Strathcona Forestry Consulting

Wildfire Hazard Assessment

Rockwood - 1221 Manzanita Place, Nanaimo, BC

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Executive Summary

In accordance with the City of Nanaimo's guidelines for development in the wildfire interface zone, the Hazelwood Group of Companies retained Strathcona Forestry Consulting to conduct a wildfire hazard assessment of property at 1221 Manzanita Place proposed for multi-family residential development. The subject proposal is located in the interface ("wildland urban interface" or "wui"), a term describing any area where combustible wildland fuels are found adjacent to structures and/or facilities. This report provides an assessment of the current and projected local wildfire threat. The report also contains recommendations on how to minimize the threat of fire.

Assessment determined that the wildfire threat at the subject property is currently Moderate (to slightly High). Contributing factors include: low fuel loading at the subject site; a warm, wooded southwest slope to the west; and intermix (> 1 structure/ha). Under the provincial Wildfire Threat Rating system, ratings must be moderate or less to be considered acceptable.

Living in a fire-prone ecosystem involves taking the necessary steps to protect homes, property, and community from wildfire. Development standards play a significant role in reducing the potential impact a wildfire will have on a community (FireSmartCanada.ca; FireSmartBC.ca). FireSmart principles have proven to be effective at reducing both the risk of life and homes and other structures and property even during the most extreme wildfire conditions.

In my professional opinion, if the recommendations contained in this report are followed through design planning and construction – and continue after buildout, the risk of wildfire can be reduced to a level acceptable to ensure the safety and resiliency of the intended development.

Fire prevention and protection in the interface zone are ongoing processes. Long-term implementation of FireSmart mitigation is essential to ensure protection for life, property, and ecological processes in Nanaimo's wildfire interface.

Introduction

In accordance with the City of Nanaimo's guidelines for development in the wildfire interface zone, the Hazelwood Group of Companies retained Strathcona Forestry Consulting to conduct a wildfire hazard assessment of property at 1221 Manzanita Place proposed for multi-family residential development. This report provides an assessment of current and projected wildfire risk and hazard rating at the subject proposal, and provides recommendations how to reduce the local wildfire threat.

The interface (wildland urban interface/wildland residential interface) describes any area where combustible wildland fuels are found adjacent to homes or other buildings. Under Section 488 of the Local Government Act, development permits may be designated where protection of Natural Hazard Lands is justified. Natural hazards, including wildfires, may put life and property, and local biodiversity, at risk if development is inappropriately situated and not well planned. Areas assigned at high or extreme risk from wildfire are designated in a Development Permit Area (DPA). The objective of the DPA is to properly manage the risks associated with the hazard (interface wildfires).

Hazard Assessment

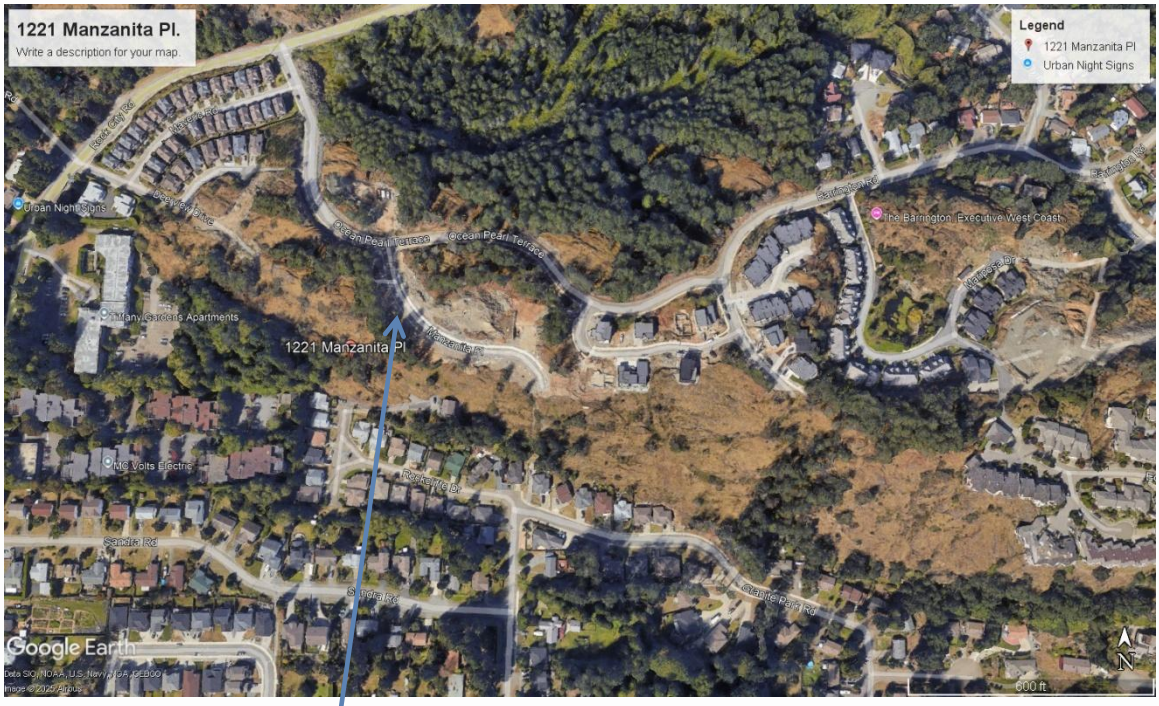
This report describes the vegetation, terrain, and infrastructure on and around the subject proposal. Assessment criteria are based on Rating Interface Wildfire Threats in British Columbia (https://www2.gov.bc.ca/), FireSmart (FireSmart, Protecting Your Community From Wildfire (Second Edition. Partners in Protection, 2003 (https://www.firesmartcanada.ca/), Fuel Management Prescription Guidance 2025 (https://www2.gov.bc.ca/assets/gov/public-safety-and-emergency-services/wildfire-status/prevention/fire-fuel-management/fuels-management/2025_fuel_management_prescription_guidance.pdf) and the Home Owners FireSmart Manual (BC Edition (https://www2.gov.bc.ca/assets/gov/public-safety-and.../homeowner-firesmart.pdf). Fire behavior modeling is standardized after the Canadian Forest Fire Danger Rating System (CFFDRS). Fuel Types listed in this assessment are customized from the CFFDRS Fuel Type list for applicability in south coastal BC. Wildfire threat assessment was conducted through an analysis of fuel threats in and adjacent to the proposed development, as described in the 2020 Wildfire Threat Assessment Guide and Worksheets (MFLNRO, 2020). This process, used by qualified environmental professionals, employs physical and biophysical factors,

combined with fuel hazards, to determine the wildfire threat (low, moderate, high, or extreme). Fire risk is also based on four classes: low, moderate, high, and extreme. Recommendations in this report conform to BC Building Code standards and fire hazard planning authorized by Section 3(2) of the BC Fire Services Act.

Field Inspection: Field inspection took place in November 2025. Field investigation entailed an analysis of the interface fire hazard that the subject site and surrounding lands are exposed to, from the perspective of the general area and local site, up to 100+ m from property boundaries, where applicable.

Location and Description of Proposal:

The Hazelwood Group of Companies has made application to the City of Nanaimo to construct a multi-family residential development at 1221 Manzanita Place (see location map below; photos following pgs.). Newer multi-family units are located along Manzanita Place, which is located a short distance from Rock City Road via Ocean Pearl Terrace. A wooded hillside extends downslope of the subject site.



Arrow points to 1221 Manzanita Place.

Multi-family residential units have been developed along Manzanita Place since this photo was taken.

Views looking southwest from Manzanita Place to subject site.
Bottom photo shows clearing that has taken place.

Wildfire Hazard and Risk

Wildfire hazard is a process, a phenomenon or a human activity that may cause loss of life, injury, or other health impacts, property damage, social and economic disruption or environmental degradation. Wildfire hazard can be described qualitatively as a fire environment—fuel, weather, topography, and ignitions.

Risk assessment for wildfire and its impacts to communities considers both the likelihood of a wildfire and the potential consequence associated with that likelihood. For example, if the fuel (i.e., the hazard) ignites and the fire spreads towards the community (probability), the wildfire can become a threat to life and property (consequence) with an associated risk of loss.

Determination of the wildfire hazard and risk involves a detailed assessment of potential fire behaviour, field-reviewed fuel characteristics, proximity of fuel to the community, local fire spread patterns, topographical considerations and local factors. Wildfire behaviour targets aimed at reducing wildfire risk are based on conditions reflecting the 90th percentile of the Forest Fire Weather Index (FFWI) values.

Values at Risk (e.g., subject proposal) are assessed for their vulnerability to wildfire. Priority values must be strategically located to ensure sufficient defensible space. Ideally, structures should align with FireSmart principles, which include practices such as reducing flammable vegetation, maintaining clear access routes, and ensuring non-combustible zones around structures.

Fire Behaviour. Fire behaviour has three components: weather, topography, and fuel. Fire behavior predicts how forest and wildland vegetation (fuel) will burn under different conditions. Weather and topography cannot be changed; alteration of fuels across the landscape is the only way to lower fire intensity and change fire behaviour.

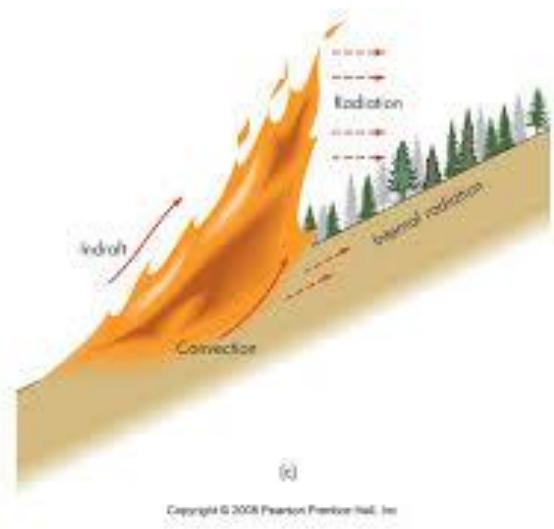
Biogeoclimatic Classification. The Biogeoclimatic Ecosystem Classification (BEC) System divides British Columbia into 12 forested biogeoclimatic or ecological zones. Each zone is divided into subzones based on differences in regional climate. Subzones are further differentiated into variants.

The subject proposal is designated in the moist maritime Coastal Douglas-fir moist maritime (CDFmm) biogeoclimatic subzone. Summers are warm and dry, while winters are moist and mild. Growing seasons are long, and often feature pronounced water

deficits on zonal (average) and drier sites. Fire Danger Ratings (i.e., the risk of a fire starting) tend to reach High and Extreme for extended periods during the fire season.

Prevailing and critical wind patterns significantly influence wildfire trajectory and rate of spread. Factors such as topography, cold fronts, and diurnal winds can alter wind patterns, crating localized wind vectoring. Prevailing winds are generally southeasterly, but high-pressure systems in summer can bring strong northerlies (and westerlies).

Topography. Physical site characteristics impact fire behavior by affecting ignition potential and the rate of fire spread. Potential wildfire behavior tends to be exacerbated by steeper terrain.



The subject proposal occupies gently sloping terrain. Beyond the property to the west, a wooded slope extends downhill. Aspect is southwesterly.

Wildfires typically burn uphill. Warmer (western and southerly) aspects (especially those with steeper slopes tend to burn "hotter."

Vegetation. Fire behavior predicts how forest and wildland fuels (vegetation) will burn under different conditions. Fuel hazard means the potential fire behaviour, without regard to the state of weather or topography, based on the physical fuel characteristics, including fuel arrangement, fuel load, condition of herbaceous vegetation and the presence of ladder fuels.

Benchmark vegetative fuel types developed by the Canadian Forest Fire Danger Rating System Fire Behavior System (CFFDRS) are used to forecast how a wildfire will react (cwfis.cfs.nrcan.gc.ca ›) (refer to Appendix 2).

To be effective under 90th percentile fire weather conditions, surface fuels should be managed to generate a fire intensity of less than 2,000 kW/m.

Surface fuels are the primary driver of fire behaviour. Surface fuels, comprising all the combustible materials lying above the duff layer and below ladder fuels, consist of:

- Litter (fallen leaves, tree needles, etc.)
- Herbaceous vegetation (small plants, grasses)
- Low and medium shrubs
- Woody debris (fine and coarse)

Much of the vegetative cover at the subject property has been cleared. Surface and ground fuels at the subject proposal are relatively light, comprising a mix of grasses and minor invasive plants (e.g., low patchy Himalayan blackberry).

Ladder fuels are combustible materials that provide vertical continuity between surface fuels and crown fuels in a forest stand. Ladder fuels contribute to the potential for torching and crowning, allowing fire to advance from the forest floor up into the tree canopy. Examples of ladder fuels include:

- Tall shrubs
- Small-sized trees
- Branches
- Tree lichens

Ladder fuel loading at the subject proposal is light due to the lack of tree cover at the immediate site.

Crown fuels describe aerial fuels (vegetation) at the tree level and canopy at the stand level.

Much of the vegetative cover, including tree cover, has been removed from the site. Crown fuel loading at the subject proposal is negligible. (Scattered trees are located on the western perimeter of the site.)

Main Fuel Types at subject proposal (1221 Manzanita Place):

Fuel Types	Description	Forest Floor & Surface Fuels	Ladder Fuels	Wildfire Behaviour (why and how a fire spreads)
Scattered C-5 (perimeter); 0-1/2 with C-2/C-3 scattered shrubs	Scattered coniferous trees along perimeter; Discontinuous grass and low scattered brush and weedy plants	Low surface fuel loading (site has been cleared)	Negligible ladder fuels due to lack of tree cover on site	Fire start during warm dry weather will likely produce low rate of spread at subject site due to the lack of vegetative cover. Fire start on wooded slope to west could result in spread of embers.

Risk of Ignition. Risk of ignition represents the potential for fire starts. Fire starts could come from activities related to construction or from activities of residents in the local area.

Risk of ignition is rated low to moderate.

Fire Spread and Intensity. Head fire intensity is a numerical ranking of difficulty of control for specific fuel types. Flame length is a main visual manifestation. Head fire intensity is a major determinant of certain fire effects and difficulty of control. Numerically, it is equal to the product of the net heat of combustion, quantity of fuel consumed in the flaming front, and the linear rate of spread. If a fire started on the wooded slope west of the subject site, fire spread could be relatively rapid. HeadFire Intensity at the subject site is rated Moderate.

The goal of Wildfire Risk Reduction (WRR) is to reduce HeadFire Intensity to less than 2000 kW/m (< 3, HFI column Moderate) (see chart following).

Fire Weather Indices

Hazard Rating	FFMC Fine Fuel Moisture Code	DMC Duff Moisture Code	DC Drought Code	ISI Initial Spread Index	BUI Build Up Index	FWI Fire Weather Index	HFI Head Fire Intensity
Low	0-76	0-21	0-79	0-1.5	0-24	0-4.5	1-2
Moderate	77-84	22-27	80-189	2-4	25-40	4.5-10.5	3
High	85-88	28-40	190-299	5-8	41-60	10.5-18.5	4
Very High	89-91	41-60	300-424	9-15	61-89	18.5-29.5	5
Extreme	92+	61+	425+	16+	90+	29.5+	6

Spotting Potential. Spotting is a fire behavior characteristic in which sparks or embers are carried up by the wind and/or convective column and fall into other downwind fuels to ignite additional fires beyond the zone of direct ignition by the main fire (Firewise.org). Fire spotting is one of the major ways that fires spread, and vegetation and structures are ignited and destroyed in wildland/urban interface fires. Firebrands can come down on and ignite combustible vegetation, roofs of structures, combustible items stored adjacent to structures, and other nearby combustible fuels. The resulting spot fires may go unnoticed and thus unsuppressed when an area has been evacuated of residents, when firefighters are spread too thin, or when spot fires are too numerous.

The maximum spotting distance in a particular fire varies according to several factors, including overall fire intensity, wind speed, fuel type, initial size of the ember when lofted up, and how rapidly it is burning (Firewise.org). If a fire start occurred during warm, wind, dry weather (High/Extreme Fire Danger Ratings), there is a moderate potential for spotting at the subject site. (The slope outside the property to the west presents an increased potential for spotting.)

Fire Protection. The subject site is located within the service area of Nanaimo Fire Rescue. Response times can vary depending on time of day or year.

Fire department intervention time is crucial in determining the consequences of a fire in terms of deaths, injuries, and loss of property and damage to the environment. An early aggressive and offensive primary interior attack on a working fire is usually the most effective strategy to reduce the loss of lives and property damage.

Mutual Aid. Fire Departments within the RDN operate under a mutual aid agreement with other fire departments within (and outside) the region. In the case of a serious fire, mutual aid from adjoining fire departments can benefit fire suppression by pooling manpower and resources (water supply, water tenders, etc.,). Mutual aid, however, may not always be available.

Wildfires. Nanaimo Fire Rescue automatically responds to structure fires and small, easily accessible bush fires inside the fire service protection area (FPA). The Wildfire Management Branch generally responds to forested areas outside a FPA.

Water Supply. The subject area is serviced.

Access. Safe access increases safety for both residents and firefighters, and also facilitates quick response by firefighters. The subject proposal is accessed from Manzanita Place, a short distance from Rock City Road via Ocean Pearl Terrace.

Wildfire Threat Assessment Results

Assessment determined the subject proposal currently has a Low to Moderate Fuel Hazard Assessment rating (see chart next page), and a Moderate (to slightly Hihg) Local Wildfire Threat Rating (below). Factors contributing to the current rating include: removal of significant amount of vegetative cover from the site; southwesterly aspect and wooded slope to west; and intermix >1 structure/ha. Threat ratings must be low/moderate to ensure an area and/or structure(s) are safe. Post-development, the Threat rating is expected to be moderate or lower.

Integration of development plans with the recommendations contained in this report will significantly reduce fuel loading and in turn, decrease the wildfire threat, and increase resiliency.

LOCAL WILDFIRE THREAT SUMMARY: 1221 Manzanita Place			
System:	**Subcomponents**	**CURRENT ratings**	**Projected Ratings post-development***
MFLNRO Wildfire Threat Assessment	**Fire Behaviour:** **Fuel,** **Weather,** **Topography**	**Fuel Assessment Class:** **Moderate** (see chart next pg.)	**Moderate or Low**
	Structural (incl vicinity)	**Moderate**	**Moderate or Low**
Overall Rating:		**Moderate**	**Moderate or Low**
HIRV Model	**Hazard** **Impact** **Risk** **Vulnerability**	**Moderate** **Moderate-slightly High** **Moderate** **Moderate-slightly High**	**Moderate or Low** **Moderate or Low** **Moderate or Low** **Moderate or Low**
Wildfire Risk	Likelihood Intensity Susceptibility	**Moderate-slightly High**	**Moderate or Low**

*Projected ratings conditional upon compliance with recommendations contained in this report.

Wildfire risk triangle. (Scott et al. 2013).

Generalized Descriptions of the "Fuel Assessment Rating" classes:

Low	Fires may start and spread slowly. There will be minimal involvement of deeper fuel layers or larger fuels.
Moderate	Forest fuels are drier and there is an increased risk of surface fires starting. There will be involvement of the organic layer but larger dead material will not readily combust.
High	Forest fuels are very dry, new fires may start easily, burn vigorously; aerial fuel will be engaged in the flaming front. Most fuel in the organic layer will be consumed and larger dead fuel will be consumed in the smoldering combustion.
Extreme	Extremely dry forest fuel, new fires will start easily, burn vigorously; all aerial fuel will be engaged in the flaming front. Most fuel in the organic layer will be consumed and larger dead fuel will be consumed in the smoldering combustion.

FMC (Fuel Moisture Content) 95% value based on 90th percentile drought conditions.

Fuel reduction targets should be sufficient to be effective to meet treatment objectives of reduced fire behaviour under 90th Percentile Fire Weather Index (FWI) Conditions (FFMC, ISI, BUI) from the BCWS weather network.

Recommendations

Vegetation Management

General Precautions During Land Clearing and Construction

Ensure any land clearing activities are conducted in compliance with BC's Wildfire Act local bylaws. (*Much of the vegetation removal has already taken place.)*

- As per the BC Wildfire Act, if a high-risk activity (i.e., land clearing) is taking place between 1 April and 31 October, the operator must keep at the activity site fire fighting hand tools, in a combination and type to properly equip each person who works at the site with a minimum of one fire fighting hand tool, and an adequate fire suppression system (onsite portable water tanker and fire fighting tools – shovels, pulaskis, portable water backpacks). In addition, efforts must be made to maintain an adequate fire break between any high risk activity and areas of continuous forest to ensure a fire originating at the site does not escape the site.
- During construction, develop an Emergency Plan of Action, listing key contact information in case of fire and/or another emergency at the site.
- Hazard abatement (removal of slash/disposal of debris piles) must take place in compliance with local area bylaws.
- Ensure construction workers are made aware of the risk of fire in the interface zone, especially during dry summer weather (e.g., no smoking).

Structures:

FireSmart Zones – (see Appendix 1)

- **Immediate Zone 1a: 0-1.5 m**

A noncombustible surface should extend for 1.5 m around structures and any auxiliary buildings. Avoid storing flammable outdoor items, such as garbage cans without lids and fuel tanks, which are places where embers can land and start a fire, in this critical area adjacent to structures.

  - New landscaping should employ noncombustible landscaping materials, such as gravel, brick, or concrete
  - Avoid woody shrubs, trees, or tree branches in this immediate zone
  - Thin out and remove dead/dying understorey trees.
  - Regularly rake up and remove tree needles and small branches within this zone.
  - Create a noncombustible zone underneath and for 1.5 m around any vehicles parked beside structures.

- **FireSmart Intermediate Zone 1: 1.5 - 10 m**

Establish and maintain an environment around structures that will not support fire. Focus on fuel removal, conversion, and reduction.

  - Maintain landscaping with a low density of fire resistant (preferably native) plants and shrubs.
  - Maintain landscape with regular irrigation, mowing, pruning, raking, weeding and dead plant removal.

- Limb (prune) trees 1.5 to 2m from the ground. Create space between trees and shrubs – a general rule is twice the height of what the plant will be at maturity. Remove tree limbs closer than 15-feet from power lines and any touching structures.
- Avoid using woody debris, including bark mulch, as it provides potential places for fires to start.
- Store items such as construction materials, and tools at least 10 m from structures.

- **FireSmart Extended Zone 2: 10-30 m** (where applicable re: property boundaries)

Make efforts to extend the fuel modified area 10-30 m around structure(s). Regularly conduct FireSmart activities: thinning, pruning, and fuel reduction strategies in this zone to reduce fuel loading.

- Thin and prune evergreen trees to reduce hazard in this area
- Within 30 m of any structures and auxiliary buildings, remove lower branches of conifers to a height of at least 2.5 m from the ground. (For smaller evergreen trees; general rule of thumb is prune branches up to a third the height of the tree)
- Regularly clean up accumulations of fallen branches, any dry grass and leaves, and conifer needles from the ground to eliminate potential surface fires

General Principles of FireSmart Landscaping (where applicable)

- Plan to incorporate FireSmart landscaping by using fire-resistive, widely spaced trees, native shrubs and groundcover in combination with stone and/or water features. See FireSmart Guide to Landscaping. Native plant species are ideal. *https://www.firesmartcanada.ca/resources-library/firesmart-guide-to-landscaping*
- Use fire-resistive plants with:
  - moist, supple leaves
  - minimal accumulation of dead vegetation
  - water-like sap that produces little odour
  - low amount of sap or resin material
- Promptly re-vegetate any areas of soil disturbed during clearing and construction with approved landscaping materials and/or native plant species to minimize spread of invasive plant species (i.e., Himalayan blackberry, Scotch broom, daphne, etc.).
- Any powerlines should be clear (3m+) of branches and other vegetation.

Site Maintenance:

- Regularly maintain effective vegetation management treatments (e.g., brush cutting, trimming and pruning).

Construction (General Guidelines for Structures)

The roof is the most vulnerable component of a structure. Sparks and burning embers from a wildfire can travel long distances and quickly ignite flammable roofing material. Roofs also contain many areas in which debris and embers may collect. Regular roof cleaning should be done to remove combustible materials such as leaves and branches.

Siding materials are also vulnerable to wildfire. Combustible debris can accumulate at the vents and openings on the home and be ignited by embers during a wildfire.

- **Use fire-retardant roof covering assemblies** rated Class A, B, or C (i.e., metal, tile, ULC-rated asphalt) and non-combustible siding materials (i.e., stucco, metal siding, brick, cement shingles or cementitious materials, poured concrete, or ULC-rated wood siding) on new structures. Refer to the manufacturer's guidelines to maintain the fire resistance of your roof. Metal, clay tile, and rated asphalt shingles are the most fire-resistant roofing materials.
- **Use fire-resistant siding.** Siding materials such as stucco, hardiboard, metal, brick and concrete offer superior fire resistance to wildfire. Logs and heavy timbers are less effective, while wood and vinyl siding offer very little protection.
- **Ensure a minimum of 15 cm ground-to-siding fire-resistant clearance.**
- **Follow FireSmart guidelines for design, construction, and maintenance of window and door glazing, eaves and vents, and decking**. Install noncombustible material for all vents (should be 3 mm screening or ASTM fire rated vents). Metal products are recommended for vents and vent flashing. https://www.firesmartcanada.ca/
- **Ensure structures are equipped with working smoke alarm(s)**.
- **Sheath in the base of structures** with fire-resistant material to reduce the risk of sparks and embers igniting the home. Install fire-resistant windows.
- **Ensure all doors are fire-rated and have a proper seal.** This is applicable to garage doors in addition to all other doors. Is this a recommendation, or a requirement?

CODE REQUIREMENT

Maintenance

- Regularly inspect siding for locations where embers could accumulate and lodge.
- Maintain and remove combustible debris near exterior walls to reduce a building's vulnerability to ignition during a wildfire.
- Regularly remove debris from gutters – sparks and easily ignite these dry materials.
- Inspect vents and openings regularly to ensure vents are in good repair, and remove any accumulated combustible debris.
- Regularly maintain and clean corners and crevices of the structure and surrounding area.

Water Supply / Fire Protection

- Ensure water main, fire hydrant capabilities and servicing meet City of Nanaimo Engineering specifications.

Access

- Ensure access/driveways meet BC Building Code and municipal Engineering requirements.
- Ensure address signage is clearly evident during the construction phase and at build-out. Letters, numbers, and symbols should be at least 10 cm high, with a 12 mm stroke, contrast with the background colour of the sign, and be reflective.

Regulatory Provisions

- Conduct follow-up assessment (at building permit) to ensure appropriate mitigation measures have been implemented.

Appendix 1. FireSmart Zones

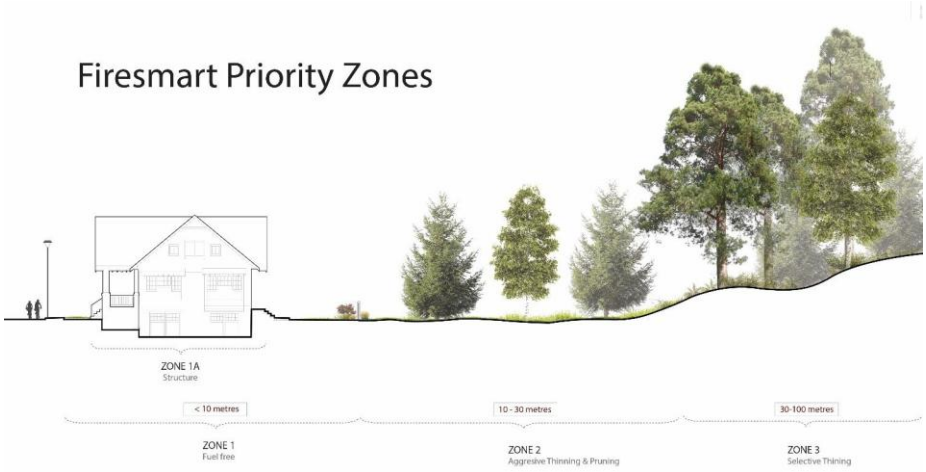
In interface areas, FireSmart advocates the establishment and maintenance of Fuel Management Zones* extending outward from structures and along access routes:
Zone 1 a (0-1.5m)
Zone 1 (0-10 m).
Zone 2 (10-30 m).
Zone 3 (30-100 m) (FireSmart Canada is phasing out this zone)
(FireSmart, 2003; updated 2024)

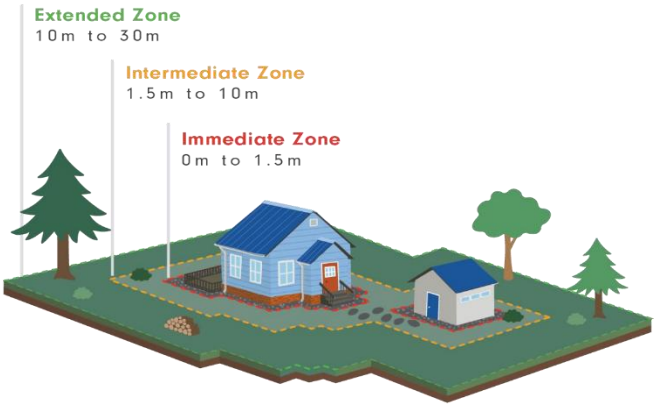
Immediate Zone 1a (0-1.5 m): This is the noncombustible zone, where it is very important not to have any combustibles next to buildings.

Intermediate Zone 1 (0-10 m): The main objective of vegetation management is to create an environment that will not support fire. Vegetation management focuses on fuel removal, conversion, and reduction.

Extended Zone 2 (10-30 m): Where treatment in PZ 1 is not sufficient to significantly reduce the fire hazard due to fuel loading, extend the fuel modified area with a variety of thinning and pruning actions.

*Setback Zone distances may be extended depending on aspect, slope, fuel loading, etc.





Appendix 2. Generic Fuel Types (adopted from CFFDRS).

Fuel Type	Description	Wildfire Behaviour Under High Wildfire Danger
Coniferous:		
C1	**Terrestrial herbaceous ecosystem: mossy rock outcroppings. Lichen. Organic layer absent or shallow. Uncompacted.**	High potential for surface fire, esp. where dense clumps dried moss, lichen
C2	**Dense regeneration to pole-sapling (immature) forest with crowns almost to ground; continuous moss, compacted organic layer; continuous shrubs; low to moderate ladder fuels**	High potential for crown fires; low to very high fire intensity and rate of spread
C3	**Fully stocked, mature conifer stands, crowns separated from ground; sparse understorey**	Surface and crown fire, low to very high fire intensity and rate of spread
C4	**Dense, pole-sapling (immature) forest, heavy standing dead and down, dead woody fuel; continuous needle litter; continuous vertical crown fuel continuity**	High potential for crown fires, high to very high fire intensity and rate of spread
C5	**Moderately well-stocked, mature forest, moderate dense understorey crowns well separated from ground; continuous needle litter**	Low to moderately fast-spreading, low to moderate intensity surface fire
C6	**Fully stocked conifer plantation; absent understorey; tree crowns separated from ground; continuous needle litter**	Surface fire may spread rapidly to become high intensity fire with high rate of spread
C7	**Open, mature coniferous stand; uneven-aged; discontinuous understorey; tree crowns mostly separated from ground**	Surface, torching, rarely crowning (except on steeper slopes), mod - high intensity/ ROS
D (Deciduous)	**Moderately well-stocked deciduous stands; moderate medium to tall shrubs and herb layers** **D-1 Leafless** **D-2 In leaf**	Typically a surface fire; low to moderate rate of spread and fire intensity
M (Mixed Forest)	**Moderately well-stocked mixed stand of conifers and deciduous tree species; moderate shrub understorey; conifer crowns extend nearly to ground** **M-1 Leafless** **M-2 in Leaf**	Surface, torching and crowning; moderate to very high intensity and spread rate (varies with slope and % vegetation cover)
S-3 (Slash)	**Slash from logging and land clearing** **Coastal cedar-hemlock-Douglas-fir slash** **May have high foliage retention; moderate loading and depth; moderate shrub and herb coverage**	Fine fuel % and cedar foliage retention will result in faster ignition and spread
01-Long	**Continuous standing grass – fuel loading is 0.3 kg/m2; scattered trees** **01-a Matted** **01-b Tall**	Rapid spreading, moderate to high intensity surface fire
02-Short	**Continuous human modified short grass**	The taller, and more cured the grass, the more rapid spread; low to moderate intensity surface fire Short grass typically has low rate and spread and low fire intensity.

Appendix 3. Fire Risk Classes.

RELATIVE WILDFIRE RISK
Low
Moderate
High
Extreme

Fire Risk Classes

Low (Green): The combination of the local fuel hazard, weather influences, topography, proximity to the community, fuel position in relation to fire spread patterns, and known local wildfire threat factors make it a lower potential for threatening a community. These stands will support surface fires, single tree or small groups of conifer trees could torch/ candle in extreme fire weather conditions. Fuel type spot potential is very low, low risk to any values at risk.

Moderate (Yellow): The combination of the local fuel hazard, weather influences, topography, proximity to the community, fuel position in relation to fire spread patterns and known local wildfire threat factors make it possible that a wildfire in this area would threaten the community. Areas of matted grass, slash, conifer plantations, mature conifer stands with very high crown base height, and deciduous stands with 26 to 49% conifers. These stands will support surface fires, single tree or small groups of conifer trees could torch/ candle. Rates of spread would average between 2-5 meters/ minute. Forest stands would have potential to impact values in extreme weather conditions. Fuel type spot potential is unlikely to impact values at a long distance (<400m).

High (Orange): The combination of the local fuel hazard, weather influences, topography, proximity to the community, fuel position in relation to fire spread patterns, and known local wildfire threat factors make it likely that a wildfire in this area would threaten the community. This includes stands with continuous surface/ crown fuel that will support regular torching/ candling, intermittent crown and/or continuous crown fires. Rates of spread would average 6 -10 meters/ minute. Fuel type spot potential is likely to impact values at a long distance (400 -1 000m).

Extreme (Red): The combination of the local fuel hazard, weather influences, topography, proximity to the community, fuel position in relation to fire spread patterns, and known local wildfire threat factors make it very likely that a wildfire in this area would threaten the community. Stands with continuous surface/ crown fuel and fuel characteristics that tend to support the development of intermittent or continuous crown fires. Rates of spread would average >10 meters/ minute. Fuel type spot potential is probable to impact values at a long distance (400 -1 000m or greater).These forest stands have the greater potential to produce extreme fire behaviour (long range spotting, fire whirls and other fire behaviour phenomena.

Limitations

This report provides an assessment of site conditions. Evaluation is based on professional judgment. The investigation involved field observation. Recommended treatment pertains only to the particular site as disclosed at the time of inspection. The report was prepared considering site-specific circumstances and conditions. It is intended only for use by the client for the purpose for which it was commissioned and for use by local government regulating the activities to which it pertains.