A

Have you had your property examined for signs of a geotechnical hazard or erosion?

Yes  No  N/A

Have you contacted the Regional District to determine if your building is subject to the Floodplain Management Bylaw regulations?

Yes  No  N/A

# BUILDING CONSTRUCTION

The greatest opportunity for energy savings can be realized during the planning and design stages of a construction project. A home constructed with energy efficiency in mind is more comfortable to live in year round. An energy efficient home may have higher initial costs, but over time these costs can be recuperated due to lower energy and maintenance costs. Do the math — you may be surprised!!

## BUILDING SITE SELECTION

An assessment of a property prior to the commencement of a construction project is critical.

- Remember to identify any archaeological sites, riparian areas, environmentally sensitive features, and natural hazards. Also, look for game trails or unique animal habitat that can be left in its natural state.
- Leave the natural vegetation adjacent to any water feature undisturbed. The DBN brochure titled “Responsible Waterfront Development” should be consulted if you have a water feature.
- Carefully observe the way that water flows over the property. Be sure to not negatively impact natural drainage patterns or drainage on a neighbour’s property.
- Consider the location of the sun, prevailing winds, shade and other site features that can be utilized to increase your energy efficiency and your enjoyment of your property.

## SITE MANAGEMENT

During construction it is important to plan for waste and soil disturbance. Where possible, recycle construction waste, or truck it to a transfer station instead of burning. If treed areas are cleared avoid outdoor burning. Large trees may be suitable for future use as firewood, or wood waste may be chipped and dispersed on your property. Burning is strongly discouraged because of the impact of local air pollution. Replant any areas of disturbed soil immediately to prevent the establishment of invasive plant species and to reduce erosion and sedimentation. Use erosion control measures such as silt fences to prevent sedimentation of watercourses from disturbed soils. When possible, use local materials and labour to reduce transportation related GHGs.

## BUILDING CHECKLIST

Do you have a construction waste recycling plan and a no-burn policy on site?

Yes  No  N/A

Do you have a plan in place to reduce erosion and sedimentation during construction?

Yes  No  N/A

Do you have a drainage plan for the house and property?

Yes  No  N/A

Have you avoided environmentally sensitive or high value areas?

Yes  No  N/A

# ENERGY EFFICIENT DESIGN



A combination of energy efficient design features including building orientation, thicker walls, additional insulation, air tightness and proper ventilation can significantly reduce the energy demands of a home. To let the sun inside the house in winter, most windows should be on the southern side. Windows on the east and west tend to lose more heat than they gain in winter and they can cause overheating in summer since they receive hot morning and afternoon sun. A roof overhang over southern windows shades the windows in summer while allowing sunshine in during the winter.

Small and compact buildings are generally better suited for a winter climate. The longer side of the house should be orientated so that it faces south to ensure that the house receives the maximum amount of sunlight throughout the day. Internal rooms should be planned in such a way that the rooms generally used during the day, such as the living room and kitchen are situated on the south side of the house. Also, build on southern slopes to maximise exposure to the sun.

Landscaping can have a significant impact on building energy efficiency. Planting of deciduous trees on the south side of a building allows the sun through in winter and provides shade in the summer. Planting coniferous trees and vegetation on the north side of a building can provide a buffer from the wind in order to reduce heat loss in cold weather. Keep in mind that



for fire safety, vegetation should be at least 10m away from the building.

Thermal insulation, energy-efficient windows, and air tight building methods are critical to reduce heating costs and conserve energy. The building code sets a minimum standard for insulation requirements, however, additional insulation reduces operating energy costs and increases comfort. A building can be retrofitted to incorporate some of these measures.

## CONSTRUCTION METHODS AND MATERIALS CHECKLIST

**Do you have a compact and resource-efficient building design to reduce the building's ecological footprint?**

Yes  No  N/A

**Is your building orientated towards open space, views and/or daylight?**

Yes  No  N/A

**Does your design include thicker walls and additional insulation?**

Yes  No  N/A

**Will proper ventilation be installed and will the building be tested for air tightness?**

Yes  No  N/A

**Do you plan to use environmentally friendly, water soluble low-VOC paints and finishes?**

Yes  No  N/A

**Will you use materials with recycled content?**

Yes  No  N/A

**Do you plan to install dual flush toilets, low flow shower heads and faucet aerators?**

Yes  No  N/A

**Do you plan to purchase Energy Star appliances?**

Yes  No  N/A

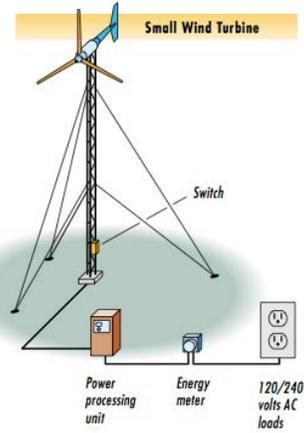
**Will you install energy efficient windows?**

Yes  No  N/A

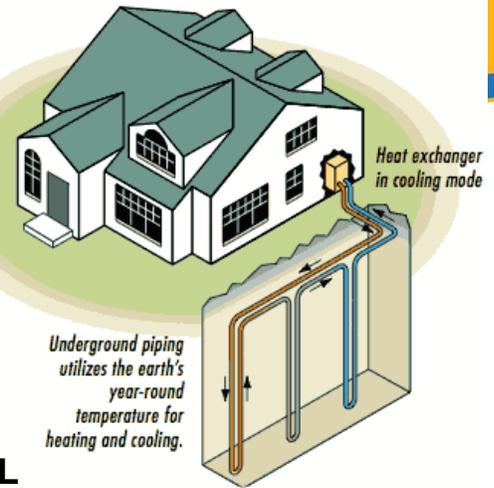
# RENEWABLE ENERGY SOURCES

## WIND

The wind is a clean and plentiful source of energy. Small wind turbines can be installed at homes as a source of backup electricity or to offset utility power and reduce electricity bills. A small wind energy system may be a practical and economical source of electricity for your home. Be sure to contact the RDBN to make sure your wind turbine is compliant to zoning.



## Geothermal Heat Pump



## GEO THERMAL

Geothermal heat systems use the earth as a direct source of energy. These systems use the difference in air and ground temperature to heat and circulate a liquid through pipes installed in the ground. The heat generated is then transferred into a building. This is a clean, renewable energy source that reduces GHG emissions. While installation costs may be high, geothermal heat systems cost little to maintain and reduce or eliminate the need for other costly heat sources. In addition, rebates and incentives are often available to help offset installation costs.

## ENERGY CHECKLIST

Can you utilize onsite renewable energy generation such as solar or wind power?

Yes  No  N/A

Can you use a geothermal heat pump for heating?

Yes  No  N/A

Do you have a high efficiency wood burning appliance, pellet stove or efficient gas fireplace?

Yes  No  N/A

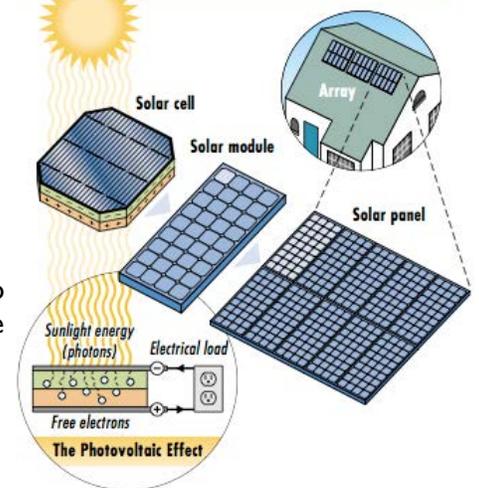
## WOOD HEATING SYSTEMS

Ensure that any wood burning appliances, pellet stoves or gas fireplaces are high efficiency. They use less wood, and don't smoke out your neighbours. Pellet fuel is produced in the region and its use helps support the local economy.

## SOLAR

Solar energy can be used for active heating or electricity production. Solar heating applications include radiant floor heating systems and solar air heating systems. Photovoltaic solar panels convert the sun's energy into electricity, which can then be used to offset dependence on utilities. In our region the installation of a solar hot water heater provides up to 36% water heating energy savings. Modern solar water heaters are well suited for the Canadian climate because they can produce energy when the outside temperature is well below freezing.

### How Solar Energy Works



## Need More Information?

Come visit the Planners and Building Inspectors! We are located at the RDBN Office at 37 3rd Avenue, Burns Lake, BC.

Call us at: (250) 692-3195 or toll free in BC 1-800-320-3339 Fax: (250) 692-1220

Visit our website at: [www.rdbn.bc.ca](http://www.rdbn.bc.ca)