



DISTRICT OF WEST VANCOUVER

750 17TH STREET, WEST VANCOUVER BC V7V 3T3

COUNCIL REPORT

Date:	January 17, 2024
From:	Hanna Demyk, Planning Technician
Subject:	Proposed Coach House Development Permit for 1160 Sinclair Street
File:	1010-20-22-143

RECOMMENDATION

THAT proposed “Development Permit No. 22-143” for 1160 Sinclair Street as outlined in the report dated January 17, 2024, be approved.

1.0 Purpose

To present to Council a revised development permit for a coach house at 1160 Sinclair Street and to summarize relevant guidelines and regulations, neighbourhood input, and staff analysis.

2.0 Legislation/Bylaw/Policy

Provincial Legislation

The *Local Government Act* allows the designation of Development Permit Areas (DPAs) for the purpose of establishing objectives for the form and character of intensive residential development, and for protection of development from hazardous conditions.

Official Community Plan

The Official Community Plan (OCP) includes Guidelines BF-B 3.1 for Coach House Development in Existing Residential Neighbourhoods. The DPA Designation is applicable to detached secondary suites (i.e. coach houses) that are two storeys (with or without basement), one storey plus basement, and/or coach houses requiring a zoning variance.

The OCP also includes Wildfire Hazard DPA Guidelines NE 1. The Wildfire Hazard DPA Designation is applicable to subdivision or development of land, including construction of new single family dwellings and coach houses. The DPA aims to protect development from the risks of wildfire hazard by taking appropriate precautionary measures, informed by professional studies and assessments to guide safe development, forest management, building design, construction and long-term maintenance and monitoring.

Zoning Bylaw

The subject site is zoned Residential Single Family Dwelling Zone 5 (RS5). The RS5 zone permits one coach house per lot, subject to compliance with all applicable regulations in the Zoning Bylaw.

Development Procedures Bylaw

The Development Procedures Bylaw allows for a Coach House Development Permit (DP) to be delegated to the Director if the proposed development:

- complies with Guidelines BF-B3.1; and either
- conforms to the Zoning Bylaw; or
- requires a variance(s) to the Zoning Bylaw that, in the opinion of the Director, achieves superior siting that addresses natural site features, neighbourhood character and context, or steep topography.

Where a Coach House DP has been delegated to the Director, the Director must notify all owners and occupants within 50 m from the perimeter of the subject parcel. A minimum of two weeks is required for residents to provide comments to the Director regarding the proposed development. Where public concerns are received that cannot be resolved, the application shall be forwarded and considered by Council.

3.0 Official Community Plan and Council Strategic Objective(s)

3.1 Official Community Plan (OCP)

The OCP includes policies to address the housing needs of present and future generations within the community. The OCP aims to regenerate neighbourhoods with an estimated 300 - 400 new sensitive infill units (e.g., coach house, duplex, secondary suite, and infill subdivision) which can provide sensitive infill options that respect the scale and character of existing neighbourhoods. OCP Policy 2.1.2 specifically aims at increasing the supply of coach houses in existing detached residential areas.

3.2 Council's Strategic Plan 2024–2025

Applicable strategic goals and objectives:

- Strategic Goal: Expand a diverse housing supply.
 - Objective 2.1: Work towards new targets and deliverables mandated by the Province under the Housing Supply Act.

4.0 Background

The subject site is zoned RS5, 845.5 m² in area, and located within the Hollyburn neighbourhood. The site is currently developed with a one storey single family dwelling and is surrounded by single family dwellings

as well as a rear yard and greenspace to the east (Figure 1). Vehicle access is provided from Sinclair Street.



Figure 1 – Aerial image of 1160 Sinclair Street

4.1 Previous Decisions

Council, at its September 18, 2023, regular meeting, passed the following resolution:

THAT consideration of proposed Development Permit 22-143 regarding 1160 Sinclair Street be deferred to allow the applicant time to work with staff to respond to neighbourhood concerns.

4.2 History

Not applicable.

5.0 Analysis

5.1 The Proposal

The original coach house proposal presented to Council on September 18, 2023, included a two storey coach house located to the northeast of the existing single family dwelling in the rear yard. The proposal has been revised to include a one-storey coach house with basement shifted further south to mitigate potential impact on the adjacent site to the north (Figure 2 and Schedule B of **Appendix A**).



Figure 2 – Rendering of proposed coach house (for illustrative purposes only)

The proposal also includes a private deck for the coach house, pedestrian pathway from Sinclair Street to the coach house along the north property line, expansion of the existing parking pad to add space for an additional parking space, as well as tree work and landscaping on site (Schedules A, B, and C of **Appendix A**). The proposal is subject to a Coach House DP and Wildfire Hazard DP. No zoning variances are proposed.

5.2 Application Timeline

After initial submission of a formal coach house application, staff completed technical, landscaping, and urban design review of the proposal, including multiple revisions. Once a revised submission was provided that responded to staff advice, neighbourhood notification was completed by staff. Staff received comments from neighbours raising concerns regarding the proposal and requested revisions to respond to concerns raised. The applicant opted, at that time, to have staff refer the proposed development permit to Council for consideration. As described above, Council deferred consideration of the application to allow time for the applicant to respond to neighbourhood concerns.

In response to Council's decision, the applicant has worked with staff to make revisions to the proposal to address public concerns, including:

- Revision to the number of proposed storeys from two to one storey with basement;
- Reduction in proposed building height from 6.70 m to 4.57 m;
- Shift of proposed building footprint further south to mitigate potential impact of the proposal on the adjacent site to the north; and
- Elimination of proposed zoning variances.

5.3 Staff Analysis

Staff are recommending that the current development permit be approved for to the following reasons:

- The revised coach house proposal is supportable based on technical, landscaping, and urban design review of the proposal including confirmation that the application meets applicable development permit guidelines; and
- The applicant has worked with staff to make revisions to the design of the proposed coach house which, in staff's opinion, addresses public concerns and responds to the existing neighbourhood context in alignment with OCP Guidelines BF-B 3.1.

6.0 Options

6.1 Recommended Option

That the proposed "Development Permit No. 23-143" for 1160 Sinclair Street be approved.

6.2 Considered Options

Council may:

- a) deny the proposed development permit; or
- b) defer consideration pending the receipt of additional information (to be specified).

8.0 Conclusion

Significant public feedback was received as part of the public notification process for a coach house application at 1160 Sinclair Street, raising concerns regarding the original two-storey coach house proposed. In staff's opinion, the applicant has made satisfactory revisions to the design of the coach house to address neighbourhood concerns. Staff recommend that the proposed development permit be approved.

Author:



Hanna Demyk, Planning Technician

Concurrence:



Michelle McGuire, Senior Manager of Current Planning and Urban Design

Appendices:

- A. Draft Coach House and Wildfire Hazard Development Permit with Schedules.

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District of West Vancouver Proposed Development Permit No. 22-143

CURRENT OWNER: Patricia Ann Thomas and Mark Peter Hagedorn
1160 Sinclair Street
West Vancouver BC
V7V 3W2

THIS DEVELOPMENT PERMIT APPLIES TO:

CIVIC ADDRESS: 1160 Sinclair Street

LEGAL DESCRIPTION: 010-681-205
LOT 3 EAST 1/2 OF THE SOUTH EAST 1/4 OF DISTRICT LOT 1060
PLAN 7255
(the "LANDS")

1.0 This Development Permit:

- (a) imposes requirements and conditions for the development of the Lands, which are designated by the Official Community Plan as Development Permit Area to ensure that detached secondary suites meet a high quality of building and landscape design, and are compatible both with the principal dwelling on the lot, and the built form character of the local neighbourhood and subject to Guidelines BF-B 3.1 specified in the Official Community Plan;
- (b) imposes requirements and conditions for the development of the Lands, which are designated by the Official Community Plan as a Wildfire Hazard Development Permit Area to control the combustible elements of both buildings and landscape in order to minimize the potential for the spread of fire and the resultant destruction of property and threat to life, in accordance with the Guidelines NEI specified in the Official Community Plan; and
- (c) is issued subject to the Owner's compliance with all of the Bylaws of the District applicable to the Lands, except as specifically varied or supplemented by this Permit.

2.0 The following requirements and conditions shall apply to the Lands:

- 2.1 Buildings, structures, landscaping, and site development shall generally take place in accordance with **Schedules A, B and C**.
- 2.2 For all buildings and structures the following fire-resistive materials and construction practices are required:
 - 2.2.1 Fire retardant roofing materials (Class A or B, or Class A by assembly) must be used: asphalt shingle as per **Schedule B**.
 - 2.2.2 Exterior walls must be sheathed with fire-resistive materials as per **Schedule B**.
 - 2.2.3 Decks, porches, balconies, and patios must use fire-resistive materials as per **Schedule B**.

- 2.2.4 All eaves, attics, roof vents, and openings under floors must be screened to prevent the accumulation of combustible material, using 3-mm, non-combustible wire mesh, and vent assemblies will use fire shutters or baffles as per **Schedule B**.
 - 2.3 Softscaping must adhere to **Schedule C**.
 - 2.4 All new buildings and structures must be located a minimum required distance of 10 m (defensible space), or at least as far away from the forest interface as any existing permanent structures, if present on the property.
 - 2.5 Removal of Tree #1 and pruning of Tree #3, Protected Trees, in accordance with Schedule A.
 - 2.6 Tree work on public land, boulevards, or parks will require a Municipal Tree Cutting Permit at the Building Permit Stage.
 - 2.7 The Qualified Professional that completed the wildfire hazard assessment shall be required to complete a post-completion inspection to ensure all conditions in **Schedule A** have been met prior to occupancy.
 - 2.8 Notwithstanding condition 2.2, the Director of Planning and Development Services may determine that minor changes to the proposal still comply with the Development Permit plans where proposed changes do not materially affect the intent of the plans attached to this Development Permit.
 - 2.9 Notwithstanding, any changes from conditions 2.3 to 2.5, where the changes do not affect the intent of the plans, must be approved by the Qualified Professional during the post-completion inspection.
- 3.0 Prior to commencing site work or Building Permit issuance, whichever occurs first, the Owner shall:**
- 3.1 provide and implement a plan for traffic management during construction, to the satisfaction of the District's Manager of Land Development.
 - 3.2 install tree, vegetation and/or hedge protection measures as required to the satisfaction of the District's Manager of Land Development.
 - 3.3 submit a "Sediment and Erosion Control Plan" to the District's Manager of Land Development for approval, and the owner shall be responsible for maintaining, repairing and implementing the Sediment Control Measures.
 - 3.4 submit a "Stormwater Management Plan" to the to the satisfaction of the District's Manager of Land Development.
- 4.0 Security for Wildfire Protection Measures:**
- 4.1 Prior to Building Permit application and as security for the due and proper completion of the measures to protect development from the risks of wildfire hazard set forth in Section 2 of this Development Permit (the "Wildfire Protection Measures"), the Owner shall:
 - (a) provide security in the amount of \$5,000.00 to the District in the form of cheque; and
 - (b) maintain the security upon completion of the Wildfire Protection Measures, and not prior to the date on which the District Environmental Protection Officer authorizes in writing the release of the security.

5.0 Prior to Occupancy Permit issuance:

- 5.1 Prior to final occupancy the applicant must submit documentation demonstrating that the “as-built” development complies with all requirements of this development permit. Any variations must be clearly identified with a rationale and explanation noting that planning staff review and approval may be needed for variations prior to final occupancy.

- 6.0** This Development Permit lapses if the work authorized herein is not commenced within 24 months of the date this permit is issued.

THE COUNCIL OF WEST VANCOUVER APPROVED THIS PERMIT BY RESOLUTION PASSED ON _____.

MAYOR

CORPORATE OFFICER

THE REQUIREMENTS AND CONDITIONS UPON WHICH THIS PERMIT IS ISSUED ARE ACKNOWLEDGED AND AGREED TO BY THE CURRENT OWNER. IT IS UNDERSTOOD:

- THAT OTHER PERMITS / APPROVALS MAY BE REQUIRED INCLUDING PERMITS / APPROVALS FOR BUILDING CONSTRUCTION, SOIL AND ROCK REMOVAL OR DEPOSIT, BOULEVARD WORKS, AND SUBDIVISION; AND
- THE DEVELOPMENT MUST ATTAIN REQUIREMENTS OF THE BC BUILDING CODE AND ANY VARIANCES TO THE ZONING BYLAW ARE THE RESPONSIBILITY OF THE OWNER AND MUST BE RECTIFIED AT THE BUILDING PERMIT STAGE.

FOR THE PURPOSES OF SECTION 6.0 THIS PERMIT IS ISSUED ON _____.

(Council report dated January 17, 2024; eDocs # 5698647)

Schedules:

A – Wildfire Hazard Assessment Report prepared by B.A. Blackwell & Associates Ltd. date stamped January 11, 2024.

B – Architectural Drawings prepared by Karl Wein Associates date stamped January 15, 2024.

C – Landscape Plans prepared by Harry Lee Haggard Landscape Architect date stamped November 11 and 14, 2023.

Wildfire Hazard Assessment Report

1160 Sinclair Street, West Vancouver



Submitted by:

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January 11, 2024





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COMMONLY USED ACRONYMS

BEC	Biogeoclimatic Ecosystem Classification
DBH	Diameter at Breast Height
DPA	Development Permit Area
DWV	District of West Vancouver
FPZ	Fire Priority Zone
LCR	Live Crown Ratio
NFPA	National Fire Protection Agency
PDI	Post Development Inspection
TPZ	Tree Protection Zone



SUMMARY OF RECOMMENDATIONS

A Wildfire Hazard Assessment was carried out for the property at 1160 Sinclair Street, in the District of West Vancouver (DWV). A summary of the recommendations outlined in this report is provided below:

Pre-Construction

1. Share this report with all designers/architects, homeowners, and contractors involved in the project
2. Choose only DPA-compliant building materials
3. Remove invasive plants from the site

Construction & Landscaping

1. Remove all lumber and flammable materials from the area surrounding the shed at the southeast corner of the property
2. Remove the following vegetation:
 - a. Tree #1
 - i. Written consent from neighbour(s) at 1797 Inglewood Ave. is required
 - b. All stems on cedar hedge #H1 located within 10m of the proposed coach house
 - i. Written consent from neighbours at 1190 Sinclair St., 1231 Sinclair Court, and 1797 Inglewood Ave. was not received for the partial removal of hedge #H1, so the portion of #H1 on these neighbouring properties must not be altered until written consent is received
3. Prune the following vegetation:
 - a. Tree #2 and tree #3 (only on property of 1160 Sinclair St.)
4. Alter the portion of the property's eastern wood fence that grows in conflict with tree #3, so that a tree protection barrier can be installed around its trunk during construction
5. Choose plant materials with low flammability
 - a. Do not plant vegetation within 1.5m of the building
 - b. Do not plant any flammable coniferous vegetation on the property in the future

Post-Construction

1. Contact B.A. Blackwell to arrange a Post Development Inspection once construction and landscaping (including lawn installation, if applicable) is complete; see Section 6.0 for guidance
2. Maintain the property following the recommendations in Section 4.2



1.0 INTRODUCTION

B.A. Blackwell and Associates Ltd. (the Consultant) were retained by Mark Hagedorn of MacDonald Commercial Real Estate Services Ltd. (the Client) to provide a wildfire hazard assessment for a proposed coach house to be constructed at 1160 Sinclair Street (the Subject Property) in the District of West Vancouver (DWV). The purpose of the fire hazard assessment is to **determine wildfire risk** associated with the residence and to ensure compliance with the DWV's Wildfire Hazard Development Permit Area (Wildfire Hazard DPA). The goal of this assessment is to ensure the proposed development falls within an acceptable range of risk from wildfire for the intended use as a residential property. This considers both a house fire spreading from the property to nearby forested District lands and a wildfire spreading from a forested area into the developed portion of this neighbourhood.

1.1 Qualifications

Bruce Blackwell, MSc, RPF (#2073) has over 30 years' experience in fire and forest ecology, and fire and fuels management. Judith Cowan, RPF (#4998) has three years' experience conducting wildfire hazard and FireSmart assessments in the Lower Mainland of BC. She is also an International Society of Arboriculture (ISA) Certified Arborist (PN-7413A) and has ten years' experience in arboriculture in the Lower Mainland of BC. Ali Rahi, RPF (#5215) and ISA Certified Arborist (PN-8885A) has over ten years' experience in forestry and soil science, and two years in urban forestry. Jessica Walker, HBScF (Hons.) has six years' experience in forest health and forest management, and one year of experience in urban forestry and wildfire hazard mitigation. All three technicians hold Local FireSmart Representative status with Partners in Protection – FireSmart Canada. Bruce Blackwell, RPF meets the requirements of a 'Qualified Professional' (QP) (Section 1.2 below).

1.2 Fire Hazard Report Sign Off

At the completion of the development and before first occupancy, the DWV requires that a 'Qualified Professional' inspects and signs off that all prescribed mitigation measures have been satisfactorily undertaken pursuant to this report, pertaining specifically to the wildfire hazard on the property. A qualified professional must be "*A Registered Forest Professional with appropriate education, training, and experience, and fully insured and in good standing with the relevant Professional association. The Qualified Professional should have at least two years' experience in the assessment, fuel management prescription, and mitigation of wildfire hazards in British Columbia.*"¹.

This Report should be shared with contractors, developers, and landscapers, as relevant, to ensure that requirements are noted and recommendations are followed as part of compliance with the Wildfire Hazard DPA.

1.3 Documents Reviewed

The following documents were reviewed for the purpose of this assessment:

1. Site plan, drawn by Karl Wein Associates, last updated November 14, 2023

¹ Requirements for a Wildfire Hazard Assessment Report, District of West Vancouver



2. Survey, drawn by Bennett Land Surveying Ltd., last updated February 8, 2023

1.4 Property Description

The property under review is currently occupied by a single-storey, vinyl-clad residential building which will be retained, with new residential construction of a coach house planned for the northeast corner of the property. The lot at 1160 Sinclair St. is located in the Ambleside neighbourhood and is approximately 847.74 m² in size. New construction plans call for a one-storey coach house with a deck.

The legal description and PID number are:

Plan 7255 District Lot 1060 Lot 3 PID: 010-681-205

1.5 Methodology

All coniferous trees, shrubs, and hedges influencing the fire hazard of the Property were assessed. The following data and attributes were collected:

- diameter at breast height (DBH) measured to nearest 0.5 cm (trees only)
- form (hedge, shrub, tree, multi-stem tree)
- location (approximate location for shrubs/hedges not on the survey)
- crown radius
- crown base height
- tree height measured to the nearest meter
- tree health, condition, or defect

Tree height was visually estimated. Horizontal distance was either visually estimated or visually calculated on a georeferenced map on an iPad. For those trees where it was not possible to see tree base and top, ocular estimates were based on nearby trees that were able to be accurately measured. Diameter at Breast Height (DBH) was measured at 1.4 m. DBH for multi-stem trees was determined according to the District of North Vancouver's tree measurement guidelines². Crown radii are ocular estimates to the nearest half meter using the most far-reaching branch tip as the basis for measurement. Tree health, condition, or defect was assessed visually. No coring, drilling, or climbing was executed. Slope was calculated using the DWV's online mapping tool WestMap. Slope percentage was calculated using horizontal distance from the highest point to the lowest point of the site using elevations and distances from the topographical survey. Canopy cover was assessed using ortho imagery acquired from WestMap, then confirmed in the field and measured using the furthest extent of tree canopy within the lot boundary.

Hedge assessments included the collection of species, height, spread, and condition data only. All measurements (height and spread) for hedges were ocular estimates.

² District of North Vancouver Environment Department, *Tree Permit Information: How to measure a stem diameter*.



All vegetation assessed was assigned a unique number, used consistently throughout the report in maps, text, and tables. No trees or hedges were tagged in the field.

Photographs of the site and specimens were taken for documentation.

1.6 Site Visit

The wildfire hazard assessment included one site visit:

- Field assessment and vegetation inventory, June 6, 2022: Jessica Walker and Valentine Lynch. The weather that day was overcast, dry, and approximately 15° C.



2.0 FIRE HAZARD ASSESSMENT AND RECOMMENDATIONS

2.1 Site Description

The subject lot is located within the Coastal Western Hemlock (CWH) Zone as defined by the Biogeoclimatic Ecosystem Classification (BEC) system of British Columbia³. The site falls within the Dry Maritime (CWHdm) subzone, which is defined by wet winters, relatively dry and mild summers, and forests dominated by western hemlock (*Tsuga heterophylla*), Douglas-fir (*Pseudotsuga menziesii*), and western redcedar (*Thuja plicata*). It is located approximately 60m above sea level. The lot is relatively flat, with no dominant aspect. The property is located approximately 65m from the nearest fire hydrant and is serviced by Firehall #1 (760 16th St.), which is a 2-3 minute drive away.

The property is located on the east side of Sinclair St., north of Inglewood Ave and approximately 30m west of Lawson Creek. The property backs onto a densely forested strip of land that serves as a riparian buffer around Lawson Creek. On neighbouring properties along Sinclair St., some large coniferous trees are spread throughout the yards of various houses, though they are largely separated from one-another and buffered by deciduous landscape plants and grass lawns. The parcels surrounding 1160 Sinclair St. have relatively little forest cover, with the average in the immediate neighbourhood being between 10-30%. The conifer-dominated Hay Park sits roughly 65m to the west, buffered only by a strip of homes surrounded by well-maintained landscaping along the west side of Sinclair St. Since this parkland is separated from the subject lot by several residential lots, fire is unlikely to spread by radiant or convective means from this area to the subject property. There is a possibility, however, of a fire spreading from this area to the subject property by spotting, or a large fire in the neighbourhood spreading to the forested area by spotting. Spotting is the process by which embers are carried aloft by thermal air currents from a fire front which then ignite flammable material beyond the advancing fire.

A fire originating at the subject property has the potential to spread to adjacent properties by means of radiant or convective heat transfer or through spotting. In order to acceptably mitigate the wildfire hazard for 1160 Sinclair St., management of existing vegetation (through removal, and protection) on the property is recommended as outlined in Section 3.0 Vegetation Inventory and Recommendations. Undertaking the proposed mitigative works entails consultation and written approval by the property owners of 1190 Sinclair St., 1231 Sinclair Court, and 1797 Inglewood Ave. for the vegetation located on their respective lots. Recommendations considered wildfire hazard, design plans, and adjacency to flammable vegetation beyond the property boundaries.

To lower the risk level and to help protect buildings in this neighbourhood, landscaping, building design, and construction materials must be DPA compliant to reduce fire hazards to an acceptable level.

³ Field Guide for Site Identification and Interpretation for the Vancouver Forest Region
<https://www.for.gov.bc.ca/hfd/pubs/docs/lmh/lmh28.pdf>

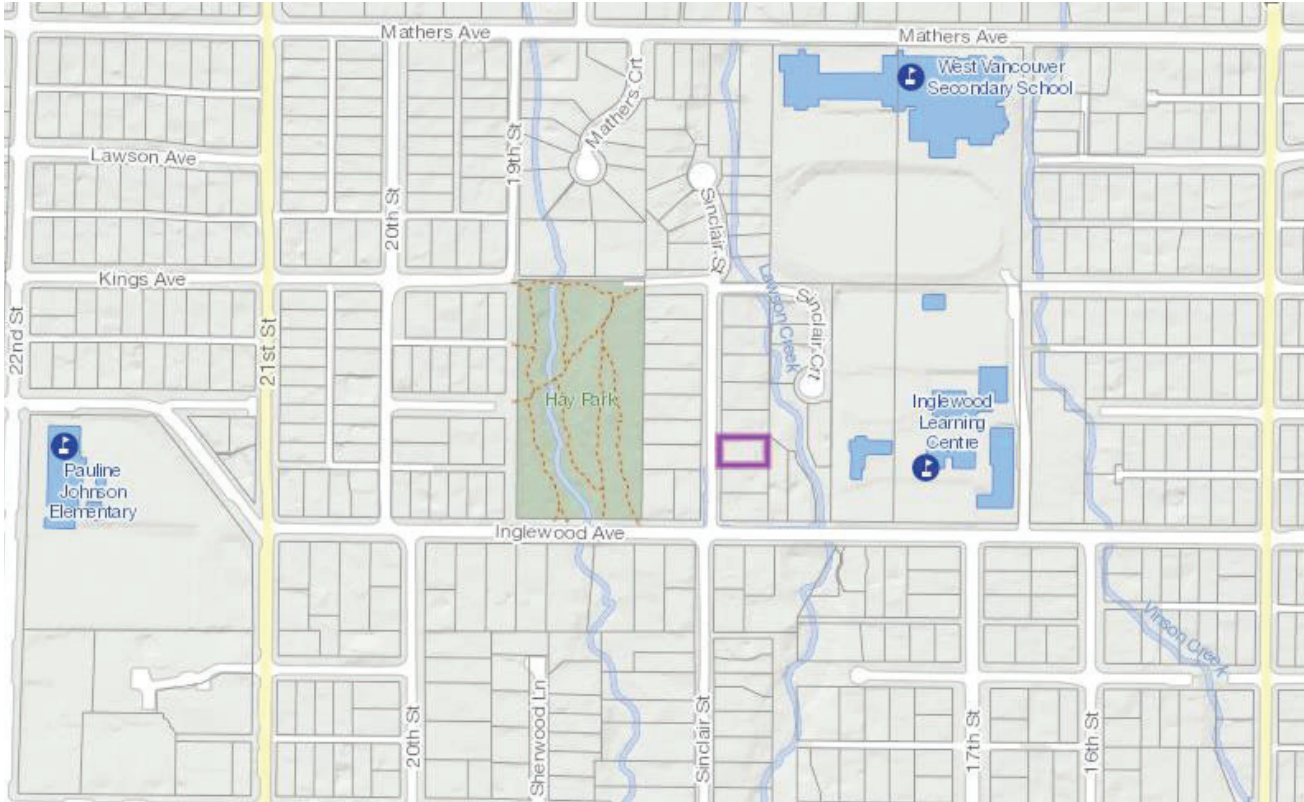


Figure 1. The property at 1160 Sinclair St. is highlighted in purple. Image from DWV WestMap.

2.2 Building Setbacks

The property at 1160 Sinclair St. is not situated on or near a slope that can intensify fire behaviour and fire spread. As the proposed house has been designed following FireSmart principles, the risk that the surrounding landscape poses is minimized. In addition, the property is separated from nearby Hay Park by sparsely vegetated residential properties, which reduces the spread of any potential fire from the densely forested park. Partial and strategic removal of flammable vegetation, combined with the use of non-combustible building materials and design, should place the property within the acceptable range of risk for use as a residence (FireSmart Wildfire Hazard Assessment System, Chapter 2 – 12).



2.3 Building Construction

The building materials assessed were provided via email from Karl Wein on June 15, 2022. It is recognized that the construction materials assessed are considered preliminary design choices. B.A. Blackwell is to offer input in the final exterior materials and design choices to ensure that the home and property are compliant and will result in a residence that is within an acceptable range of fire risk for its intended use.

It is at the risk of the Client to change the design or materials without input from Blackwell or another QP; post-development sign-off is required to complete the DP process.

2.3.1 Design Recommendations and Preliminary Design

Cladding

Untreated flammable materials, such as wood, may not make up more than 20% surface area per exterior elevation. Up to 30% flammable materials per elevation may be used if sealed with Class A Fire Resistive sealant such as Flame Stop II or approved alternative. Cladding should have minimum 6" (15cm) clearance from the ground.

Class A fire resistance is defined by the following:

- The test must be extended for a 30-minute duration;
- Exhibits a flame spread index (FSI) of not more than 25;
- Shows no evidence of significant progressive combustion;
- Flame front does not progress more than 10.5 ft (3.2 m) beyond the centerline of the burn at any time during the test;
- Durability of material under exterior conditions; and
- Compatibility of fire test rating procedures and results acceptable to the Canadian Standards Association or relevant jurisdictional authority.

The fire resistive sealant product must be approved by B.A. Blackwell prior to application. If fire resistive sealant will be used, proof of purchase (a copy of the invoice) and photos of application are required to ensure compliance and to receive sign-off. Retardant requires re-application every 4-5 years.

Window and door trim, eaves, fascia, soffits, the underside of decks, and siding are included in the determination of 20% flammable surface area per elevation, while roofing and glazing (windows) are excluded. It is the responsibility of the house designer to conduct surface area calculations to ensure that the amount of flammable siding is below the 20% threshold.

- Siding will be cement shingles (i.e., Hardi-board)



Roofing

Roofing must be tested and rated Class A in accordance with American Society for Testing and Materials standards for fire tests of roof coverings (ASTM E 108)⁴, or equivalent. The ASTM E 108 rating standard is used to determine the relative combustibility of roof coverings. Non-combustible materials such as asphalt shingles, torch-on membrane, and metal (with the exception of aluminum) are acceptable.

Torch-on application should be avoided during the fire season if at all possible as the flames from torches have ignited nearby flammable material and been the source of house fires in the Lower Mainland in recent years. Construction fire watch will be used to reduce the risk from incidental ignitions associated with torch-on or other hot works construction if applied during the fire season.

- The roofing will be asphalt shingles

Soffits, Trim, and Windows

Soffits must be closed or have ventilation strips with openings less than 3 mm in diameter and be made of an ignition-resistant material. Eaves may not be open. Windows should be tempered or multi-glazed glass to reduce heat and protect against wind and debris capable of breaking windows and allowing fire to enter the building.

- Soffits will be metal
- Trim will be wood - all of the elevations depicted on the preliminary drawing plans submitted for this report indicate that wood surfacing will be below the 20% threshold
- Windows will be vinyl-covered metal

Decking

Balconies, decks, and porches must be sheathed in (no exposed joists) and made of an ignition-resistant⁵ material (non-combustible or receiving a Class A fire rating). Acceptable materials include stone, tile, rated composites, and concrete.

- The underside of the deck will use gypsum board with a one-hour fire resistance rating
- The deck will be composed of a Class A fire-rated composite material

Exterior Wall Vents

Vents must be accessible and screened with a metal 3mm (1/8") wire cloth or mesh to avoid the entry of sparks and burning embers, which have the potential under extreme heat to ignite combustible materials within the wall assembly and to spread up and through the building. Standard exterior vent models typically have openings greater than 3mm and must therefore have screening attached post installation as illustrated in Figure 2. Alternatively, vents with mobile flaps over the pipe outlet are also effective at eliminating the entry of sparks and embers into the building interior (Figure 2).

⁴ ASTM International <https://www.astm.org/Standards/E108.htm>

⁵ NFPA 1144 Standard for Reducing Structure Ignition Hazards from Wildland Fire. 2013 Edition.



- Vents will have 3mm mesh



Figure 2. Standard exterior vents. Left: covered with 3mm wire mesh. Right: vent with open flap

Outdoor Burning Devices

Outdoor burning devices should be limited to those fueled by propane, natural gas, or briquettes (DWV Fire Bylaw 4366). Chimneys require spark arrestors.

Building design and construction should be consistent with the highest current wildfire protection standards published by the National Fire Protection Association or any similar, successor, or replacement body that may exist from time to time.

Changes in building materials or design that increase susceptibility to fire are not permitted.



2.4 FireSmart Priority Zones

FireSmart uses the concept of FireSmart Priority Zones (FPZ) to determine where and how hazard assessment should be conducted, and to determine appropriate mitigation measures (Figure 3). Within these zones, the recommendations are to reduce the potential fire hazard by treating flammable vegetation and/or fuels in close proximity to the planned development (Section 3.0). The execution of these recommendations will reduce the likelihood of fire spread. The guidelines for each FireSmart Priority Zone are provided below, but recommendations for each property may vary from what is listed here depending on the site context.

Non-Combustible Zone is a 1.5m combustible-free zone around the structure. This zone should be free of any vegetation and flammable materials such as bark mulch. This zone should only include non-flammable landscaping materials such as gravel, brick, or concrete, and must be cleaned regularly to prevent accumulation of leaf litter or other combustible materials. Items such as construction materials, propane tanks, firewood, and combustible furniture should not be stored here.

Priority Zone 1 (FPZ 1) is a 10m fuel free zone around structures, which ensures that direct flame contact with the building cannot occur, and reduces the potential for radiative heat to ignite the building. Combustible materials such as firewood or lumber should not be stored in this zone. Coniferous vegetation is highly flammable and must not be planted in this zone. Refer to Section 4.1 for more details on FireSmart landscaping. Mature coniferous trees can be retained if they are sufficiently spaced from any structures and other coniferous vegetation.

Priority Zone 2 (FPZ 2) extends from 10m to 30m from the structure. In this zone, deciduous species should be favoured over coniferous vegetation as deciduous trees have much lower volatility. Coniferous trees can be planted so long as there will be a minimum of 3m of spacing between their mature crowns. Coniferous trees should be crown raised (pruned) to at least 2m from the ground in order to reduce ladder fuels. Ladder fuels provide a pathway for a ground fire to move into the crown of the tree. Any downed wood or other flammable material should also be cleaned up in this zone to reduce the likelihood of fire moving along the ground.

Priority Zone 3 (FPZ 3) extends from 30m to 100m from the structure. In this zone, deciduous trees should be preferred for retention or planting. Space should be maintained between flammable vegetation, and crowns of coniferous trees should be pruned to 2m from the ground wherever possible. Accumulated downed wood and other flammable material should also be removed from this area.

It is recognized that in urban and wildland urban interface settings, such as in the DWV, homeowners have little or no influence or control over fuels and/or landscaping beyond their property boundaries, though it may influence the fire hazard of their property. Recommendations in this report are limited to actions that can be implemented on the subject parcel, and within 10m of the proposed structure(s). These recommendations may include treatment of vegetation located on adjacent properties, which requires consent from the adjacent property owner(s). If consent is not obtained from neighbours, the vegetation will be retained, and the FireSmart assessment for the property may have to be adjusted accordingly.

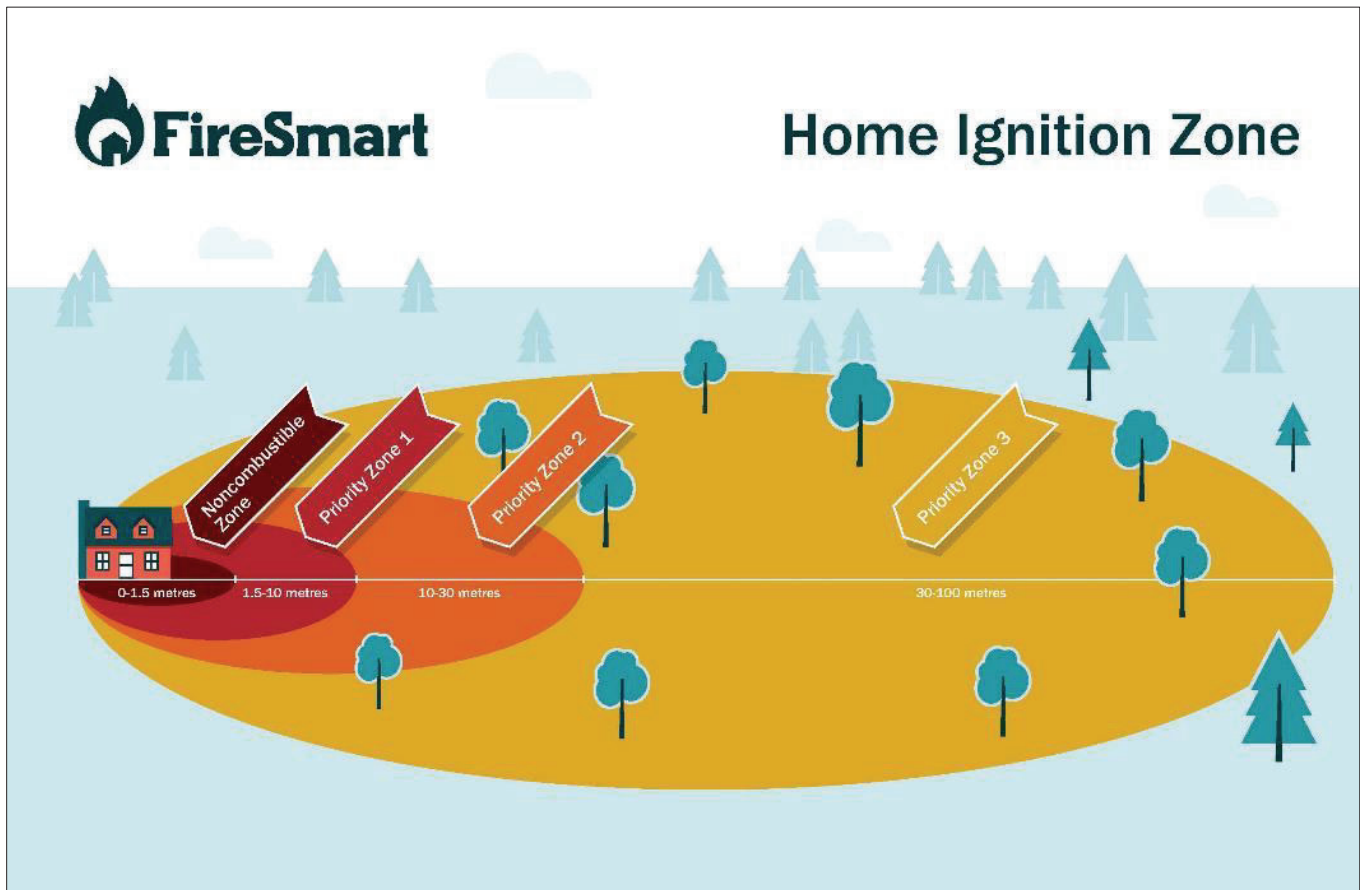
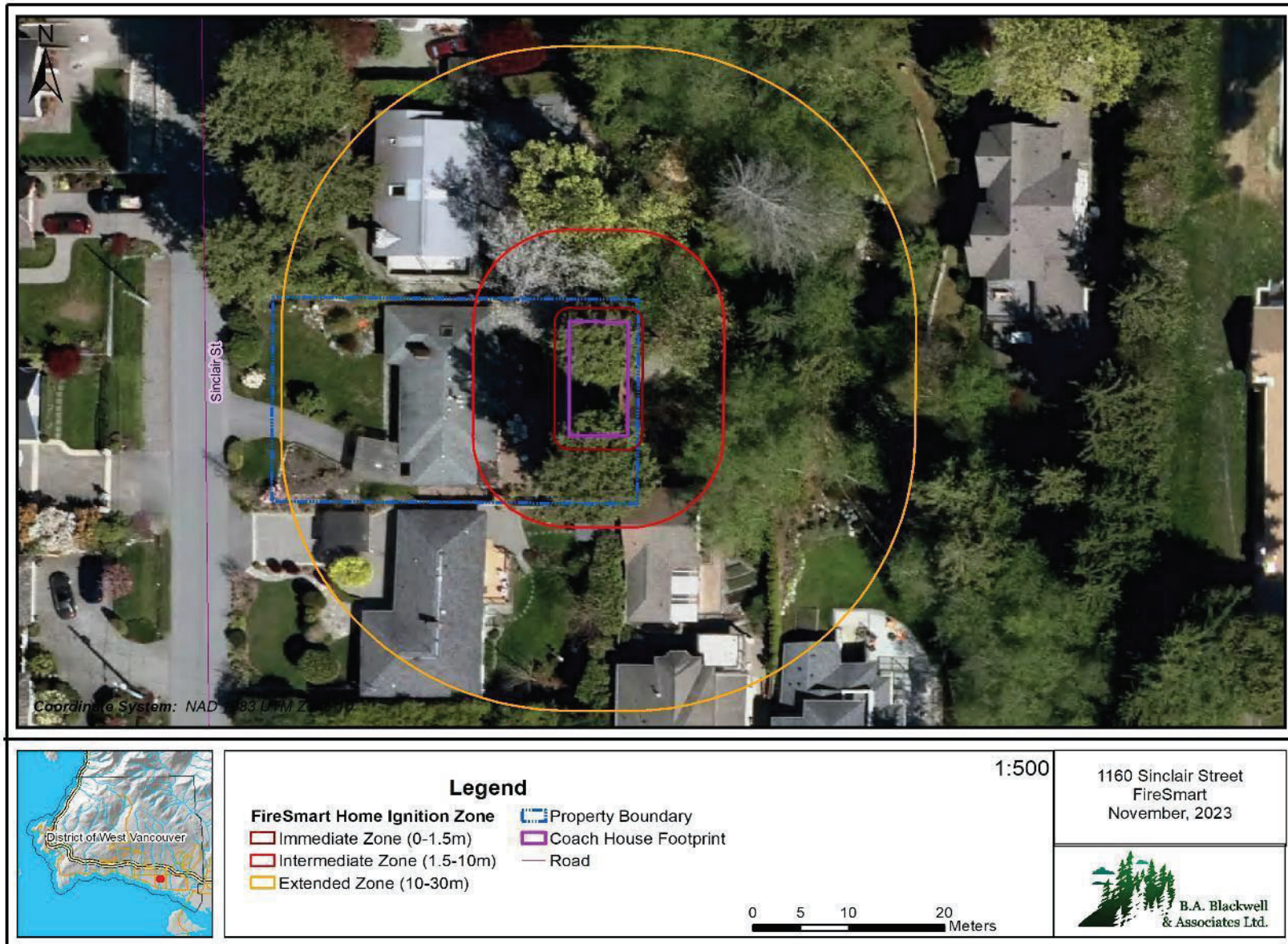


Figure 3. FireSmart Priority Zones.

2.4.1 Defensible Space

By following FireSmart principles within the Non-Combustible Zone and FPZ 1, property owners can create what is called ‘Defensible Space’ around their home. Defensible space is a buffer created between a structure and any wildland/flammable vegetation nearby that allows for the following: slowing or stopping the spread of wildfire, reducing the likelihood of the structure catching fire, and providing a safe space for firefighters to work should there be a fire on or near the property⁶. In the event of a wildfire, firefighters may have to choose which houses they do or do not act on. Homes with defensible space are safer for firefighters to work at and are more likely to survive a fire, and may be prioritized over homes without defensible space as a result. Therefore, the recommendations in this report protect the subject property and help to reduce the risk of wildfire in the surrounding neighbourhood.

⁶ Cal Fire, Defensible Space: <https://www.fire.ca.gov/programs/communications/defensible-space-prc-4291/>



Map 1. FireSmart Priority Zones and the proposed building footprint for 1160 Sinclair St.



2.5 FireSmart Home Ignition Zone Assessment

To evaluate fire hazards, the **FireSmart** approach, which employs the *FireSmart Home Ignition Zone Assessment Score Card* and the concept of *FireSmart Priority Zones*, were used. These can be found on the FireSmart Canada website at <https://firesmartcanada.ca/wp-content/uploads/2018/10/FireSmart-Protecting-Your-Community.pdf> (Partners in Protection 2003), and are helpful tools for assisting in assessing risk and recommending mitigation options.

The *FireSmart Home Ignition Zone Assessment Score Card* considers both building construction and vegetation related hazards. This form evaluates the proposed building and future vegetation conditions of the subject property, and assumes that the recommendations in this report have been followed. The overall rating for this site is **151**, which falls into the Extreme category (Table 1). The Extreme rating is not within the acceptable range for the Wildfire DPA Assessment, and is attributable to the surrounding flammable overstorey vegetation and the proximity of the garden shed and greenhouse (which were not designed using FireSmart principles) to the proposed coach house. Following FireSmart guidelines and the vegetation treatment recommendations given in this report is imperative to ensure that the risk posed by the surrounding neighbouring vegetation and nearby structures is decreased.

Table 1. FireSmart Assessment Summary

TOTAL PROPERTY SCORE

HOME IGNITION ZONE ASSESSMENT TOTALS		SCORE
Home	Home and attachments (<i>deck</i>)	1
Non-Combustible Zone	0 - 1.5 m from home	0
Zone 1	1.5 m - 10 m from home	90
Zone 2	10 m - 30 m from home	30
Home and Non-Combustible Zone, Zone 1 and Zone 2 - SCORE:		121
Zone 3 (<i>if applicable</i>)	30 - 100 m from home	30
TOTAL SCORE:		151

HAZARD LEVEL

Low < 21 points	Moderate 21- 29 points	High 30 - 35 points	Extreme > 35 points
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151

TOTAL SCORE OF HOME, NON-COMBUSTIBLE ZONE, ZONE 1, ZONE 2 AND ZONE 3



3.0 VEGETATION INVENTORY AND PROPOSED MITIGATIVE WORKS

A total of six coniferous trees and hedges were assessed and are described in Table 3. Table 2 summarizes the vegetation assessed by location. Vegetation shared between the subject property and an adjacent property are listed under the adjacent property. Recommendations considered wildfire hazard, condition of vegetation, impacts from proposed construction, and distance from flammable vegetation beyond the property boundaries.

Table 2. Summary of coniferous vegetation assessed on or adjacent to 1160 Sinclair St.

	On Site	Shared with 1797 Inglewood Ave.	1190 Sinclair St.	1140 Sinclair St.	Shared with 1231 Sinclair Crt., 1797 Inglewood Ave., 1190 Sinclair St.
Total	2	1	1	1	1
Remove	0	1	0	0	1 (partial)
Retain	2	0	1	1	0

In order to acceptably mitigate the fire hazard for 1160 Sinclair St., management of existing vegetation (through removal and pruning) on the property is recommended (Table 3). Undertaking these proposed mitigative works entails consultation and written consent from the property owners of 1190 Sinclair St., 1231 Sinclair Crt., and 1797 Inglewood Ave. for the vegetation located on their respective lots. It is the responsibility of the property owners to obtain the appropriate consent in writing before carrying out the recommendations in this report.

*Written consent was not received for the removal of the portion of cedar hedge #H1 that overlaps with the neighbouring properties of 1190 Sinclair St., 1231 Sinclair Crt., and 1797 Inglewood Ave. Since no written consent was provided by the neighbours, removing only the portion of #H1 **entirely** on 1160 Sinclair Street will result in the fire hazard for this property being mitigated to the highest reasonably possible level.*



3.1 Bylaw Protected Trees

Trees #1, 3, and OFF1 (Figure 4) are protected by Tree Bylaw 4892 due to being over 75cm DBH. Tree #1 is too close to the proposed coach house to be safely retained. To mitigate the damage caused to tree #3 in the future, it is recommended that the existing wood fence on the eastern side of the property be altered to accommodate its protection during construction.

Permits are required for the removal or cutting of Bylaw Protected trees. It is the responsibility of the owner to obtain the necessary permits before carrying out the recommendations in this report.



Figure 4. Trees #1 (L) and 3 (R) are over 75cm diameter and require a permit for removal or pruning



Map 2. Coniferous vegetation assessed on or adjacent to 1160 Sinclair St.



Table 3. Vegetation inventory of trees assessed on or adjacent to 1160 Sinclair St.

Tree #	Species (common name)	DBH (cm)	Location	Height (m)	Crown Base Height (m)	Crown Radius (m)	Condition	Form	Protected Tree?	Comment	Treatment
1	western redcedar	87	Shared with 1797 Inglewood Ave	28	8	5	Good	Tree	Y	Slight decay at base on south side of stem up to 2.5m where branch has been cut, growing at edge of property with crown extending onto neighbour's property, some ivy growth along stem	Remove; consent from neighbour and permit from DWV are required
2	western redcedar	52	On Site	27	5	3	Fair	Tree	N	Stem has grown around fence with significant pitch buildup around point of contact, thinning crown at upper half of stem, growth on raised planter bed with large garden stones indicating limited rooting space, growing very close to tree #3 with shared crown with which it competes for light and growing space	Prune 5m away from coach house; do not prune branches on adjacent property
3	western redcedar	80	On Site	30	3	4	Fair	Multi-Stem Tree	Y	Stem has grown around fence with some pitch buildup around point of contact, slight thinning crown indicating stress, growing on raised planter bed bordered by large garden stones indicating limited rooting space, growing very close to tree #2 with shared crown with which it competes for light and growing space, second leader emerges at 3.5m which may present a failure hazard as the tree ages, piling of lumber and gas mower and other flammable materials near base	Prune 5m away from coach house; do not prune branches on adjacent property
H1	hedging cedar	n/a	1190 Sinclair St. 1231 Sinclair Court 1797 Inglewood Ave.	5-10	1	3	Good	Hedge	N	Height is 5-10m and spans multiple neighbour properties, crowns in good condition, stems variable in size, removals may be needed where stems abut northeast corner of subject property, should be maintained to prevent branch overreach above fence	Remove with Consent (within 10m of coach house) Retain Remainder
H2	hedging cedar	n/a	1140 Sinclair St. 1819 Inglewood Ave.	4	0.75	1	Fair	Hedge	N	Some flagging/brown foliage among crowns, treatment only needed at north edge of hedge where it abuts southeast corner of subject property	No Treatment
OFF1	western redcedar	~77	1190 Sinclair St.	30	5	5	Good	Tree	Y	Offsite tree with canopy partially encroaching onto subject property and growing in proximity to overhead wires. There is sufficient clearance from the crown and surrounding coniferous vegetation that pruning is	No Treatment



Tree #	Species (common name)	DBH (cm)	Location	Height (m)	Crown Base Height (m)	Crown Radius (m)	Condition	Form	Protected Tree?	Comment	Treatment
										unnecessary. Surrounding Cw stems on neighbour property exhibit the same characteristics and do not strongly affect the wildfire hazard of the subject parcel	



3.2 Recommended Removals

Recommended removals include some flammable coniferous vegetation within Priority Zone 1 (within 10m of the planned building footprint) and all vegetation within 1.5m of the planned building footprint. Tree #1 (Figure 5) and H1 (Figure 6, Map 3) are recommended for removal. The removal of tree #1 requires written consent from the property owner of 1797 Inglewood Ave and a permit form DWV due to its status as a protected tree. The removal of portions of hedge #H1 (Figure 6) requires permission from 1190 Sinclair St., 1231 Sinclair Crt., and 1797 Inglewood Ave.

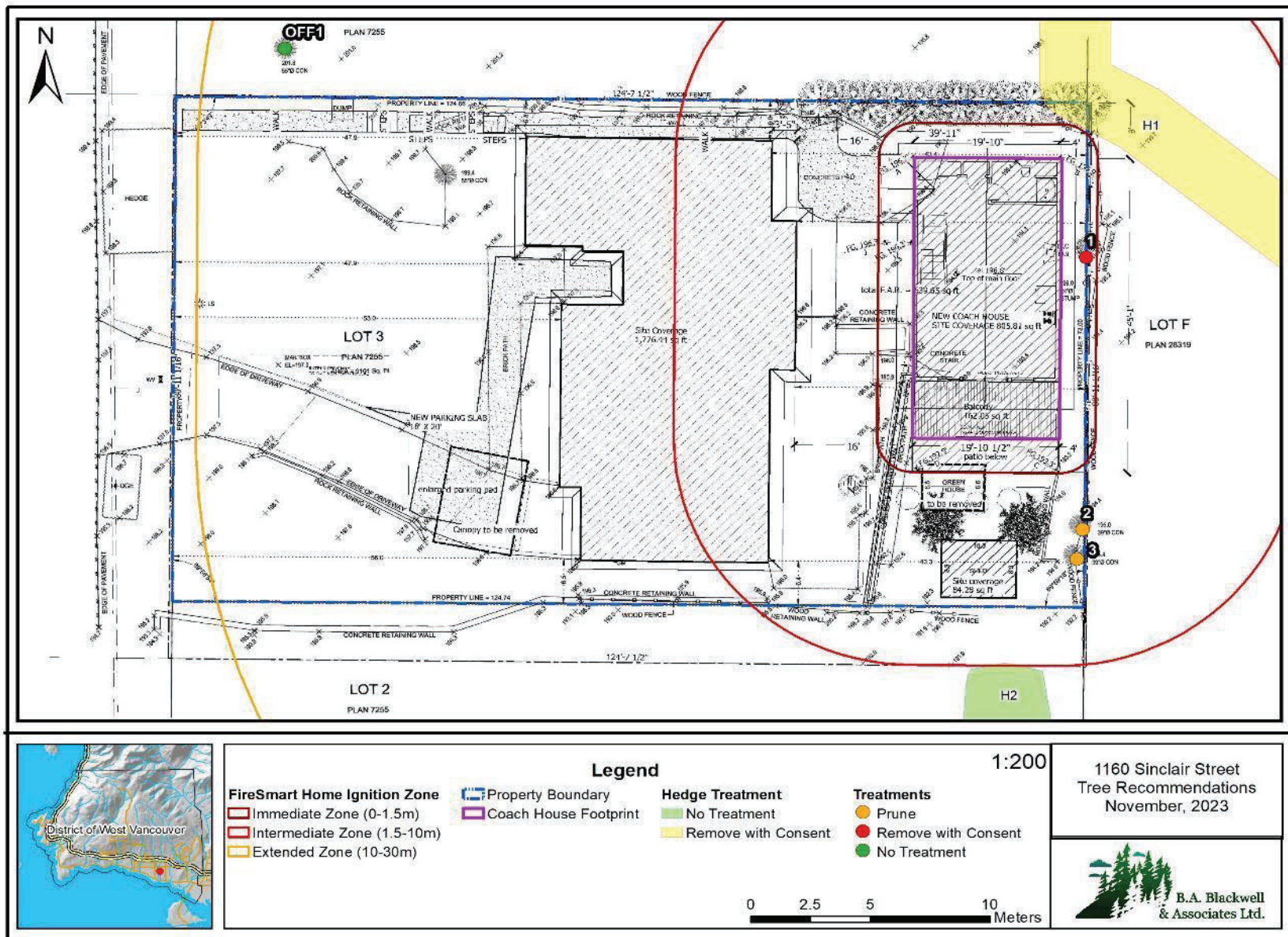
All removal work should be avoided during the breeding bird season. Breeding bird season is generally between March 1st and September 15th on the south coast of BC. If there is bird activity detected in the tree, a biologist should be consulted prior to removal. All work activities must comply with the federal Migratory Birds Convention Act (1994) and the Migratory Birds Regulation (1994) that protects migratory birds and their eggs and nests.



Figure 5. Tree #1 requires removal to mitigate the property's wildfire hazard and to accommodate new construction



Figure 6. Cedar hedge #H1 is recommended for partial removal within 10m of the planned coach house



Map 3. Map of treatment recommendations for vegetation on and adjacent to new construction



3.3 Recommended Pruning

Tree #2 and 3 are recommended for pruning 5m away from the coach house as their crowns will come within close proximity to the coach house. Trees must only be pruned on the property of 1160 Sinclair St. Tree #3 will require a tree permit from DWV for any pruning work to be done.

Proper arboriculture practices must be employed and follow ANSI A300 standards (American National Standards for Pruning) to ensure damage to trees is limited, and all tree climbing must be done without spurs. Pruning must be executed or supervised by an ISA Certified Arborist.

All pruned limbs, woody pieces, and foliage must be removed from the site and disposed of at an approved green waste recycling facility. No dumping of yard waste may occur. Pruning should remove no more of a tree's live crown than what is necessary for specified objectives⁷. Species, tree size, age, location, health, and project goals must be considered when deciding how much pruning will occur. Live crown percentage refers to the amount of live crown that must be retained on the tree. Assessment of this is calculated by taking the length of the live crown (measured from the top down to where pruning has removed all branches) divided by the height of the tree.

3.4 Tree Protection Measures

The best way to ensure that tree protection zones (TPZ) are maintained is to install tree protection barriers (fences) around the TPZs of all retained trees. It is recommended that an ISA Certified Arborist is contracted to attend the site at regular intervals to ensure that barriers remain in good condition and to address any issues that may arise as the project progresses.

The following rules apply to the TPZ:

- No work or activity of any kind is permitted inside the barriers.
- No grade changes or excavation allowed.
- No dumping of any materials, including fill soil.
- No parking, storage of equipment, or construction materials.
- Underground utilities should be installed outside of the TPZs.
- No alteration of surface drainage, such that it impacts the natural flow of water into and out of the TPZ.
- Monitor soil moisture. When conditions seem dry, supply irrigation. Do not allow water to pool around the stem for prolonged periods.

It is strongly recommended that owners talk to their neighbours regarding tree protection, construction, etc. throughout the development process as part of DWV's Good Neighbour Bylaw⁸.

⁷ American National Standard 300 (Part 1) – 2017 Tree, Shrub, and Other Woody Plant Management – Standard Practices (Pruning)

⁸ DWV's Good Neighbour Bylaw #4380 can be found at <https://westvancouver.ca/government/bylaws-strategies-reports/bylaws/good-neighbour-bylaw>



For the protection of bylaw-protected tree #3, it is further recommended that the wood fence currently located along the eastern boundary of the property is partially dismantled so that a tree protection barrier can be installed around its trunk; this will also prevent the tree from suffering further growth inhibition from the fence obstruction.

3.4.1 Tree Protection Barriers

Tree protection barriers must be installed prior to excavation for the foundation and remain in place until construction, lot grading, and all work requiring machinery is complete. In cases where any activity is required in areas within the TPZ, as defined by Tree Protection Bylaw 4892 and above, it should be done under the direct supervision of an ISA Certified Arborist. This helps to protect the tree(s) from damage that can negatively affect their stability and long-term health.

The barriers must be sturdy barriers at least 1.2 m in height, with 2x4's used for vertical posts, top and bottom rails, and cross-bracing (Bylaw 4892). Vertical posts must be driven into the ground and snow fencing must surround the outside. The barriers must remain in place for the duration of construction. See Appendix B: Tree Protection Detail for more information.

Tree protection barriers are recommended for all trees near construction that will be retained.



3.5 Arborist Supervision

It is recommended that an ISA Certified Arborist be contracted to supervise any work that may encroach on the Tree Protection Zones (TPZ) of retained trees, especially work requiring machinery or grade changes. The activities that may require arborist supervision at this site include excavation for foundation and/or retaining walls, and lot grading.

A 'Confirmation of Commitment by Arborist' form will have to be submitted to the District by the Arborist retained to do this work⁹. Refer to Appendix C: Confirmation of Commitment Template.

3.6 Monitoring Tree Health

It is important to regularly monitor retained trees during the construction process. Tree protection barriers, general tree health and condition, soil moisture and drainage, and general work activities around retained trees should be monitored. If concerns regarding tree health or stability arise, an ISA Certified Arborist should be consulted.

Moisture is one of the biggest factors affecting tree survival through construction. In times of hot weather or extended dry periods, irrigation may be required. Irrigation should focus on longer watering times, rather than more frequent watering. Be sure to follow any watering restrictions when irrigating trees. Once the soil is healthy and moist, adding a thick layer (5-10 cm) of well-rotted compost to the TPZs can help regulate soil temperature, provide nutrients, and retain water. Note that bark mulch is not allowed as it is flammable.

Trees can take months to years to respond to construction stress. Having an ISA Certified Arborist assess the trees every year for two to five years after construction can help identify and resolve problems. It is strongly recommended that the soil in the TPZ of all trees stay healthy (uncompacted, moist, dark in colour, and free from deleterious materials that affect soil chemistry like salt and excessive fertilizer) at all times.

⁹Refer to the District of West Vancouver's Tree Survey Requirements webpage: <https://westvancouver.ca/home-building-property/construction-renovating/building-permits/tree-bylaw-tree-survey-requirements>



4.0 LANDSCAPING

4.1 FireSmart Landscaping

Future landscaping choices must be limited to plant species with low flammability within 10m of the building (the entire Property). **Coniferous vegetation such as juniper, cypress, yew, and cedar must not be planted within this 10m zone as these species are considered highly flammable under extreme fire hazard conditions. Vegetation of any kind is not allowed within 1.5m of a building. The Consultant is unable to sign off on the recommendations in our report where these circumstances occur.**



Figure 7. Examples of common coniferous vegetation planted within the urban landscape.

In addition to choosing species with low flammability, other factors such as sun exposure, hardiness zone, available space, and ease of maintenance must also be considered. The Canadian Hardiness Zone for West Vancouver is 8b. New vegetation must also be non-invasive; see Section 4.4 for more information. If a hedge is desired to create privacy and/or delineate property boundaries, see Appendix A: DPA Compliant Hedge Alternatives for guidance with hedging selection.

It is best to discuss options with a professional landscaper, looking together for plants that suit the aesthetics of the landscape design, are suitable for the climate and site, and are fire resistant. Table 4 provides a list of suitable plant material. Plants that are fire resistant generally have the following characteristics:

- Foliage with high moisture content (moist and supple),
- Little dead wood and do not tend to accumulate dry and dead foliage or woody materials, and
- Sap that is water-like and without a strong odour.

Note: any non-invasive annual plants and herbaceous perennials are acceptable in the 1.5 - 10m zone.

**Table 4. Examples of acceptable vegetation for the property**

Trees	
Pink dogwood (<i>Cornus florida</i>)	Witch hazel (<i>Hamamelis x intermedia</i>)
Japanese snowbell (<i>Styrax japonica</i>)	Weeping purple beech (<i>Fagus sylvatica</i> 'Purple Fountain')
Dawyck beech (<i>Fagus sylvatica</i> 'Dawyck')	Carolina silverbell (<i>Halesia carolina</i>)
Columnar English oak (<i>Quercus robur</i> 'Fastigiata')	Sourwood (<i>Oxydendrum arboreum</i>)
Columnar hornbeam (<i>Carpinus betulus</i> 'Fastigiata')	Oyama magnolia (<i>Magnolia sieboldii</i>)
Shrubs	
Dwarf Japanese barberry (<i>Berberis thunbergii</i> cultivars)	Spiraea (<i>Spiraea japonica</i>)
Mexican mock orange (<i>Choisya ternata</i>)	Boxwood (<i>Buxus sempervirens</i>)
Sweetbox (<i>Sarcococca ruscifolia</i> or <i>S. hookeriana</i>)	Dwarf heavenly bamboo (<i>Nandina domestica</i> 'Gulf Stream')
Box honeysuckle (<i>Lonicera pileata</i> or <i>nitida</i>)	Azalea (<i>Azalea</i> sp.)
Skimmia (<i>Skimmia japonica</i>)	Hardy fuchsia (<i>Fuchsia magellanica</i>)
Groundcovers	
Bearberry (<i>Arctostaphylos uva-ursi</i>)	Nepal cinquefoil (<i>Potentilla nepalensis</i>)
Creeping phlox (<i>Phlox subulata</i>)	Black mondo grass (<i>Ophiopogon planiscapus</i> 'Nigresens')
Stonecrop (<i>Sedum rupestre</i> , <i>S. montanum</i> and others)	Wintergreen (<i>Gaultheria procumbens</i>)

Note: The Client is not limited to the species in Table 4, any plant that meets the FireSmart landscaping guidelines is acceptable. For further assistance in creating a FireSmart landscape, refer to the FireSmart Guide to Landscaping at https://firesmartbc.ca/wp-content/uploads/2021/04/FireSmartBC_LandscapingGuide_Web_v2.pdf Other helpful tips for finding fire resistant landscaping options can be found at: <http://www.firefree.org/wp-content/uploads/2016/02/Fire-Resistant-Plants.pdf>¹⁰

¹⁰A Pacific Northwest Extension Publication: Oregon State University, Washington State University, University of Idaho. August 2006.



4.2 Maintenance of Property in Low Fire Hazard State

To ensure that a low fire hazard rating is maintained at 1160 Sinclair St., all landscaping must be properly maintained in low hazard conditions. This may require periodic maintenance including crown raising and/or reduction. Crowns of coniferous trees should be kept a minimum of 5m from the ground or from structures. All pruning should be completed by an ISA Certified Arborist to meet industry standards. The roof and gutters should be kept clean of debris to reduce the potential for spotting to ignite these materials during a wildfire event. Coniferous foliage should not be allowed to accumulate in gutters.

Meeting the recommendations in this report and maintaining the property in the described manner will reduce the overall fire hazard risk for 1160 Sinclair St. The implementation of these measures does not guarantee that the property or structures are safe from wildfire, only that the risk level of the property is within acceptable standards, and that fire hazards have been identified and appropriate mitigation measures outlined.

Grass, shrubs, and herbs must be maintained in a state that reduces fire hazard by maintaining foliar moisture content. This can be accomplished by:

- Choosing plant species that are well-adapted to the site (microclimate and soil conditions of the parcel),
- Incorporating a landscape design where shrubs, herbs, and grasses are planted in discrete units manageable by hand watering, and/or
- Installing irrigation.

It should be recognized that relying on irrigation to maintain landscaping in a healthy state is limiting and may actually increase the fire hazard on the parcel, particularly in times of drought and watering restrictions, similar to the experience of summer 2015 and 2017. Lack of irrigation in times of watering restrictions may create a landscape that is unhealthy and unsightly, as well as dead, dry, and highly flammable.

Any dead material must be removed annually and must not be allowed to build-up on site.

Placement of combustible materials such as firewood, gas-powered lawn equipment, or wooden structures (sheds, storage, or other outbuildings) must be a minimum of 5m from the primary building (including neighbouring houses). This will limit the potential for these materials to be ignited and spread fire to an adjacent building.

As per DWV Fire Bylaw 4366, no open-air fires are permitted. Construction of fire pits or other outdoor burning devices fueled by materials other than propane, natural gas, or briquettes are not permitted.



4.3 Replacement Tree Guidelines

Replacement trees for bylaw protected tree #1 may be required. There is sufficient room for at least 2 trees on the property. These must be planted 4-5m from each other, 1m from the property lines, and 3m from the building foundations. Recommended replacement tree species are listed in Table 4 and Appendix D: List of Replacement Trees.

Replacement trees shall be deciduous to reduce the fire hazard of the parcel. Plants must be sourced from a reputable nursery in conformance with the Canadian Nursery Stock Standard (9th edition 2017). Select only specimens with intact root balls, and with stem and crowns free from disease and mechanical injury.

Site preparation, installation, and maintenance works shall conform to the Canadian Landscape Standard (2nd edition 2020). The best time to plant trees is in the autumn when precipitation will keep the root ball moist and allow ample time for the plants to establish before the heat of summer. If it is not possible to plant in the fall, planting can be done any time except during times of drought, extreme heat, snow, frozen or saturated ground, or other unfavourable conditions.

Dig a hole that is as deep as the root ball and twice as wide. Place the tree in the hole and ensure that the root flare will be above the finished grade. Break up any dense clusters of roots and remove any circling roots. Backfill the hole with good quality topsoil that is rich in organic matter, and free from weeds and large sticks/stones. Tamp the soil down with your feet when the hole is filled. If the tree is not planted within 10m of the home, create a 1m tree well around the base of the tree and mulch with 3.5cm (1.5") composted bark mulch, making sure to avoid burying the root flare. Create a mound of mulch around the edge of the tree well to avoid runoff during watering activities. Remove any damaged branches using horticultural pruning practices.

Avoid the use of planting stakes, except in circumstances of regular and consistent local wind forces or with very large specimens that require extra support. The material used to connect the tree to the stake should be soft and loose enough to allow some movement of the tree. Planting stakes should be removed after one year.

Water immediately following planting. Routine watering will likely be required for the first few years on site. Watering should be done as long, deep soaks, rather than short duration watering which does not deeply infiltrate the soil. During times of drought, such as much of the summer season within the Lower Mainland, new plantings require regular and deep watering treatments throughout the spring, summer, and early fall seasons. A recommended watering regime for the first two growing seasons is:

- Two times per week during April, May, and June
- Three times per week during July, August, and September

A minimum of 18 litres (5 gallons) of water for individual trees is at required at each application. The goal of watering treatments is to wet the root ball to its full depth and extent. Hand watering with a spring-loaded nozzle is necessary during time of municipal watering restrictions.



4.4 Invasive Plant Management

English ivy (*Hedera helix*), English holly (*Ilex aquifolium*), and English laurel (*Prunus laurocerasus*) were found on or adjacent to the property during the assessment. It is recommended that these invasive plants be cut and the roots dug out during excavation/development activities. Remove all vegetation parts off site; dumping onto adjacent land is not acceptable. For the removal of the specimen English holly, consent must be granted by the property owner at 1190 Sinclair St. (Figure 8); removal of this tree is strongly recommended, as the crown extends onto the property above the proposed building site, and is likely to spread once the ground below becomes disturbed during construction.

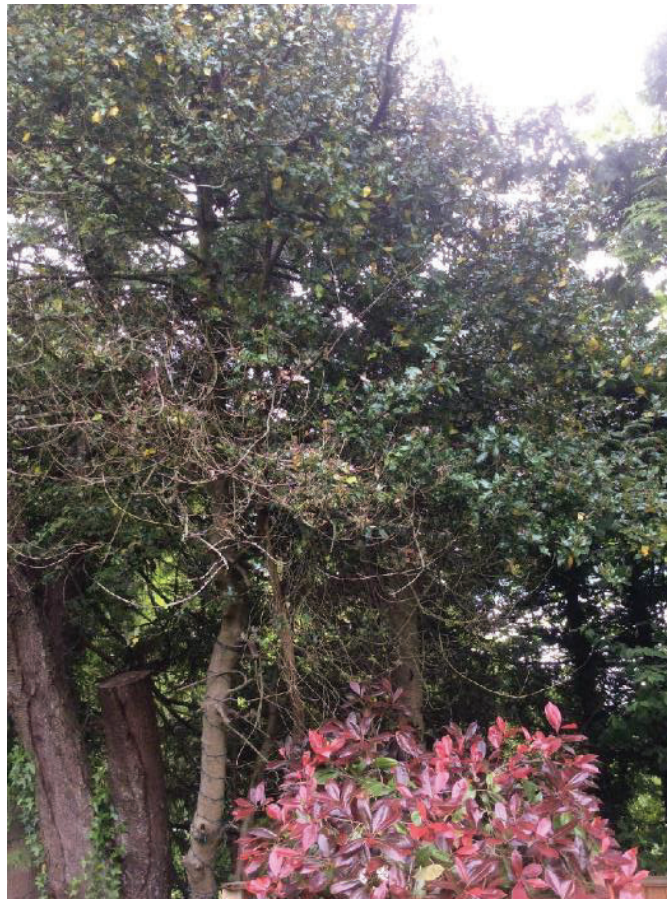


Figure 8. Invasive English holly at 1190 Sinclair St. is recommended for removal to prevent future spread

In the landscaped portion of the parcel, plant selections should be made carefully, ensuring that the plants are suitable for the available size and sun exposure at their location. **Rapidly spreading, invasive plants should be avoided in all locations on the property¹¹.** Invasive plants for sale in nurseries should be avoided and include, but are not limited to:

- English ivy (*Hedera helix*)

¹¹ Refer to the District of West Vancouver's Invasive Plant Webpage
<https://www.westvancouver.ca/environment/invasive-plants-insects/invasive-plants>



- English laurel (*Prunus laurocerasus*)
- Deadnettle (*Lamium sp.*)
- Holly (*Ilex aquifolium*)
- Butterfly bush (*Buddleia davidii*)
- Periwinkle (*Vinca minor*)
- Morning glory (*Calystegia sepium*)

Invasive plants as identified by the Invasive Plant Council of BC which aggressively colonize natural areas include:

- Japanese knotweed (*Reynoutria japonica*),
- Himalayan blackberry (*Rubus armeniacus*),
- Scotch broom (*Cytisus scoparius*),
- Yellow flag iris (*Iris pseudoacorus*), and
- Giant hogweed (*Heracleum mantegazzianum*)¹².

5.0 ENVIRONMENTAL CONSIDERATIONS

5.1 Canopy Cover

The reduction in canopy cover¹³ on the property will be moderate as a result of fire hazard mitigation recommendations in this report. Current canopy cover on the property is approximately 15%. Recommended removals to meet fire hazard mitigation objectives and to allow for development of the property will decrease the canopy cover to 10%. Replacement trees will slowly contribute to increased canopy cover over time, though winter season canopy cover will only negligibly increase due to replacements recommended (as deciduous trees do not have foliage during winter months).

Removals will lead to the loss of the ecosystem services associated with those trees removed. Ecosystem services include: storm water management, biomass services, air pollution abatement, microclimate moderation, noise reduction, slope stability, rainwater retention, and wildlife habitat (Carreiro et al, 2008). Retention and protection of those conifers furthest from the home footprint will allow the stand, as a whole, to continue to provide many of these valuable ecosystem services, while reducing the flammable foliage, and thus the wildfire hazard, nearest to the home.

¹² Giant Hogweed is a public health concern due to phytotoxic sap which can lead to extreme skin dermatitis (welts, rashes, blistering). Removal of Giant hogweed should only be conducted by trained personnel. Contact the District of West Vancouver Parks Department at 604-925-7275 to report an occurrence and schedule removal

¹³ Canopy cover is the area within a subject property boundary, that when viewed from above is covered by canopy. Canopy is only calculated for “trees” above 10 cm DBH. In this case, it is estimated in m² from DWV WestMap aerial photos <https://westvancouver.ca/content/westmap-gis>. The canopy definition used here is from the District of North Vancouver’s Tree Protection Bylaw 7671: “the extent of the outer layers of leaves or needles of an individual or group of trees”.



6.0 POST-DEVELOPMENT INSPECTION

In order to obtain an occupancy permit, properties under development within the Wildfire Hazard DPA must have a QP demonstrate that all of the fire hazard mitigation measures that were recommended in the wildfire hazard report have been completed. Figure 9 shows a property that failed the first Post-Development Inspection (PDI), and Figure 10 shows the same property once the PDI was completed. **All construction and landscaping (including lawn installation, if applicable) must be completed before booking a Post-Development Inspection. Failure to follow the recommendations in this report may result in delays in obtaining final occupancy.**



Figure 9. Example of a failed PDI



Figure 10. Example of a completed PDI



7.0 LIMITATIONS

This Wildfire Hazard Assessment is based on site observations noted on the dates specified only. The project foresters have endeavored to use their skill, education, and knowledge to provide accurate representation. Every effort has been made to ensure that the opinions expressed are an accurate assessment of the condition of the construction and landscaping information provided by the Client. It is the owner's responsibility to maintain the home and the trees to a reasonable standard and to carry out the mitigation measures stated in this report.

Tree assessments represent the condition of the tree and site at the time of inspection. Tree inspections are limited to visual examination only, without employing methods of coring, climbing, or excavating. The inherent characteristics of trees are that they are unpredictable and can fail due to environmental or internal problems. It is not possible for the Consultant to detect every condition or defect that could result in failure of a tree, shrub, or part thereof. Trees, as living organisms, are prone to attack by insects, disease, and other abiotic factors such as wind, snow, and frost. Given these factors, the Consultant cannot guarantee that the tree will be safe and healthy under all situations or for a given amount of time. Any prescribed mitigation measures for tree health or safety cannot be assured.

Adjustments, assumptions, and the conclusions drawn in this report are based on the professional experience of Ali Rahi, RPF & ISA Certified Arborist, Judith Cowan, RPF & ISA Certified Arborist, and Bruce Blackwell, MSc, RPF of B.A. Blackwell and Associates Ltd. The opinions expressed below are also based on written and verbal information supplied in part by other parties.

Tree treatments such as pruning, topping, protection, or removal could potentially involve issues beyond the breadth of the Consultant's services including: improperly marked private land boundaries, ownership, neighbourly disputes, and other considerations.

The Consultant cannot accept responsibility for any issues or events that have arisen since the date of the inspection and the date the report was written. The Consultant accepts that the report represents professional judgment and that the Consultant's responsibilities are limited to the content of this report.



8.0 REFERENCES

BC Wildfire Service. *British Columbia FireSmart: FireSmart Begins at Home Manual*.

<https://firesmartbc.ca/resource/firesmart-homeowners-manual/>

Canadian Nursery Landscape Association (CNLA). (2017). *Canadian Nursery Stock Standard* (9th edition). CNLA

Canadian Nursery Landscape Association (CNLA), & Canadian Society of Landscape Architects (CSLA). (2020). *Canadian Landscape Standard* (2nd Edition). CNLA & CSLA

Carreiro, Margaret M. (2008). Introduction: The Growth of Cities and Urban Forestry. *Ecology, Planning and Management of Urban Forests*, pages 3-9.

National Fire Protection Association. (2012). *Standard for Fire Protection Infrastructure for Land Development in Wildland, Rural, and Suburban Areas* (1141).

National Fire Protection Association. (2012). *Standard for Reducing Structure Ignition Hazards from Wildland Fire* (1144).

Partners in Protection. (2003). *Wildfire Hazard Assessment System*. In *FireSmart: Protecting Your Community from Wildfire*. Chapter 2: 1 – 31



9.0 SIGNATURES

Project Forester

Ali Rahi, RPF

B.A. Blackwell & Associates Ltd.

January 11, 2024

Reviewing Professional

Bruce Blackwell, MSc, RPF, RPBio

B.A. Blackwell & Associates Ltd.

January 11, 2024



APPENDIX A: DPA COMPLIANT HEDGE ALTERNATIVES

Flammable vegetation is often planted in residential landscapes. When a property falls within a municipality's Wildfire Hazard Development Permit Area (DPA), coniferous species (cedar, yew, Douglas-fir, spruce, arborvitae hedging, etc.) cannot be planted in Fire Priority Zone 1 (within 10 of the planned home footprint). The following pages provide the homeowner with examples of acceptable broadleaf evergreen and deciduous plant choices that are suitable for hedges and screening. This list is not exhaustive; any local nursery can help identify additional acceptable options. Invasive species such as English laurel (*Prunus laurocerasus*) should not be used.

Non-Compliant Landscaping Examples (Coniferous Species)



Arborvitae (*Thuja occidentalis*)

Pine (*Pinus* sp.)



Western redcedar (*Thuja plicata*)



English yew (*Taxus baccata*)



Invasive Species (Not Recommended)

The plants shown on this page are available for sale in retail nurseries and have qualities that cause them to spread into natural areas and displace native species. Instead choose one of the species listed on the next pages.



English laurel (*Prunus laurocerasus*)

- Grows aggressively fast
- Spreads by seeds in bird droppings



English holly (*Ilex aquifolium*)

- Spreads by seeds in bird droppings



Compliant Landscaping Examples (Broadleaf Evergreen, over 1.5m Tall)



California lilac

(*Ceanothus impressus* 'Victoria')

- 4m tall and wide
- Attracts pollinators
- Can be sheared easily



Strawberry tree

(*Arbutus unedo*)

- 4m tall and wide
- Has showy fruit and flowers
- Best to prune by hand





Glossy abelia (*Abelia x grandiflora*)

- 1.5 – 2m tall and wide
- Pink flowers in summer



Fraser photinia (*Photinia x fraseri*)

- 5m tall and wide
- New growth is red, fades to green



Privet (*Ligustrum japonicum* & *L. vulgare*)

- 3m tall x 2m wide
- Deciduous and evergreen options



Boxwood (*Buxus sp.*)

- Ranges from 1-3m tall and wide
- Moderate growth speed



Japanese pieris (*Pieris japonica*)

- Up to 2m tall and wide
- New growth is pink/orange/red/yellow



Firethorn (*Pyracantha angustifolia*)

- Up to 3m tall and wide
- Has ornamental orange-red fruit



Compliant Landscaping Examples (Broadleaf Evergreen, Under 1.5m Tall)



Box honeysuckle (*Lonicera nitida* 'Baggesen's Gold')

- 1.2m tall and wide - Can be sheared or let grow naturally



Hebe (*Hebe* sp.)

- Up to 1.5m tall and wide - many different cultivars available



Skimmia (*Skimmia japonica*)

- Up to 1.5m tall and wide - requires shade



Compliant Landscaping Examples (Deciduous Species)



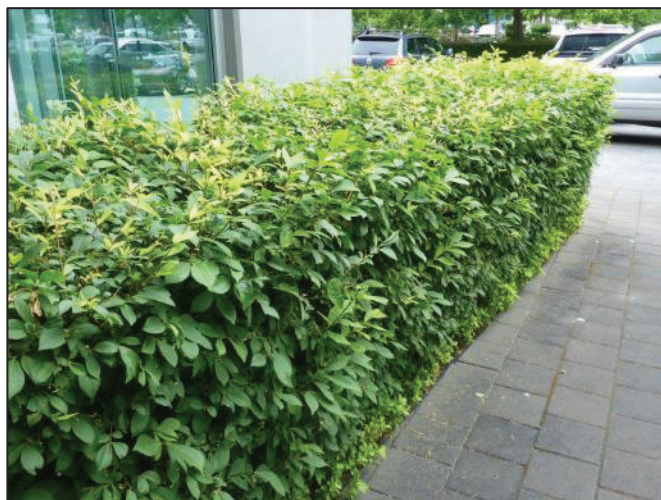
Japanese barberry (*Berberis thunbergii*)

- Up to 2m tall and wide
- Many different cultivars available



Spiraea (*Spiraea japonica* & *S. betulifolia*)

- Up to 2m tall x 1.5m wide
- Many different cultivars available



Burning bush (*Euonymus alatus*)

- 2-3m tall and wide
- Vibrant red fall colour

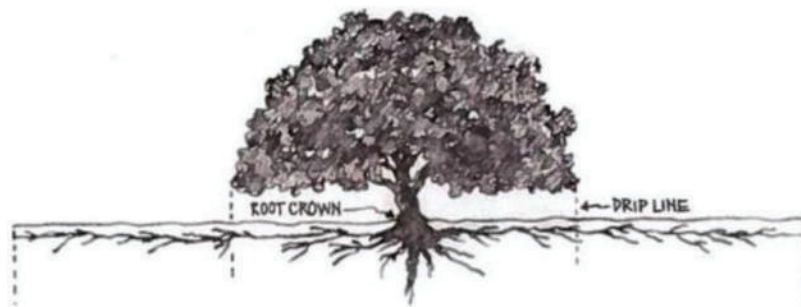


APPENDIX B: TREE PROTECTION DETAIL

Trunk Diameter (DBH) Measured at 1.4 m from natural grade	Protection Zone Minimum Fence Distance
20 cm	1.2 m
25 cm	1.5 m
30 cm	2.1 m
35 cm	2.4 m
40 cm	2.7 m
50 cm	3.0 m
55 cm	3.3 m
60 cm	3.6 m
75 cm	4.5 m
90 cm	5.4 m
100 cm	6.0 m

SHARED OWNERSHIP TREES AND NEIGHBOUR'S TREES

The distance table on the previous page must be used to determine location of tree protection fencing for shared trees and trees on properties adjacent to the development, of any size.



Root Protection Zone

- A tree's root system grows within the top 60 cm of the surface of good quality, well drained and uncompacted soil.
- The root system can extend to more than two to three times the drip-line distance.



Tree fencing-wood framed snow fence



APPENDIX C: CONFIRMATION OF COMMITMENT TEMPLATE

Confirmation of Commitment by Certified Arborist

Confirmation of Commitment by a Certified Arborist

Date: _____

Re: _____
(address of project)

I _____, (Certified Arborist's name) confirm that I have been retained by
_____. (Owner/Developer)

I am a certified arborist and Traq certified who is registered and in good standing in British Columbia with the International Society of Arboriculture.

I am responsible for inspecting, monitoring, and reporting in accordance with the requirements of the District of West Vancouver's Tree Bylaw 4892 (2016).

Monitoring of trees during any construction activities will occur when any tree protection barrier around Protected Trees (Tree Bylaw 2892, 2016) is removed. A copy of the field memo will be promptly forwarded to the District's Arborist following the completion of the monitoring period and once the tree protection barrier is re-instated.

I also acknowledge the responsibility to notify the addressee of this letter of the date I cease to be retained by the Owner and/or Developer.

Yours truly,

Certified Arborist/Traq Certified

ISA Certification Number _____
ISA Tree Risk Assessment Qualified Number _____

c.c. _____
Owner/Developer

Send completed form by email to:
Email: districttrees@westvancouver.ca

westvancouver



APPENDIX D: LIST OF REPLACEMENT TREES

The following list is adapted from DWV's Re-Planting Criteria¹⁴.

Botanical (Latin) Name	Common Name
<i>Acer campestre</i>	Hedge Maple
<i>Acer capilipes</i>	Stripebark Maple
<i>Acer cappadocicum</i>	Coliseum Maple
<i>Acer circinatum</i>	Vine Maple
<i>Acer davidii</i>	Snakebark Maple
<i>Acer ginnala</i>	Amur Maple
<i>Acer glabrum</i>	Douglas Maple
<i>Acer griseum</i>	Paperbark Maple
<i>Acer negundo</i>	Manitoba Maple
<i>Acer palmatum</i>	Japanese Maple
<i>Acer platanoides</i>	Norway Maple
<i>Acer pseudoplatanus</i>	Sycamore Maple
<i>Acer rubrum</i>	Armstrong Maple
<i>Acer rubrum</i>	Autumn Flame Maple
<i>Acer rubrum</i>	Bowhall Maple
<i>Acer rubrum</i>	Morgan Maple
<i>Acer rubrum</i>	October Glory Maple
<i>Acer rubrum</i>	Red Sunset Maple
<i>Acer rubrum</i>	Scanlon Maple
<i>Acer rubrum</i>	Scarlet Sentinel Maple
<i>Acer saccharinum</i>	Silver Maple
<i>Acer saccharum</i>	Sugar Maple
<i>Acer truncatum</i>	Shantung Maple
<i>Albizia julibrissin</i>	Silk Tree
<i>Amelanchier grandiflora</i>	Serviceberry
<i>Aralia elata</i>	Japanese Angelica Tree
<i>Betula albo-sinensis septentrionalis</i>	Chinese White Birch
<i>Betula jacquemontii</i>	Himalayan Birch
<i>Betula lanciniata</i>	Weeping Birch
<i>Betula nigra</i>	River Birch
<i>Carpinus betulus</i>	European Hornbeam
<i>Carpinus japonica</i>	Japanese Hornbeam
<i>Catalpa bignonioides</i>	Common Catalpa
<i>Catalpa speciosa</i>	Northern Catalpa
<i>Celtis occidentalis</i>	Hackberry
<i>Cercidiphyllum japonicum</i>	Katsura Tree
<i>Cercis canadensis</i>	Eastern Redbud
<i>Cladastrus lutea</i>	American Yellowwood
<i>Cornus 'Eddie's White Wonder'</i>	Eddie's White Wonder
<i>Cornus chinensis</i>	Chinese Dogwood
<i>Cornus controversa</i>	Giant Dogwood
<i>Cornus florida</i>	Flowering Dogwood
<i>Cornus kousa</i>	Kousa Dogwood
<i>Cornus mas</i>	Cornelian Cherry
<i>Cornus nuttallii</i>	Pacific Dogwood
<i>Corylus maxima</i>	Giant Filbert
<i>Crataegus lavalleyi</i>	Lavalle Hawthorne

Botanical (Latin) Name	Common Name
<i>Davidia involucrata</i>	Dove Tree
<i>Fagus crenata</i>	Japanese Beech
<i>Fagus sylvatica</i>	European Beech
<i>Fraxinus americana</i>	White Ash
<i>Fraxinus excelsior</i>	European Ash
<i>Fraxinus nigra</i>	Black Ash
<i>Fraxinus ornus</i>	Flowering Ash
<i>Fraxinus oxycarpa</i>	Claret Ash
<i>Ginkgo biloba</i>	Ginkgo
<i>Gleditsia triacanthos</i>	Honey Locust
<i>Gleditsia triacanthos inermis</i>	Thornless Honey Locust
<i>Gymnocladus dioica</i>	Kentucky Coffeetree
<i>Halesia carolina</i>	Carolina Silverbell
<i>Koeleruteria paniculata</i>	Golden Rain Tree
<i>Laburnum watereri</i>	Golden Chain Tree
<i>Liquidambar styraciflua</i>	American Sweetgum
<i>Liriodendron tulipifera</i>	Tulip Tree
<i>Magnolia 'Caerhay's Belle'</i>	Caerhay's Belle Magnolia
<i>Magnolia 'Elizabeth'</i>	Elizabeth Magnolia
<i>Magnolia 'Forest Pink'</i>	Forest Pink Magnolia
<i>Magnolia 'Galaxy'</i>	Galaxy Magnolia
<i>Magnolia acuminata</i>	Cucumber Tree
<i>Magnolia cordata</i>	Yellow Cucumber Tree
<i>Magnolia denudata</i>	Yulan Magnolia
<i>Magnolia grandiflora</i>	Southern Magnolia
<i>Magnolia kobus stellata</i>	Star Magnolia
<i>Malus sp.</i>	Crabapple
<i>Morus alba</i>	White Mulberry
<i>Notofagus antarctica</i>	Antarctic Beech
<i>Nyssa sylvatica</i>	Sour Gum Tree
<i>Oxydendron arboreum</i>	Sorrel Tree
<i>Parrotia persica</i>	Persian Parrotia
<i>Paulownia tomentosa</i>	Empress Tree
<i>Phellodendron amurense</i>	Amur Corktree
<i>Platanus occidentalis</i>	American Sycamore
<i>Platanus orientalis</i>	Oriental Plane Tree
<i>Platanus x acerfolia</i>	London Plane Tree
<i>Prunus sargentii</i>	Sargent Flowering Cherry
<i>Prunus serotina</i>	Black Cherry
<i>Prunus serrulata</i>	Japanese Flowering Cherry
<i>Prunus subhirtella</i>	Higan Cherry
<i>Prunus yedoensis</i>	Yoshino Cherry
<i>Pyrus calleryana</i>	Callery Pear
<i>Quercus acutissima</i>	Sawtooth Oak
<i>Quercus coccinea</i>	Scarlet Oak
<i>Quercus garryana</i>	Garry Oak

¹⁴ DWV Tree Bylaw 4892: Schedule B. Accessed at:

https://westvancouver.ca/sites/default/files/bylaws/4892%20TREE%20BYLAW%204892%202016%20%28CONSOLIDATED%20UP%20TO%20AMENDMENT%20BYLAW%205089%202020%29_0.pdf



Botanical (Latin) Name	Common Name
<i>Quercus palustris</i>	Pin Oak
<i>Quercus robur</i>	English Oak
<i>Quercus rubra</i>	Red Oak
<i>Quercus shumardii</i>	Shumard Oak
<i>Robinia ambigua</i>	Pink Locust
<i>Robinia pseudoacacia</i> 'frisia'	Golden Locust
<i>Salix alba</i>	White Willow
<i>Salix babylonica</i> 'tortuosa'	Corkscrew Willow
<i>Sophora japonica</i>	Japanese Pagoda Tree
<i>Sorbus aucuparia</i>	European Mountain Ash
<i>Stewartia monadelph</i>	Tall Stewartia
<i>Stewartia pseudocamillia</i>	Japanese Stewartia
<i>Styrax japonica</i>	Japanese Snowbell
<i>Styrax obassia</i>	Fragrant Snowbell
<i>Tilia cordata</i>	Little Leaf Linden
<i>Tilia euchlora</i>	Crimean Linden
<i>Prunus avium</i>	Sweet Cherry
<i>Prunus cerasus</i>	Sour Cherry
<i>Prunus</i> 'Italian Prune'	Italian Prune Plum
<i>Prunus salicina</i>	Japanese Plum
<i>Pyrus communis</i>	Common Pear



APPENDIX E: CONSENT FOR REMOVAL OF TREE #1 AND PORTIONS OF HEDGE #H1

Tree #1

February 10, 2023

HOMEOWNER
1797 Inglewood Avenue
West Vancouver, BC
V7V 3T3

Dear Neighbour:

Re: Tree Removal on Property Line

We are Trish Thomas and Mark Hagedorn, the home owners of 1160 Sinclair Street.

We are building a Coach House on our property and plan to remove the tree as reflected on the attached drawing. The tree is located in the middle of the property line. We will pay for all costs associated with the tree removal.

By signing this letter, you confirm and agree that you have no objection with the tree removal.

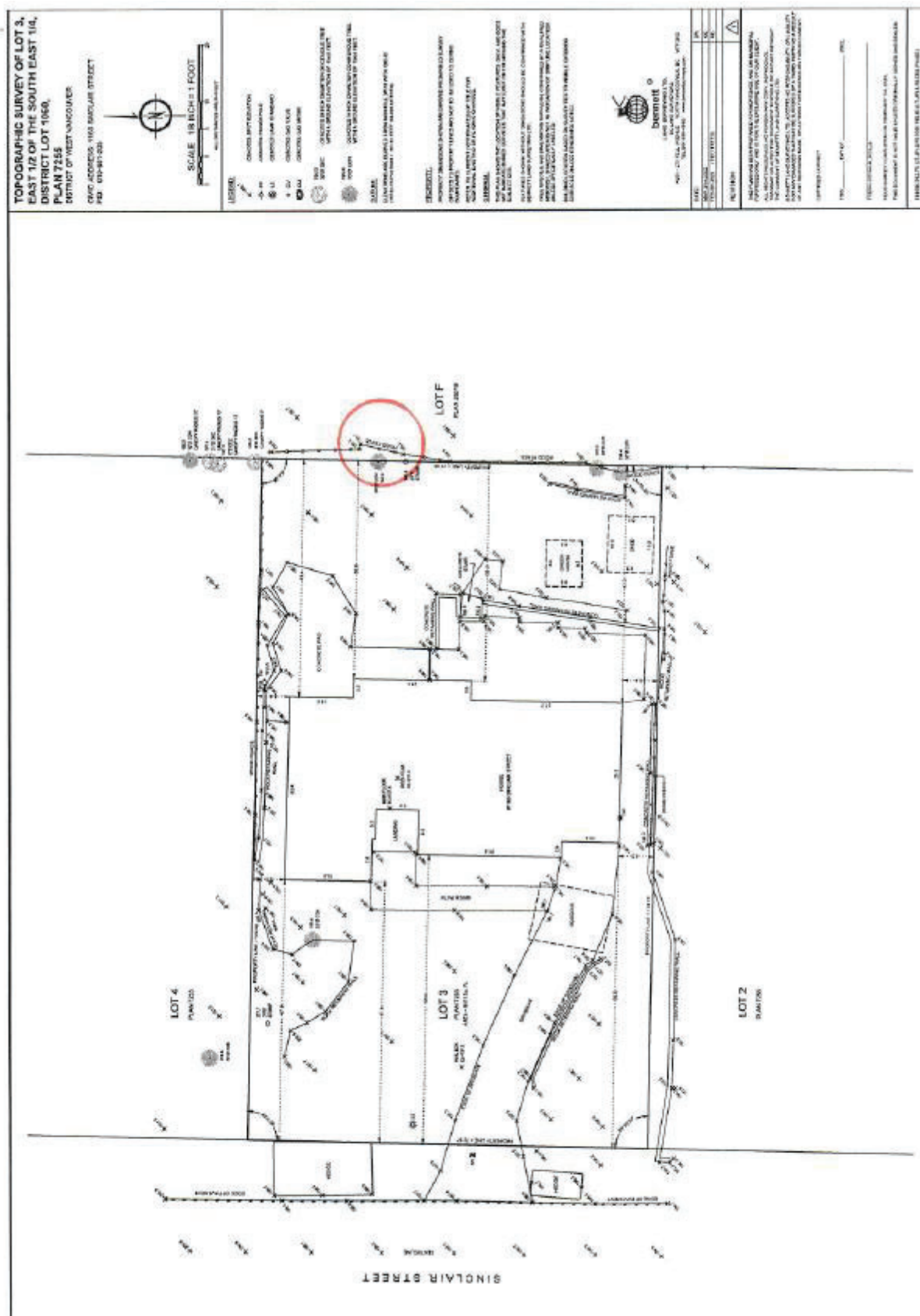
Dated this 14 day of February, 2023

x 

Signature of Home Owner

x KATIE Young

Print Name





Hedge #H1:

Written consent was not received for the removal of the portion of cedar hedge #H1 that overlaps with the neighbouring properties of 1190 Sinclair St., 1231 Sinclair Crt., and 1797 Inglewood Ave. Since no written consent was provided by the neighbours, removing only the portion of #H1 **entirely** on 1160 Sinclair Street will result in the fire hazard for this property being mitigated to the highest reasonably possible level.

November 8, 2023

Joe McLeod
Talus Consulting
1934 Parkside Lane
North Vancouver, BC
V7G-1X5

ATTN: Karl Wein
135/2 -1451 Marine Drive
West Vancouver, BC
V7T 1B8

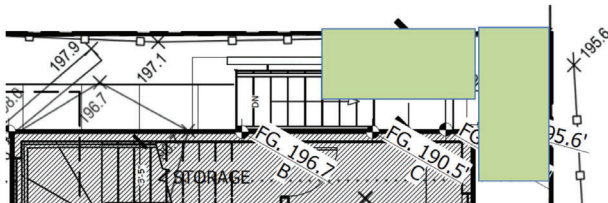
RE: 1160 Sinclair Street, District of West Vancouver
Arboriculture Memo

On August 21, 2023, Talus Consulting provided a memo outlining suggested architectural design revisions and construction practices that would assist in retaining off-property trees northeast of the proposed coach-house. The trees in question, are on the southeast corner of 1190 Sinclair St., but northeast of the proposed new building.

The revised architectural plans have resulted in improvements beyond those suggested in the August 21 memo. The structure was previously offset 5' from the north property line, however this offset has been extended to 8' and will provide valuable root retention. Successful retention of off-site trees should include the following interventions:

1) **Tree Protection:** Tree protection fencing should be installed and offset 3' from the north property line (extending east/west) and directly on the east property line (extending north/south). This fencing should extend 4.8m from the northeast corner and be installed prior to construction start-up - remaining in place until the landscape phase of the project. Although the critical root zone extends south of the property line, there is a work zone required between the proposed structure and the tree protection zone to allow site access for personnel during construction.

2) **Ground Protection:** Sub-surface roots within the work zone between the tree protection fencing and the proposed structure should be protected from grading and compaction with the use of two 4'x8'x1" sheets of plywood. These two sheets of plywood (represented by the two green rectangles below) should be placed in the 5' wide work-zone at the northeast corner of the project site in order to protect sub-surface root structures.



Schedule B

LABEL	TITLE	DESCRIPTION
A-1	PERSPECTIVE	
A-2	SITE PLAN	
A-3	SITE SURVEY/CONTOUR PLAN	
A-4	SITE PLAN /PERSPECTIVES	
A-5	FLOOR PLANS	
A-6	ELEVATIONS	
L-1	LANDSCAPE PLAN	
L-2	LANDSCAPING PAN	
L-3	ARBOURIST REPORT	

[illegible]

1160 SINCLAIR ST.
NEW COACH HOUSE

PERSPECTIVE

KARL WEIN ASSOCIATES
135/2 1451 MARINE DRIVE
WEST VANCOUVER
karlwein@gmail.com

RANDOLPH RIGETS
ARCHITECTURAL TECHNOLOGIST AIBC

DATE:

2024-01-15

SCALE:

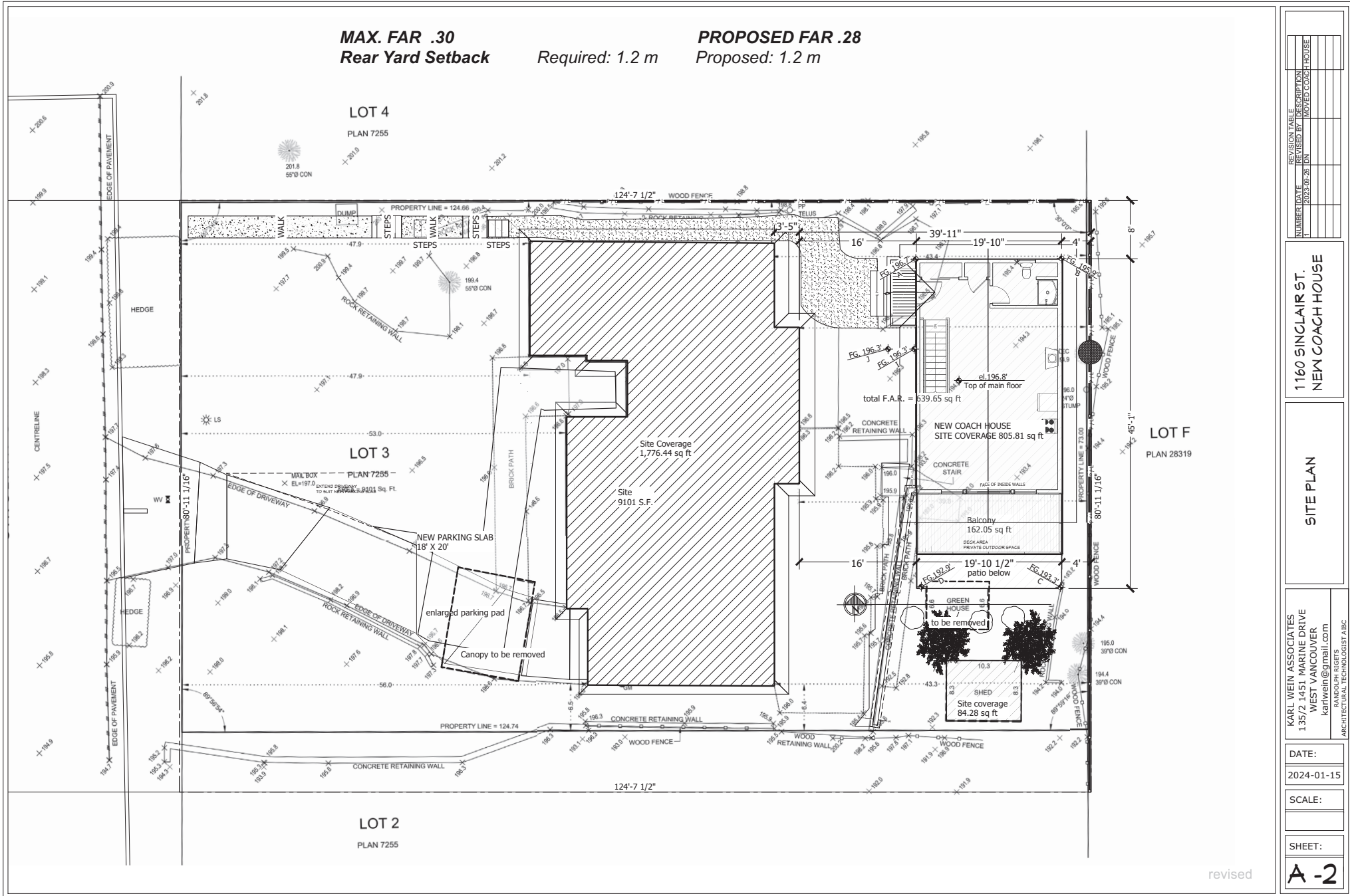
SHEET:

A-1

MAX. FAR .30
Rear Yard Setback

Required: 1.2 m

PROPOSED FAR .28
Proposed: 1.2 m



REVISION TABLE		
NUMBER	DATE	REVISION BY DESCRIPTION
1	2023-09-28	DN MOVED COACH HOUSE

1160 SINCLAIR ST.
NEW COACH HOUSE

SITE PLAN

KARL WEIN ASSOCIATES
135/2 1451 MARINE DRIVE
WEST VANCOUVER
karlwein@gmail.com
ARCHITECTURAL TECHNOLOGIST AIBC

DATE:
2024-01-15

SCALE:

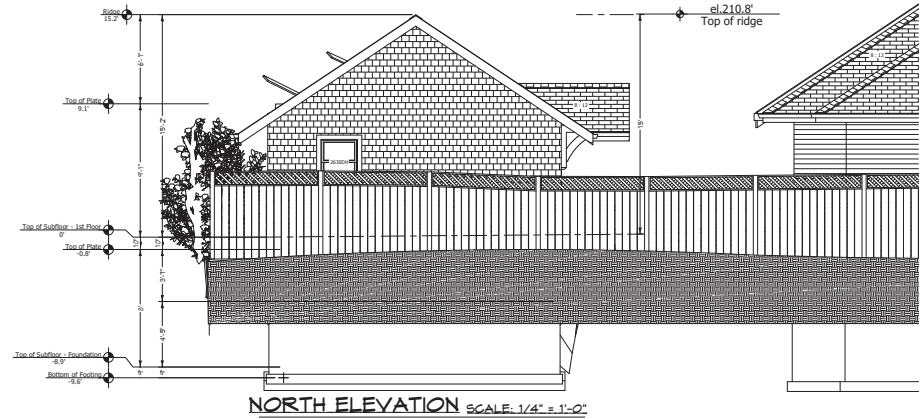
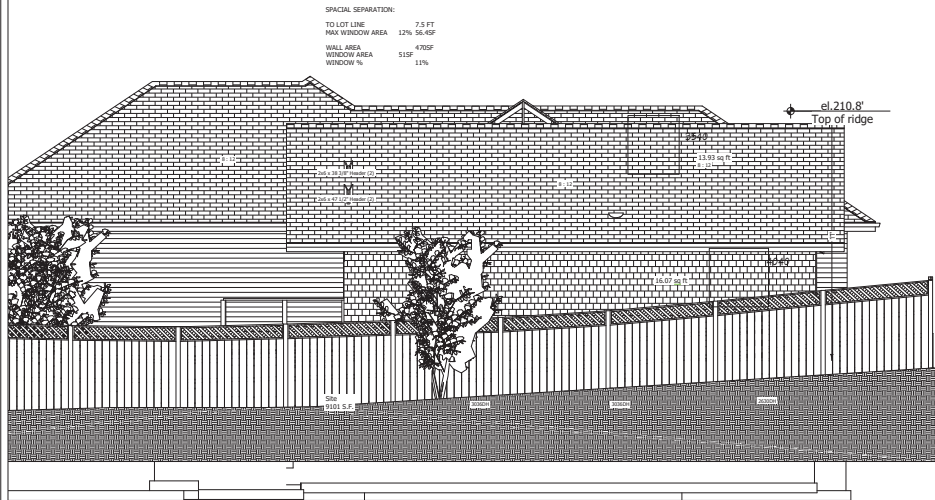
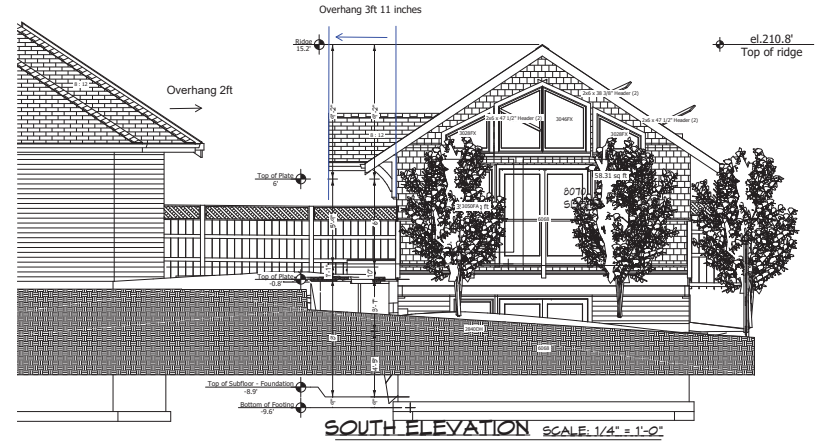
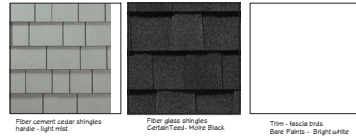
SHEET:

A -2

revised

NOTES/SCHEDULE
○ SIDING HARDIE SHAKE
○ ASPHALT ROOFING
○ HARDIE WINDOW TRIM
○ DOOR LHR RATING
○ VINYL WINDOWS

SPECIAL SEPARATION:
 TO LOT LINE 7%
 MAX WINDOW AREA 32.5 SF
 WALL AREA 470 SF
 WINDOW AREA 32.5 SF
 WINDOW % 7%



EAST ELEVATION SCALE: 1/4" = 1'-0"

NORTH ELEVATION SCALE: 1/4" = 1'-0"

revised

REVISION TABLE		
NUMBER	DATE	REVISED BY DESCRIPTION
1	2023-01-23	DN GRADES
2	2023-09-26	DN MOVED COACH HOUSE

1160 SINCLAIR ST.
NEW COACH HOUSE

ELEVATIONS

KARL WEIN ASSOCIATES
 135/2 1451 MARINE DRIVE
 WEST VANCOUVER
 karlwein@gmail.com
 RANDOM RIGHTS
 ARCHITECTURAL TECHNOLOGIST AIBC

DATE:
2024-01-15

SCALE:

SHEET:

A-6

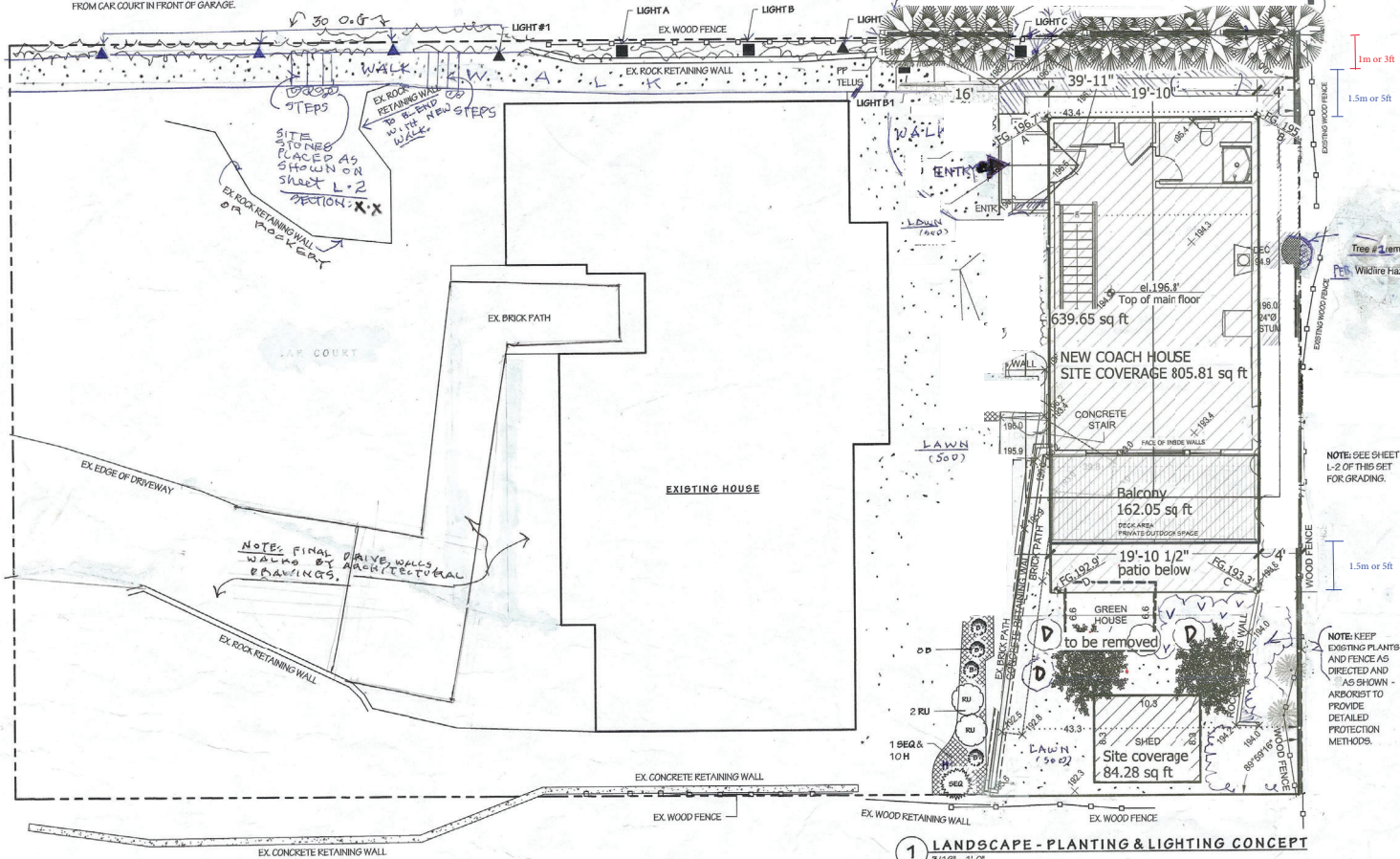
Schedule C

- NOTE:
1. ALL PLANTS, LIGHT FIXTURES, PLANTERS, ETC. TO BE OF NON-COMBUSTIBLE NATURE.
 2. USE PERMEABLE PAVERS AS WALK, UP TO COACH HOUSE FROM CAR COURT IN FRONT OF GARAGE.

LANDSCAPE OUTDOOR LIGHTING CONCEPT:

SEE SHEET L-2 OF 2 THIS SET FOR THE LIGHTS EXACT LOCATION AND HEIGHT. THE CONCEPT IS TO PROCEED ON THE WALK TOWARDS THE ENTRY WITH A TALL (3'-6" HIGH) LIGHT TO MUSHROOM LIGHTS TO ANOTHER LESS TALL LIGHT (2'-0" HIGH). AT THE INTERIOR RIGHT TURN TO ANOTHER TALL (2'-0" HIGH) LIGHT NEAR ENTRY DOOR. SUMMARY TO FORM A SUBLTLE TRANSITION TOWARDS THE COACH HOUSE DOOR FROM THE BRIGHTER CAR COURT.

AS A VISION SCREEN
20 Mahonia Folia Aquia Oregon Grape 2 to 21/2 FT spacing 5 gallon containers



NOTE: SEE NOTE (A) AS TO TREE BY LAW 4892 ON SHEET L-1 OF 2 THIS SET.

DATE: Feb 23, 2023
HARRY LEE HAGGARD
LANDSCAPE ARCHITECT
362 BANKS AVE. EAST
PARKSVILLE, BC V0P 1K5
tel. (250) 951 9943
cell. (604) 985 0137

ALL WORK SHALL BE IN ACCORDANCE WITH B.C.A. & B.C.A.T.A. STANDARDS & SPECIFICATIONS. A PROFESSIONAL LANDSCAPE ARCHITECT HAS REVIEWED THE DRAWING AND CONFIRMS THAT IT COMES WITHIN THE SCOPE OF HIS PROFESSIONAL JURISDICTION. CONTRIBUTION TO THE DESIGN OF THE PROJECT IS THE PROPERTY OF HARRY LEE HAGGARD. THIS DRAWING IS PROVIDED AS AN INSTRUMENT OF SERVICE AND IS NOT TO BE REPRODUCED OR USED FOR ANY OTHER PROJECT WITHOUT THE WRITTEN PERMISSION OF HARRY LEE HAGGARD. THE PROJECT AND DRAWING ARE THE PROPERTY OF HARRY LEE HAGGARD. THE PROJECT AND DRAWING ARE THE PROPERTY OF HARRY LEE HAGGARD.

1160 SINCLAIR ST.
COACH HOUSE

KARL WEIN ASSOCIATES
135/2 1451 MARINE DRIVE, WEST
VANCOUVER

TITLE
LANDSCAPE -
PLANTING &
LIGHTING CONCEPT

DRAWN BY: HJW
PROJECT: 22061
SHEET NUMBER: NOV. 7/11
DATE: 4/26/2023
SCALE: 1/8\"/>

WRITTEN SPECIFICATIONS

1. ALL WORK, INSTALLATION MATERIALS, ETC. TO BE PER B.C.A. & B.C.A.T.A. STANDARDS & SPECIFICATIONS.
2. ADD 6000 PERFORABLE TOPSOIL BASK 48 CLAY AND MAXIMUM 4% PEAT/SAND TO DEPTH IS AS LISTED: LAWN=6\"/>

PLANTING SCHEDULE

SYMBOL	LABEL NO.	SCIENTIFIC NAME	COMMON NAME	SIZE	CO	NO.	SPACING
TREES							
(S)	1	SELODYA PENSULA	DWARF VARIETY	7 GAL.	2+		RANDOM
(D)	3	CORNUS BORDO WHITE WONDER	WHITE WONDER DOGWOOD	7 GAL.	5+0		RANDOM
SHRUBS							
(V)	10	VERBENA TRUG	LAURESTINUS	#5 CONT.			

PLANTING SCHEDULE (TREES CONTINUE)

SYMBOL	LABEL NO.	SCIENTIFIC NAME	COMMON NAME	SIZE	CO	NO.	SPACING
(S)	2	20 Mahonia Folia Aquia Oregon Grape	2 to 21/2 FT spacing 5 gallon containers				
(RU)	8	SHRUBS	UNIQUE		#5 CONT.	2+	RANDOM
(B)	8	BULBO MACROPHYLLA	BOX WOOD		#2 CONT.	2+	RANDOM
GROUND COVER							
(H)	36	BRCA DUBSEA	KING GEORGE HEATHER		#2 CONT.	10' O.C.	

(END)

EXISTING ROCKERY IN THIS AREA
(18" TO 20" HT.) ADD TO SETS OF STEPS
TO GO UP TO COVER.
STEPS TO BE 15" TREADS
AND 5" RISERS
SECTION TO LEFT

NOTE: FROM TELUS POLE TO STEPS
REBUILT STONE RETAINING WALL TO ACCOMMODATE
NEW WALKWAY AND 3" WIDE PLANTER

WOODEN FENCE
BY OTHERS

AS A VISION SCREEN
20 Mahonia Folia Acqua Oregon Grape 2
2 FT spacing 5 gallon containers

PLANTS SEE S

NOTE: NO AREAS
FALL UNDER THE
CRITICAL ROOT
ZONES. HUH

NOTE:
EXISTING PLANTS
ENGLISH LAUREL ETC.
BPE JUDICIOUSLY
PRUNED IF CARRIED
OUT PER GOOD HORTI-
CULTURAL PRACTICE



NOV. 14. 1923



date: ~~Feb 23, 2023~~
~~March 3, 2023~~
April 26, 2023
Nov. 11, 2023

352 BANKS AVE. EAST
PARKSVILLE, BC V9P 1K5
tel. (250) 951 9943
cell. (604) 985 0137

ALL WORK SHALL BE IN COMPLIANCE WITH I.C.S.I.A., I.B.C.E.A., STANDARDS & SPECIFICATIONS, AND THE CURRENT EDITION OF THE BUILDING CODE ENFORCED BY THE AUTHORITY HAVING JURISDICTION. DO NOT SCALE DRAWINGS. CONTRACTOR TO VERIFY ALL DIMENSIONS OF WORK AND REPORT ANY DISCREPANCIES TO OWNER BEFORE PROCEEDING.

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ISSUES & REVISIONS

9. FINAL PLANS - Nov. 14 -
move and lower Coach
8. house, revise others Nov. 11/20
7. Revise
6. revise work, dates - 2023, 4-3
April 26 / 2023

KARL WEIN ASSOCIATES
135/2 1451 MARINE DRIVE, WEST
VANCOUVER

TITLE
LANDSCAPE -
GRADING &
LIGHTING PLAN

DRAWN BY: HJWNA CHECKED BY: HJF

PROJECT
2306
DATE
FEB. 22, 2023
2023-4-2
SCALE
As indicated

L-2

2 of 2

PLAN VIEW

SCALE : 1/8" = 2'-0"

[illegible]

2 LIGHT DETAIL

ELEVATION
FACING
SINGLAIR
STREET

A diagram of a light fixture with an address sign. The fixture is labeled "LIGHT" and has a sign that reads "21160". The sign is labeled "ADDRESS SIGN" and "ADDRESS". The fixture is labeled "ADDRESS SIGN" and "ADDRESS". The fixture is labeled "ADDRESS SIGN" and "ADDRESS".

2 LIGHT DETAIL

PLAN LEGEND

→ DIRECTION OF SURFACE WATER AND PERCENT OF SLOPE MINUS

+ 0.01% EXISTING GRADES (OR FILL/PAVED)

① A.D. 1950 LANDSCAPE AREA DRAIN AND ELEVATIONS

+ 0.01% LOW (100%) 25 MIN. SLOPE

▲ ■ OUTDOOR LIGHTS (ELEVATION 100% MINUS 10%)

(6) (6) (see height on plan)

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