DEVELOPMENT PERMIT

City of Kelowna

APPROVED ISSUANCE OF DEVELOPMENT PERMIT NO. DP22-0238

Issued To:	Steve Dobler
Site Address:	3152 Watt Road
Legal Description:	Lot 4, Plan KAP6069
Zoning Classification:	RU1 - Large Lot Housing
Developent Permit Area:	Natural Environment Development Permit Area

SCOPE OF APPROVAL

This Permit applies to and only to those lands within the Municipality as described above, and any and all buildings, structures and other development thereon.

This Permit is issued subject to compliance with all of the Bylaws of the Municipality applicable thereto, except as specifically varied or supplemented by this Permit, noted in the Terms and Conditions below.

The issuance of a Permit limits the Permit Holder to be in strict compliance with regulations of the Zoning Bylaw and all other Bylaws unless specific Variances have been authorized by the Permit. No implied Variances from bylaw provisions shall be granted by virtue of drawing notations that are inconsistent with bylaw provisions and that may not have been identified as required Variances by the applicant or Municipal staff.

1. TERMS AND CONDITIONS

THAT Development Permit No. DP22-0238 for Lot 4, Plan KAP6069 located at 3152 Watt Road, Kelowna, BC to construct a single detached dwelling and swimming pool subject to the following:

A) **An Environmental Monitor (Qualified Environmental Professional) is required to ensure the works are monitored throughout the duration of the project. A copy of this development permit must be submitted to the designated Environmental Monitoring consultant prior to construction starting. Environmental Monitoring reports must be submitted to the City of Kelowna Community Planning Department;**

B) **The designated Environmental Monitor and contractor shall meet prior to construction starting to review limits of disturbance, erosion and sediment controls and Development Permit conditions/requirements for the project site;**

C) **Prior to any site disturbance, the clearing limits for the proposed development footprint must be clearly marked/staked in the field by the legal surveyor to prevent encroachment within the RMA. The setback boundary must then be delineated using brightly coloured snow fence (or similar), to prevent any construction debris from entering the RMA and lake;**

D) **Vegetation, soil, and rock excavated from the development footprint must be taken offsite and disposed of/recycled appropriately, or stored onsite within the development footprint if reuse onsite is proposed;**

E) **The release of sediments, concrete-laden water or other substances deleterious to the environment (e.g. gasoline, construction debris), including substances released via storm drains, must be prevented at all times;**

F) **No sediment laden water is to enter adjacent water bodies at any time. Erosion and sediment controls must be in place prior to construction starting;**

G) **No landscaping may occur within the Riparian Management Area without a restoration plan approved by a Qualified Environmental Consultant;**

H) **Physically demarcate "No Disturbance Areas" around any vegetation that will be left in place at the site with snow fencing or another visible material to avoid accidental disturbance. Trees must be protected via temporary fencing installed under the direction of the Environmental Monitor as per the requirements of Bylaw No. 8041;**

I) **No beach grooming, addition of sand, removal or alteration of cobbles/boulders, or removal of riparian vegetation shall occur at any time;**

J) **No works may occur below the high water mark without having a provincial Water Sustainability Act Notification/Approval. A copy of the Water Sustainability Act Notification/Approval must be kept on the subject property/site throughout the duration of the proposed works;**

K) The development on the land be in accordance with attached **Schedule "A"** (Sketch Plan Showing Proposed Covenant, prepared by Runnalls Denby, dated February 22, 2023);

L) The development on the land be in accordance with attached **Schedule "B"** (Restoration Site Plan, prepared by Ecoscape Environmental Consultants Ltd., dated January 26, 2023);

M) The development on the land be in accordance with attached **Schedule "C"** (Environmental Assessment and Restoration Plan, prepared by Ecoscape Environmental Consultants Ltd., dated November, 2022); and

N) The development on the land be in accordance with attached **Schedule "D"** (Environmental Monitoring Contract, prepared by Ecoscape Environmental Consultants Ltd., dated November 28, 2022).

AND FURTHER THAT this Development is valid for two (2) years from the date of Manager approval, with no opportunity to extend.

2. PERFORMANCE SECURITY

As a condition of the issuance of this Permit, Council is holding the security set out below to ensure that development is carried out in accordance with the terms and conditions of this Permit. Should any interest be earned upon the security, it shall accrue to the Permit Holder and be paid to the Permit Holder if the security is returned. The condition of the posting of the security is that should the Permit Holder fail to carry out the development hereby authorized, according to the terms and conditions of this Permit within the time provided, the Municipality may use the security to carry out the work by its servants, agents or contractors, and any surplus shall be paid over to the Permit Holder, or should the Permit Holder carry out the development permitted by this Permit within the time set out above, the security shall be returned to the Permit Holder. There is filed accordingly:

a) A ***Certified*** Cheque in the amount of $ 7,273.25

Before any bond or security required under this Permit is reduced or released, the Developer will provide the City with a statutory declaration certifying that all labour, material, workers' compensation and other taxes and costs have been paid.

3. DEVELOPMENT

The land described herein shall be developed strictly in accordance with the terms and conditions and provisions of this Permit and any plans and specifications attached to this Permit that shall form a part hereof.

If the Permit Holder does not commence the development permitted by this Permit within two years of the date of this Permit, this Permit shall lapse.

This Permit IS NOT a Building Permit.

4. APPLICANT'S AGREEMENT

I hereby declare that all of the above statements and the information contained in the material submitted in support of this Permit are to the best of my belief, true and correct in all respects. Upon issuance of the Permit for me by the Municipality, then in such case, I covenant and agree to save harmless and effectually indemnify the Municipality against:

a) All actions and proceedings, costs, damages, expenses, claims, and demands whatsoever and by whomsoever brought, by reason of the Municipality granting to me the said Permit.

b) All costs, expenses, claims that may be incurred by the Municipality if the construction by me of engineering or other types of works as called for by the Permit results in damages to any property owned in whole or in part by the Municipality or which the Municipality by duty or custom is obliged, directly or indirectly in any way or to any degree, to construct, repair, or maintain.

I further covenant and agree that should I be granted a Development Permit and/or Development Variance Permit, the Municipality may withhold the granting of any Occupancy Permit for the occupancy and / or use of any building or part thereof constructed upon the hereinbefore referred to land until all of the engineering works or other works called for by the Permit have been completed to the satisfaction of the Municipal Engineer and Divisional Director of Community Planning & Real Estate.

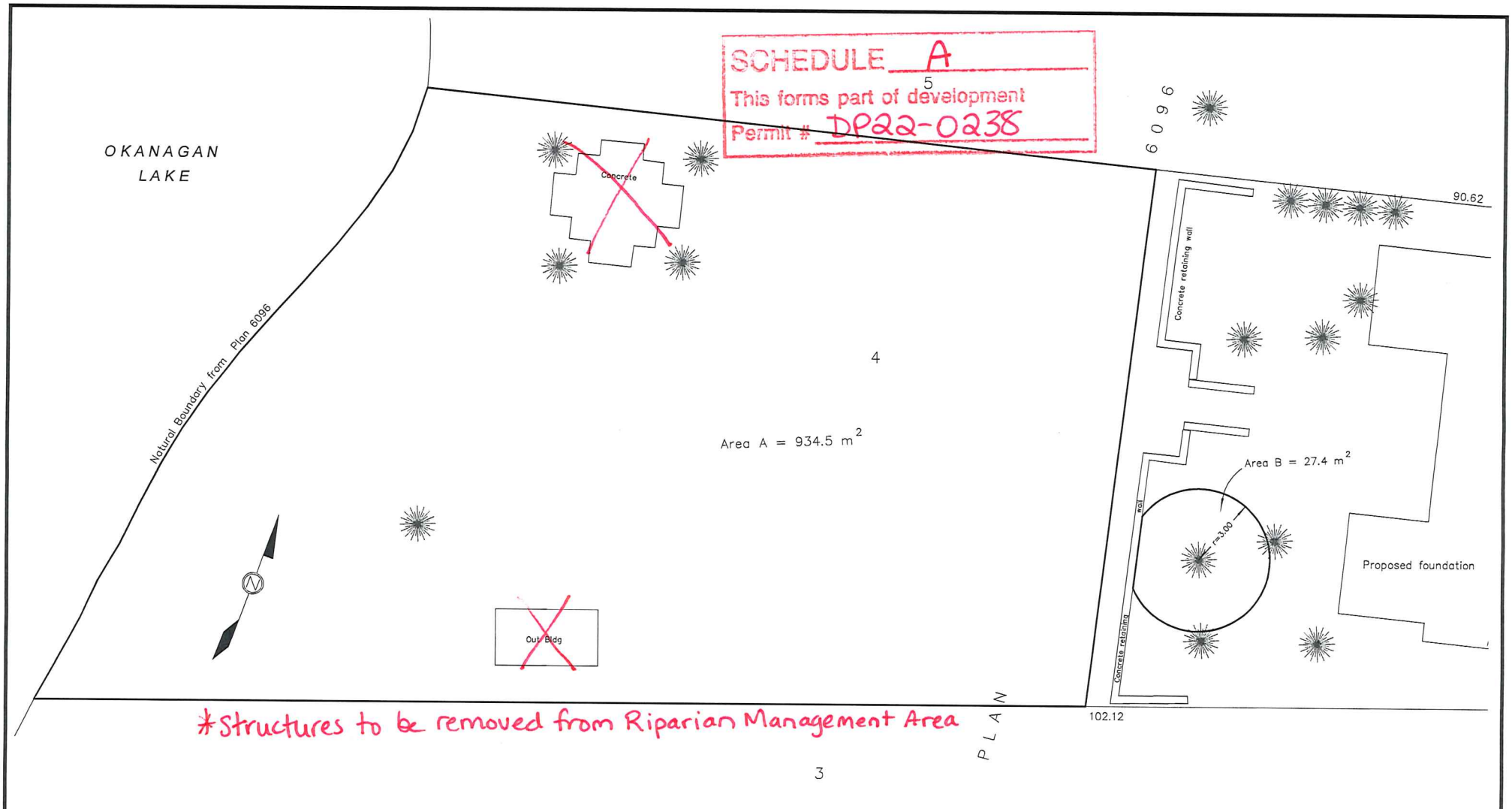
Should there be any change in ownership or legal description of the property, I undertake to notify the Community Planning Department immediately to avoid any unnecessary delay in processing the application.

5. APPROVALS

Issued by the Development Planning Department of the City of Kelowna on the 15th day of March, 2023.

Dean Strachan, RPP, MCIP
Community Planning and Development Manager
Development Planning Department

The PERMIT HOLDER is the CURRENT LAND OWNER.
Security shall be returned to the PERMIT HOLDER.



TITLE:

SKETCH PLAN SHOWING PROPOSED COVENANT AND PROPOSED BUILDING ON LOT 4, DISTRICT LOT 14, O.D.Y.D., PLAN 6069

(3152 Watt Road, Kelowna)

DRAWN BY:

RUNNALLS DENBY
british columbia land surveyors
259A Lawrence Avenue
Kelowna, B.C.
V1Y 6L2
Phone: (250)763-7322
Fax: (250)763-4413
Email: rob@runnallsdenby.com

CLIENT: BILL FRAME

SCALE: 1:150 (11" x 17")

DATE: February 22, 2023

DWG: 16386 Sketch 3

FILE No.: 16386

REV. 1

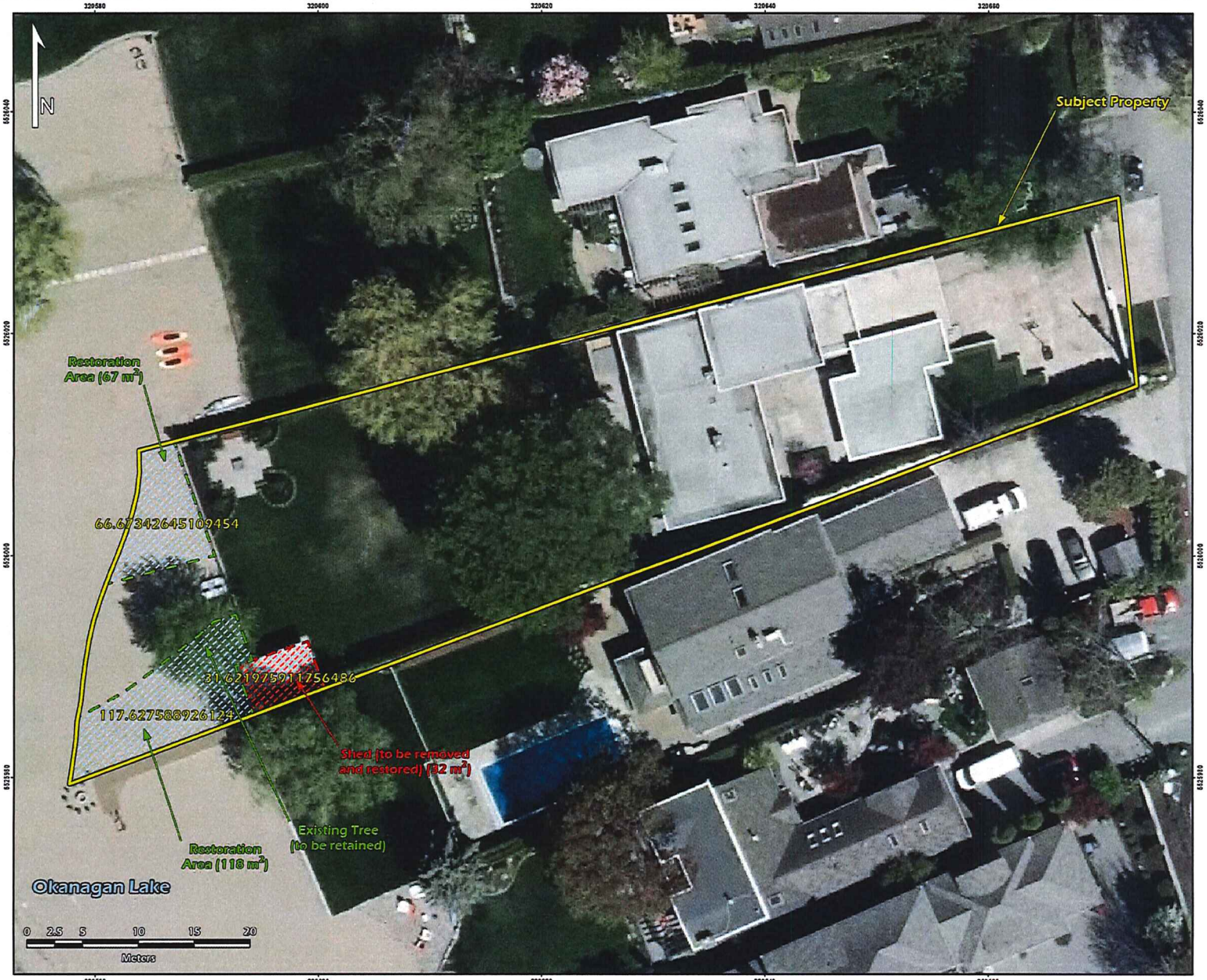


FIGURE 6
Restoration

Project:	Environmental Assessment
Location:	City of Kelowna
Project No.:	22-4386
Prepared for:	Frame Custom Homes
Prepared by:	Ecoscape Environmental Consultants Ltd. Dan Austin, GIS Specialist
Coordinate System:	NAD83-UTM Zone 11
Imagery:	Kelowna 2021
Field Visit:	June 28, 2022
Map Date:	January 26, 2023

LEGEND

- Existing Shed (to be reomved and restored)
- Proposed Restoration Area
- Subject Property

SCHEDULE B
This forms part of development
Permit # DP22-0238

*All structures to be removed from covenant area.

DISCLAIMER
The data displayed is for conceptual purposes only and should not be interpreted as a legal survey or for legal purposes. If discrepancies are found between the data portrayed in this report and that of a legal survey, the legal survey will supersede any data presented herein.

ECOSCAPE

3152 WATT ROAD, KELOWNA, BC

Environmental Assessment

Plan KAP6069, Lot 4, District Lot 14
PID: 010-229-281

SCHEDULE C
This forms part of development
Permit # DP22-0238

Prepared For:

Frame Custom Homes
c/o: Bill Frame
VIA email: billframe@framecustomhomes.ca

Prepared By:

ECOSCAPE ENVIRONMENTAL CONSULTANTS LTD.
#102 – 450 Neave Court
Kelowna, BC V1V 2M2

November 2022

File No. 22-4386

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APPENDICES

1.0 INTRODUCTION

Ecoscape Environmental Consultants Ltd. (Ecoscape) was retained by Bill Frame of Frame Custom Homes (the client) to complete an Environmental Assessment (EA) for the proposed re-development of a single-family residence at 3152 Watt Road, Kelowna, BC (subject property). The subject property is approximately 0.52 acres (2,096 m^2), is legally described as Plan KAP6069, Lot 4, District Lot 14 (**Figure 1**), and is zoned as Urban Residential (RU1) (City of Kelowna Bylaw 8000, 2021). The subject property is situated along the eastern shoreline of Okanagan Lake and occurs within a City of Kelowna (COK) Natural Environment Development Permit Area (DPA), as described in the Kelowna 2040 - Official Community Plan (OCP) (COK Bylaw 12300, 2022).

The purpose of this report is to address the COK Development Permit (DP) guidelines for developments in the Natural Environment DPAs, which includes Water Courses and Riparian Areas, Terrestrial Sensitive Ecosystems, and Sensitive Drainage and their Terms of Reference. The report will specify potential environmental impacts of the proposed works and outline the existing conditions of the subject property. This report also provides an assessment of potentially existing terrestrial and aquatic resource values, the potential for rare and/or endangered species and habitats, and recommendations where appropriate to maintain and or improve the natural integrity of existing terrestrial and aquatic communities.

2.0 PROPOSED WORKS

Ecoscape understands that the proposed development involves the re-development of a single-family residence including demolishing the existing residence, extending the house footprint east toward Watt Rd into the current front yard, and constructing a new patio and a pool in the backyard (**Figure 2**). The development footprint includes:

- Proposed house of 555 m^2;
- Parking and driveway access of 213 m^2;
- Patio of 105 m^2; and
- Pool of 41 m^2.

The total disturbance area with a three-meter buffer around the proposed works is 1,117 m^2. The majority of the development is outside the Streamside Protection and Enhancement Area (SPEA), except for an encroachment of 29 m^2 within an area of previously disturbed SPEA. A site plan has been prepared by Frame Custom Homes and is provided in **Appendix A** and a site survey is provided in **Appendix B.**

3.0 INFORMATION SOURCES

The following databases were queried on August 9, 2022 to find relevant information on the subject property and surrounding lands:

- BC Conservation Data Centre (CDC);
- BC Ecosystems Explorer;
- BC Habitat Wizard;
- Foreshore Inventory and Mapping of Okanagan Lake 2016 update;
- Sensitive Ecosystem Inventory for the Central Okanagan; and,
- Species at Risk Act Public Registry.

4.0 ENVIRONMENTAL SETTING

4.1 Terrestrial Conditions

A site visit was conducted on July 27, 2022, by Brie Fisette, Natural Resource Biologist with Ecoscape. The subject property occurs in a urban residential area within the COK. The subject property is bounded by Okanagan Lake to the west, rural residential properties to the north and south, and Watt Rd to the east (**Figure 1**). Site Photos are included in **Appendix C.**

The subject property occurs within the Okanagan variant Very Dry Hot subzone of the Ponderosa Pine biogeoclimatic zone (PPxh1). The PP zone occupies low elevations within the very dry valleys of the Southern Interior Plateau of BC and is generally the driest forested region in the province. The climate consists of hot dry conditions in the summer, and cool conditions with little snow in the winter. Historically, fire has played an essential role in the ecology of this zone. The PPxh1 is dominated by open canopy forests of Ponderosa pine with a bunchgrass understory (Hope et al., 1991).

The majority of the subject property is urban, with concrete and ornamental and native vegetation throughout (**Photo 1**). The eastern portion of the subject property is dominated by the existing concrete driveway, ornamental vegetation, and non-native grass (**Photo 2**). The courtyard is mostly concrete pathway with some ornamental landscaping and a fruit tree (**Photo 3**). The western portion of the subject property consists of patio, ornamental vegetation adjacent to the existing dwelling, and non-native grass and sandy shoreline west of the existing retaining wall (**Photos 4 and 5**). Cedar hedges border the northern and southern extents of the property (**Photo 6**). Shoreline modifications include a shed, a concrete patio, dock with a boatlift and two (2) sea-doo lifts, and various non-permanent furniture (**Photos 7 and 8**).

Terrestrial Ecosystem Mapping (TEM) polygons from the Sensitive Ecosystem Inventory for the COK (Iverson and Uunila, 2004) were referenced to determine the ecosystems present within the subject property and modifications were made based on existing site conditions (**Table 1**; **Figure 3**).

TABLE 1. Ecological Communities Occurring within the Subject Property

Ecosystem Code	Polygon Number	Site Series	Site Series Name	Provincial Status
UR	1 & 2	-	Urban/Suburban	-

The subject property is overlain by two (2) TEM polygons representing one (1) ecosystem classifications. Polygons 1 and 2 are classified as 100% Urban/Suburban, an anthropogenic and not sensitive ecosystem typically consisting of residential areas with concentrated houses/buildings that cover almost the entire area.

4.1.1 Vegetation

A list of native plant species identified within the subject property is included in **Table 2** and exotic plant species in **Table 3.**

TABLE 2. Native Plant Species Observed within the Subject Property

Family	Species	Common Name	BC List [1]	SARA Schedule 1 [2]
Cupressaceae	*Cedrus sp.*	Cedar sp.	Yellow	-
Rosaceae	*Rosa sp.*	Rose sp.	Yellow	-
Salicaceae	*Salix lasiandra var. lasiandra*	Pacific Willow	Yellow	-

[1] **Yellow:** Not considered at risk. **Blue:** Of special concern. **Red:** Endangered or threatened. **Various:** May be one of multiple potential listings, depending upon more detailed taxonomic classification.

[2] **NAR = Not at Risk:** A wildlife species that has been evaluated and found to be not at risk of extinction given the current circumstances. **SC = Special Concern:** A wildlife species that may become threatened or endangered because of a combination of biological characteristics and identified threats. **E = Endangered:** A wildlife species facing imminent extirpation or extinction. **T = Threatened:** A wildlife species that is likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction. **DD = Data Deficient:** A category that applies when the available information is insufficient (a) to resolve a wildlife species' eligibility for assessment or (b) to permit an assessment of the wildlife species' risk of extinction.

TABLE 3. Exotic Plant Species Observed within the Subject Property

Family	Species	Common Name	BC List [1]
Asteraceae	*Helianthus annuus*	Sunflower	Exotic
Buxaceae	*Buxus*	Boxwood	Exotic
Rosaceae	*Prunus domestica*	Plum tree	Exotic

TABLE 3. Exotic Plant Species Observed within the Subject Property

Family	Species	Common Name	BC List [1]
Lamiaceae	*Lavandula*	Lavender	Exotic
Malvaceae	*Tilia*	Lime tree	Exotic
Ulmaceae	*Ulmus pumila*	Elm sp.	Exotic

[1] **Exotic:** Species that have been moved by humans to areas outside of their native ranges where they have become established.

The BC Conservation Data Centre (CDC) was accessed on August 9, 2022 and reviewed for at-risk ecological communities that occur within a 1.0 km radius of the subject property. The search revealed the results detailed in **Table 4.**

TABLE 4. CDC Listed At-Risk Ecological Community Occurrences within 1 km of the Subject Property (CDC, 2022)

Common Name	Scientific Name	BC List[1]	Occurrence ID	Distance
Black cottonwood / common snowberry - Roses	*Populus trichocarpa / Symphoricarpos albus - Rosa spp.*	Red	10407	Record occurs approximately 18.66 m east and 102.36 m north of the subject property
Common cattail marsh	*Typha latifolia marsh*	Blue	12989	Record occurs approximately 494.80 m east of the subject property

Yellow: Not considered at risk. **Blue:** Of special concern. **Red:** Endangered or threatened.

4.2 Wildlife

Due to the scope of this assessment, a detailed wildlife assessment of the subject property was not conducted. Consequently, the presence or absence of species-at-risk could not be confirmed. The mature vegetation on the subject property may provide foraging, shelter, perching and/or nesting habitat for birds, small mammals and/or herptiles.

4.2.1 Important Habitat Features

Important habitat features have been identified within the subject property. These features support wildlife and are important to the long-term preservation of local wildlife communities and populations. It is not typically possible to determine whether features are deemed Critical or to determine the specific influence they may have on populations without large scale assessments. As a result, we have identified important features for reference, but because of data limitations, do not provide comment on possible cumulative impacts associated with them.

- All of the mature vegetation on the subject property are likely functioning as wildlife trees (**Photos 9 and 10**). Mature trees such as these provide important habitat for a variety of bird species and should be retained where possible.

4.2.2 Species at Risk

The CDC was accessed and reviewed for species-at-risk and critical habitat occurrences within a 1.0 km radius of the subject property. Species-at-risk results are provided in **Table 5** and critical habitat occurrences are provided in **Table 6**.

TABLE 5. CDC Listed At-Risk Species Occurrences within 1 km of the Subject Property (CDC, 2022)

Common Name	Scientific Name	BC List[1]	SARA Schedule 1	Occurrence ID	Distance	Critical Habitat	Likelihood
American Badger	*Taxidea taxus*	Red	Endangered	10214	Detailed polygon overlays the subject property	Grassland/Herbaceous, Forest Needleleaf, Shrubland, Roadside	Low

[1] **Yellow:** Not considered at risk. **Blue:** Of special concern. **Red:** Endangered or threatened.

TABLE 6. Critical Habitat Occurrences within 1 km of the Subject Property (CDC, 2022)

Common Name	Scientific Name	BC List[1]	SARA Schedule 1	Critical Habitat ID	Critical Habitat Status	Distance	Critical Habitat
Great Basin Gophersnake	*Pituophis catenifer deserticola*	Blue	Threatened	5693	Final	Detailed polygon overlays the subject property.	Arid deserts, Grasslands/Shrubs, Talus/Sparsely Vegetated Rock

[1] **Yellow:** Not considered at risk. **Blue:** Of special concern. **Red:** Endangered or threatened.

4.3 Aquatic Conditions

Fascieux Creek is located approximately 52.55 m east of the subject property, it is a first order stream, and approximately 4 km in length (MFLNRORD, 2020; **Figure 1**). Fascieux Creek is documented to contain Bridgelip Suckers (*Catostomus columbianus*), Largescale Suckers (*Catostomus macrocheilus*), Longnose Dace (*Rhinichthys cataractae*), Northern Pikeminnows (*Ptychocheilus oregonensis*), Prickly Sculpin (*Cottus asper*), and Redside Shiners (*Richardsonius balteatus*).

The subject property occurs along Segment 27 of the Okanagan Lake Foreshore Inventory Mapping (FIM). It was described as single-family land use with a high level of impact (>40%) and high level of disturbance (100% disturbed). The shore type was described as 100% with a high (75%+) level of embeddedness. The upland habitat was classified as patchy with sparse landscaping, sparse shrub coverage (<10%), and sparse tree coverage (<10%). Foreshore modifications were high throughout the segment, including a dock density of 22.74 docks per km, one (1) covered boat lift, one (1) groyne, and highly landscaped yards. The condition of the foreshore of the property is consistent with adjacent properties to the north and south and generally consistent with the FIM. The Aquatic Habitat Index (AHI) current and potential ratings were low, and the juvenile rearing potential was high (Schleppe and Plewes, 2017).

The foreshore along the subject property is located within an Okanagan Large Lakes Foreshore Protocol No Colour Zone for Freshwater Mussels and Foreshore Plants (BC MFLNRORD, 2018). The Provincial No Colour Zone indicates that the habitat has not been assessed for Rocky Mountain Ridged Mussel (RMRM) and for foreshore plant Species at Risk (SAR) presence as of 2017 (BC MFLNRORD, 2018). No foreshore plant SAR or mussel shells were observed at the subject property during the site assessment, including those of RMRM (*Gonidea angulata*). However, a non-detection of RMRM does not imply there are no mussels present at the site and formal mussel surveys were not completed to determine presence.

Kokanee (*Oncorhynchus nerka*) are the fish species of primary concern with respect to shoreline development and aquatic habitat alteration along Okanagan Lake. A review of Kokanee shore spawning zoning information for Okanagan Lake revealed that the subject property is located within a Ministry of Forests, Lands and Natural Resource Operations (MFLNRO) No Colour Zone for shore spawning Kokanee. The Okanagan Region Large Lakes Foreshore Protocol (BC MFLNRORD, 2018) defines No Colour Zones as areas where no recent or historic shore spawning is known to occur. **Table 7** provides a list of species documented to occur in Okanagan Lake.

TABLE 7. Species of Fish and Mussels Found in Okanagan Lake (MFLNRORD, 2021)

Common Name	Scientific Name
Brook Trout	*Salvelinus fontinalis*
Bull Trout	*Salvelinus confluentus*
Burbot	*Lota lota*
Carp	*Cyprinus carpio*
Chiselmouth	*Acrocheilus alutaceus*
Kokanee	*Oncorhynchus nerka*
Lake Trout	*Salvelinus namaycush*
Lake Whitefish	*Coregonus clupeaformis*
Largescale Sucker	*Catostomus macrocheilus*
Leopard Dace	*Rhinichthys falcatus*
Longnose Dace	*Rhinichthys cataractae*

TABLE 7. Species of Fish and Mussels Found in Okanagan Lake (MFLNRORD, 2021)	
Common Name	**Scientific Name**
Longnose Sucker	*Catostomus*
Mountain Whitefish	*Prosopium williamsoni*
Northern Pikeminnow	*Ptychocheilus oregonensis*
Peamouth Chub	*Mylocheilus caurinus*
Prickly Sculpin	*Cottus asper*
Pumpkinseed	*Lepomis gibbosus*
Pygmy Whitefish	*Prosopium coulterii*
Rainbow Trout	*Oncorhynchus mykiss*
Redside Shiner	*Richardsonius balteatus*
Rocky Mountain (Western) Ridged Mussel	*Gonidea angulata*
Smallmouth Bass	*Micropterus dolomieu*
Slimy Sculpin	*Cottus cognatus*
Western Floater Mussel	*Anodonta kennerlyi*
Winged Floater Mussel	*Anodonta nuttalliana*
Yellow Perch	*Perca flavescens*

5.0 RIPARIAN SETBACK ASSESSMENT

Riparian setbacks within the COK are regulated by the BC Riparian Areas Protection Regulation (RAPR), which is triggered for any development within 30 m of a watercourse, which is the Riparian Assessment Area (RAA). Development must also comply with the Riparian Management Area (RMA) setbacks outlined by the COK OCP to 'meet or exceed' the requirements of the provincial RAPR. Chapter 12: Natural Environment DP of the COK's OCP addresses the area adjacent to water bodies and states that:

"The objective of Natural Environment Development Permit Areas is to ensure that negative impacts (disturbance) on environmentally sensitive areas are minimized by:

- Protecting, restoring, and enhancing environmentally sensitive areas to a functioning ecosystem;
- Protecting and/or enhancing water quality;
- Protecting drinking water sources against possible contamination from land use and development activities;
- Managing the introduction and spread of invasive species;
- Minimizing soil disturbance;
- Protecting the hydrological functions of environmentally sensitive areas;
- Protecting biological diversity, wildlife and important wildlife habitats, features and functions;
- Protecting subsurface aquifers forming part of the City of Kelowna water supply against possible pollution from land use and development activities; and

- Promoting the efficient use of water to ensure a sustainable hydrologic system in the watershed." (COK, 2020)

The setback is individually determined for each watercourse by guidelines outlined in the COK's OCP and by the provincial RAPR. As per RAPR, the setback determination is based on the stream boundary, which for gauged lakes can be taken as the High Water Level (HWL) or a set geodetic elevation, which is 343 m.a.s.l. for Okanagan Lake (BC MoFLNRO, 2014).

As per the RAPR, the HWL has been used to determine the appropriate riparian setbacks from Okanagan Lake. Riparian setbacks are based on the Zone of Sensitivity (ZOS) for the following three factors:

- Litterfall and insect drop (15 metres);
- Large woody debris, bank, and channel stability (15 metres); and
- Shade (30 metres due south).

The RMA, or Streamside Protection and Enhancement Area (SPEA), is then determined from the ZOS with the greatest setback area. The provincial RAPR results in a 15 m setback from the HWL of Okanagan Lake, as measured perpendicularly inland from the 343 m elevation (HWL) as determined by the COK OCP (BC MoFLNRO, 2014). **Figure 2** illustrates the various setbacks in relation to the proposed works and the resultant SPEA from Okanagan Lake. The majority of the proposed works are located outside the SPEA, with the exception of an encroachment area of 29 m^2 of new development over existing turf lawn (**Figure 2**).

6.0 ENVIRONMENTALLY SENSITIVE AREAS ANALYSIS

An environmental sensitivity areas (ESA) analysis was conducted to categorize the subject property based on its degree of environmental sensitivity. Evaluation criteria considered in the analysis included: provincial CDC status (i.e., Red or Blue listed), rare and endangered species habitat suitability, landscape condition (i.e., connectivity, fragmentation), and level of disturbance. ESA descriptions are taken from the COK Terms of Reference for professional reports:

- **ESA-1 Very High Significance:** These areas contain significant vegetation and wildlife characteristics representing a diverse range of sensitive habitat. These features contribute significantly to the overall connectivity of the habitat and ecosystems. Avoidance and conservation of ESA-1 designations should be the primary objective. If development should occur within these areas, compensation to promote no net loss of equivalent functioning habitat may be required only after it proves impossible or impractical to maintain the same level of ecological function.
- **ESA-2 High Significance**: These areas of moderate significance, contribute toward the overall diversity and contiguous nature of the surrounding natural features. If development

is pursued in these areas portions of the habitat should be retained and integrated to maintain the contiguous nature of the landscape. Some loss to these ESAs can be offset by habitat improvements to the remaining natural areas found on property.

- **ESA-3 Moderate Significance:** These areas are typically polygons delineated as low significance representing disturbed habitats or fragmented features. These areas contribute to the diversity to the landscape, although based on the condition and adjacency of each habitat the significant function within the landscape is limited. If development is pursued in these areas the impacts should be offset by habitat improvements in other more sensitive natural areas found on the property.
- **ESA-4 Low Significance**: These delineated areas contribute little or no value to the overall diversity of vegetation, soils, terrain, and wildlife characteristics of the area. Development is encouraged to be focused to these sites before considering developing higher-rated sites in the area. These areas shall not be considered as areas for restoration and enhancement or as recruitment as higher value ESA in offsetting development in other areas.

The ESA composition of the proposed development within the subject property is summarized in **Table 8** and depicted in **Figure 4.** Polygon 1 is located along the foreshore of Okanagan Lake, which has a 15 m buffer from the high water mark (HWM) of Okanagan Lake, thus resulting in a Moderate (ESA-3) environmental sensitivity value. Polygon 2 represents the eastern portion of the property which is occupied by the existing dwelling and front yard, thus the anthropogenic condition of this polygon results in a Low (ESA-4) environmental sensitivity value.

TABLE 8. Percent Composition of ESAs within the Subject Property

ESA Value	ESA outside proposed development (m^2)	ESA within proposed development (m^2)	Total area (m^2)	ESA percentage of subject property (%)
Very High (ESA 1)	0	0	0	0
High (ESA 2)	0	0	0	0
Moderate (ESA 3)	977	380	1,357	65
Low (ESA 4)	2	737	739	35
Total	**979**	**1,117**	**2,096**	**100**

Environmental sensitivity analysis indicates that approximately 65% of the subject property is represented by Moderate value (ESA-3) communities based on the proximity to Okanagan Lake

and riparian area, and 35% of the subject property is Low value (ESA-4) due to anthropogenic disturbance including existing development and non-native species.

7.0 IMPACT ASSESSMENT

The proposed development involves the re-development of a single-family residence including demolishing the existing residence, extending the house footprint east into the existing front yard, and constructing a pool and patio on the west side of the dwelling. The total disturbance area of the proposed works with a 3 m buffer is 1,117 m^2 **(Figure 5)**.

The proposed development will occur within Moderate ESA-3 (27.9%) and Low ESA-4 (99.7%) valued areas. The total impact of the proposed development on the ESA represents 53% (1,117 m^2 out of 2,096 m^2), as summarized in **Table 9**. The proposed development within the subject property would result in a relative loss of 18% ESA-3 and 35% ESA-4 from the total subject property area.

TABLE 9. Area and Percent Composition of ESAs and Disturbance within the Subject Property

ESA Value	Total area (m^2)	Percentage of subject property (%)	ESA within the proposed development (m^2)	Percent of ESA within the proposed development (%)	ESA relative loss (total development impact) (%)
Very High (ESA 1)	0	0	0	0	0
High (ESA 2)	0	0	0	0	0
Moderate (ESA 3)	1,357	65	380	27.9	18
Low (ESA 4)	739	35	737	99.7	35
Total	2,096	**100**	1,117	-	**53**

As the proposed development occurs within moderate and low value ecosystems, Ecoscape anticipates that if all recommendations and mitigation measures within this report are adhered to, the potential environmental effects of the construction on the local flora and fauna will be minimized. However, if mitigation measures are not adhered to during construction on the subject property, the following environmental issues may occur:

- Potential to directly or indirectly impact wildlife and wildlife habitat during construction, including disruption of migration, breeding, or other behavior as a result of construction noise, impacts to air quality, and other alterations to existing wildlife habitat and cover. This includes herptiles and avian species that could potentially be foraging or nesting in the area;

- Potential for the release of fine sediments into natural areas and/or connecting drainages through erosive processes during construction activities;
- The release of sediment-laden water from ground disturbance during construction to Okanagan Lake due to improper sediment control, which could result in a temporary increase in turbidity and deterioration of water quality or siltation of potential aquatic habitats, impacts to wetlands or impacts to native plants and terrestrial habitats;
- Potential to introduce or facilitate the spread of invasive and noxious plant species resulting from ground disturbance and seed dispersal;
- Potential for the loss of native riparian, aquatic and terrestrial vegetation during construction if disturbance limits are not clearly identified prior to and during construction; and,
- Improper fuel storage and/or poorly maintained equipment used during construction could create spill potential that could negatively impact fish, wildlife, and associated habitats.

Our assessment does not consider the cumulative effects of the proposed development on a larger shoreline area or the cumulative impacts originating from shoreline developments across the lake as a whole or within a specific municipality.

8.0 MITIGATION MEASURES

Ecoscape provides the following mitigation measures to minimize the risks of impact to wildlife, fish and associated habitats during the proposed works. This document will be made available to the contractor prior to initiating the works and it should be kept onsite during works. This demonstrates that the contractor is aware of the mitigation measures and that they are being followed.

8.1 Disturbance Limits

- Clearing and grubbing limits must be clearly marked in the field prior to construction and minimized wherever possible. Disturbance beyond the identified development footprint must not occur without further assessment. Unnecessary impacts to native vegetation and soils must be avoided at all times. Important wildlife habitat, including veteran trees, snags, and other features, will be identified by the Environmental Monitor (EM) prior to construction works (i.e., flagged or otherwise marked to prevent disturbance);
- Staging, parking, storing of equipment, and stockpiling of materials must be within designated areas within the construction footprint and not using public lands,

environmentally valuable areas, tree drip line or encroaching beyond the disturbance limits associated with the proposed works;

- Fencing of the tree driplines in proximity to proposed works with brightly coloured snow fence or a suitable alternative is recommended. Installation direction can be provided by the EM onsite;
- Efforts must be made during construction works to avoid impacting the root systems, branches, bark, and trunk of trees adjacent to the development footprint. If any roots are damaged during construction, they must be cut clean with a chain saw/hand saw;
- Native vegetation, including trees, shrubs, and groundcover, must be retained as much as possible to mitigate the establishment of additional invasive plant species; and,
- In the event that land and/or natural vegetation is disturbed or damaged beyond the development footprint area, these areas should be restored and/or replanted with plant material native to the area under the direction of the EM.

8.2 Protection of the SPEA

- Limit soil disturbance wherever possible to prevent erosion and the establishment of invasive plant species;
- No disturbance or additional vegetation clearing should occur outside of the development footprint;
- Although not anticipated, if areas of exposed soils are left following disturbance due to development, the areas should be planted with native grass plugs or shrubs;
- Only vegetation native to the Okanagan and suited to the site conditions and regional climate should be planted within the SPEA.

8.3 Permits

All the appropriate permits and approvals must be obtained from the COK prior to construction activities within the subject property. All permits must be kept onsite at all times.

8.4 Best Management Practices

Ecoscape recommends the following general mitigation strategies for the proposed works, based on the existing ecosystems and environmental sensitivity analysis. In addition to the

recommendations provided herein, the proponent can find additional information on provincial Best Management Practices (BMPs) online at:

https://www2.gov.bc.ca/gov/content/environment/natural-resource-stewardship/laws-policies-standards-guidance/best-management-practices

- No works can occur below the High Water Level of Okanagan Lake without a Provincial Section 11 permit in hand.
- All works should generally conform to the Develop with Care 2014: Environmental Guidelines for Urban and Rural Land Development in BC (Polster et al., 2014) and companion documents:
    - Guidelines for Raptor Conservation during Urban & Rural Land Development in BC (2013)
    - Guidelines for Reptile and Amphibian Conservation during Urban & Rural Land Development in BC (2014)

8.5 Work Timing Windows

8.5.1 Timing Windows

Avian nesting periods must be considered to protect nesting birds within and adjacent to the proposed work area.

- Section 6 of the Federal *Migratory Birds Convention Regulation* protects both the nests and eggs of migratory birds. Section 34 of the Provincial *Wildlife Act* protects all birds and their eggs, and Section 34(c) protects their nests while they are occupied by a bird or egg. The subject property falls within the Northern Okanagan Basin ecodistrict. The avian nesting period for all birds within this ecodistrict is **February 18th to September 12th** (Birds Canada, 2020).
- If vegetation clearing activities are required during the identified avian nesting period, pre-clearing nesting surveys may be required by an EM to identify active nests;
- If active nests are found within the clearing limits, a buffer will be established around the nest until such time that the EM can determine that nest has become inactive. The size of the buffer will depend on the species and nature of the surrounding habitat. Buffer sizes will generally follow provincial BMP guidelines or other accepted protocol (e.g., Environment Canada). In general, a minimum 20 m buffer will be established around songbird nests or other non-sensitive (i.e., not at risk) species;
- Clearing and other construction activities must be conducted within 72 hours following the completion of the pre-clearing nesting surveys. If works are not conducted in that time, the

nesting surveys are considered to have expired and a follow-up survey will be completed to ensure that no new nests have been constructed; and,

- The nests of Bald Eagle, Golden Eagle, Peregrine falcon, Gyrfalcon, Osprey and Burrowing Owl are protected year-round whether they are active or not as per Section 34(b) of the *Wildlife Act*. Best management practices relating to raptors and their nests can be found in Guidelines for Raptor Conservation during Urban and Rural Land Development in BC (2013).

8.6 Erosion and Sediment Control

This section addresses minimizing the potential for the introduction of deleterious substances to Okanagan Lake and the SPEA. The following recommendations must be adhered to throughout all stages of construction:

- The release of silt, sediment, sediment-laden water, raw concrete, concrete leachate, or any other deleterious substances into any drainage or areas of high environmental value must be prevented at all times;
- Silt fence must be installed between the proposed works and Okanagan Lake to mitigate the risks to aquatic resources associated with runoff and sediment transport. It is recommended that silt fence is installed just outside of the disturbance limits of the proposed development; however, silt fencing must be installed as directed by the EM in a field-fit manner. ***Silt fence must be staked into the ground and trenched a minimum of 15 cm to prevent flow underneath the fence and must remain taut to prevent material from moving over the fence.*** Silt fencing should contain sufficient storage capacity to collect runoff and sediment deposition during storm events. Silt fencing will be monitored on a regular basis and any damages or areas where the integrity and function of the fencing has been compromised should be repaired or replaced promptly. Silt fence must remain in place where required until the completion of the project;
- Stockpiling of fill material within 30 m of the high-water mark of Okanagan Lake must not occur without consent from the EM;
- Ensure that onsite machinery is in good operating condition, clean, and free of leaks, excess oil or grease. Equipment needs to be pressure/steam-washed prior to use within close proximity of a watercourse. No equipment refueling can take place within 30 m of Okanagan Lake; and,
- Erosion and sediment control (ESC) should incorporate the measures described below to mitigate risks during construction works. The plan is generally based upon provincial BMPs and other specifications and includes the following principles:

- Construction works should be conducted during periods of warm, dry weather with no forecasted precipitation;
- Construction works should be scheduled to reduce the overall amount of time soils are exposed;
- Natural drainage patterns should be maintained where possible;
- Existing native vegetation should be retained where possible; and,
- Stormwater and sediment-laden runoff should be directed away from exposed soils within the construction area.

8.7 Turbid Water Management

If water is encountered during excavations, dewatering may be required. Options for turbid water management include the following;

- Discharging water in small quantities to well-vegetated areas of the site to allow for infiltration and reduction of runoff potential;
- Discharging water to a sump that could be established towards the eastern section of the site (away from Okanagan Lake);
- Discharging to local stormwater will only be an option if prior approval is gained from the COK;
- Discharge to Okanagan Lake may be an option provided that water discharged is within the allowable limits for turbidity under the ambient water quality guidelines for turbidity, suspended and benthic sediments; see below (BC MoE, 2019). Any water discharged to Okanagan Lake must be approved by the EM prior to discharge and the EM would need to be onsite full time.

Turbidity levels under the Ministry of Environment guidelines for fish and aquatic habitats (BC MoE, 2019) are as follows:

- During clear flow periods, induced turbidity should not exceed 8 NTU above background levels at any given time and no more than an average of 2 NTU above background levels over a 30-day period; and,
- During turbid flow periods, induced turbidity should not exceed background levels by more than 5 NTU at any time when background turbidity is between 8 and 50 NTU. When background exceeds 50 NTU, turbidity should not be increased by more than 10% of the measured background level at any one time.

8.8 Waste Material and Spills

- Construction debris and stockpiled material must be beyond environmentally sensitive areas and be removed from the site regularly and disposed of appropriately;
- All potential wildlife attractants, including food, beverages, and other strong smelling or perfumed materials must be removed from the site daily;
- Spills of deleterious substances can be prevented through awareness of the potential for negative impact on aquatic habitats and with responsible housekeeping practices onsite. Maintenance of a clean site and the proper use, storage and disposal of deleterious liquids and their containers are important to mitigate the potentially harmful effects of spills and/or leaks;
- Ensure equipment and machinery are in good operating condition, free of leaks, excess oil, and grease. Equipment needs to be pressure/steam-washed prior to use within close proximity of a watercourse;
- Spills occurring on dry land will be contained, scraped, and disposed of appropriately. Contaminated material will be stored on tarps and covered to prevent mobilization and will be disposed of in accordance with the *Environmental Management Act*;
- Copies of contact phone numbers for notification of all of the required authorities in the event of a spill/emergency response should be posted and clearly visible at the site; and,
- Spill containment kits must be kept readily available onsite during construction in case of the accidental release of a deleterious substance to the environment. Any spills of a toxic substance should be immediately reported to the BC Emergency Management 24-hour hotline at **1-800-663-3456**, as well as Ecoscape at **1-250-491-7337**.

8.9 Foreshore Use

The following recommendations must be adhered to in order to prevent additional foreshore disturbance and to enhance the ecological integrity of the subject property:

- No beach grooming, addition of sand, removal or alteration of cobbles/boulders, dredging or removal of riparian vegetation is to occur at any time. There must be no disturbance to substrates occurring along the foreshore of the subject property;
- No works are to occur below the 343 m elevation of Okanagan Lake without having a provincial *Water Sustainability Act* Section 11 application submitted, approved and in the possession of the property owner and contractor; and,
- The construction of permanent structures such as patios, boardwalks, boat houses, hot tubs, pools, etc. are not permitted within the SPEA.

8.10 Air Quality

Air quality standards must be met at all times during the proposed works. Dust control can be achieved by reducing the spatial extents and amount of time that soils are exposed to construction activities. Reducing traffic speed and volume can also reduce dust concerns. Surface and air movement of dust during proposed works can be mitigated through preventive measures and design criteria.

- Exposed soils will be watered as required to suppress dust. Sediment-laden runoff must not be conveyed to any watercourses or surface water drainages. Oil and other petroleum products will not be used for dust suppression. Alternative dust suppressants will be approved by the EM prior to application;
- All road surfaces must be kept clean and free of fine materials (i.e., swept or scraped) regularly to prevent the increase of airborne particulate matter; and,
- Idle time of construction equipment and contractor vehicles must be kept to a minimum to reduce the release of greenhouse gases. The contractor will inform and educate employees and sub-contractors on the importance of minimizing idling time and develop guidelines to direct the practice of reducing unnecessary idling. In general, contractor vehicles and equipment will be turned off when not in use.

8.11 Site Cleanup

Upon substantial completion of construction activities:

- Silt fencing, snow fence and other temporary mitigation features must be removed if the risk of surface erosion and sediment transport has been adequately mitigated with other permanent measures; and,
- All equipment, supplies, waste, and other materials must be removed from the site.

8.12 Habitat Restoration

The proposed development will disturb approximately 1,117 m^2 of the subject property. Ecoscape recommends planting native vegetation throughout the remaining ESA-3 (i.e., the SPEA) to increase the ecological value of the area. The exact location of plantings should be determined in consultation with the EM in a field-fit manner.

Ecoscape has recommended species and quantities of native trees, shrubs, and grasses to be planted within the SPEA. Exposed soils and disturbed areas should be seeded with a native grass seed mix. Recommended plantings are provided in **Table 10** and recommended grass seed mix is provided in **Table 11**.

TABLE 10. Recommended Restoration Plantings for the SPEA within the Subject Property			
Common Name	**Scientific Name**	**Min Size**	**Quantity**
Trees			
Douglas Maple	*Acer glabrum var. douglasii*	2 gal	
Interior Douglas-fir	*Pseudotsuga menziesii*	2 gal	
Ponderosa pine	*Pinus ponderosa*	2 gal	
Pacific Willow	*Salix lasiandra var. lasiandra*	2 gal	
		Subtotal	**10**
Tall Shrubs			
Common Snowberry	*Symphoricarpos albus*	2 gal	
Mock-orange	*Philadelphus lewis*	2 gal	
Nootka Rose	*Rosa nutkana*	2 gal	
Rabbit brush	*Chrysothamnus viscidiflorus ssp. lanceolatus*	2 gal	
Red-osier dogwood	*Cornus sericea*	2 gal	
Saskatoon	*Amelanchier alnifolia*	2 gal	
Tall Oregon-grape	*Mahonia aquifolium*	2 gal	
		Subtotal	**60**
Grass Seed Mix		1 kg	
		Total	**54**

- Planted species must be native to the Okanagan and suited to site conditions;
- Planting must occur in spring between April and June or fall between September and October when temperatures are cooler and many plants are dormant, to ensure greater planting success;
- Trees are to be planted at a density of 3 - 7 m^2 on center, tall shrubs every 3 m^2 on center, and low shrubs every 1.0 m^2 on center;
- Plants should be installed in groups or clusters and make use of suitable micro-climates, such as moisture-receiving areas, coarse woody debris, and remnant patches of natural areas. This will help prevent plant mortality by limiting competition with invasive species. Planting should not be completed in an evenly distributed, grid-like pattern;
- The placement and distribution of plantings will be completed in a field-fit manner at the time of restoration through consultation with the EM;
- Plantings should target depressions to capture local moisture from rain or runoff. Woody debris/wood fiber mulch spread around the base of plantings may help to deter establishment of and competition from invasive plant species;

- Flagging of native plants will be helpful for future monitoring purposes; flagging must not be tied around the main stem such that girdling of the plant will occur as it grows;
- Seed and plant material must be sourced from within the southern interior to avoid complications associated with transplanting coastal species or northern species into dry southern interior conditions;
- To promote germination and establishment of vegetation, temporary irrigation should be supplied for at least the first two growing seasons. If no irrigation is proposed for restoration areas, it is recommended that regular maintenance is conducted to improve planting survival. This may include: additional fertilizing, routine watering and/or replanting, and the removal of invasive species. Poor growth, elevated erosion problems, and/or animal intrusion should be mitigated to promote plant growth; and,
- The contractor completing the restoration works should inspect plants monthly during the growing season, replacing any dead or diseased plants.

All disturbed soils must be restored with native Grade A grass seed free of invasive species to minimize establishment of invasive plant species, erosion, and to restore the area to early successional conditions.

- Grass seed mixes must be approved by the EM before purchase and use. Restoration grass mixes cannot include species considered invasive within BC;
- All seed mixes will be submitted to a certified seed testing laboratory for germination and purity analysis. Seed analysis certificates are to be provided prior to purchase;
- Grass mixes cannot include fodder species (such as clover) or species considered invasive within BC.
- Grass seed should be broadcast and hand-raked into the soil. For large areas, hydroseed may be used;
- All native seeding and planting must be done in either early spring or in autumn for greatest success;
- Irrigation should be provided to all native plantings for the first 2 years after planting to maximize the success of establishment. Irrigation should be done in such a way as to encourage deep root systems;
- ***No fertilizer should be used within habitat restoration areas***. Fertilizer can favor the growth of early, annual species – many of which are invasive to the area. ***Fertilizing the restoration area can prolong the restoration period***;

- ***If possible, installation of native plantings should be delayed until invasive plants are at a manageable level. Otherwise, management of invasive plants can hamper efforts to establish native plants; and,***
- Grass seed mixes should be suitable for the dry, upland environmental conditions seen in **Table 11** below. These conditions may be given to a seed provider to determine the most appropriate species and percent.

TABLE 11. Recommended Native Grass Seed Mix for Disturbed Areas

Common Name	Scientific Name
Annual ryegrass	*Lolium multiflorum Lam.*
Blue bunch wheatgrass	*Elymus spicatus*
Junegrass	*Koeleria macrantha*
Rough Fescue	*Festuca campestris*
Slender wheatgrass	*Elymus trachycaulus*

8.12.1 Invasive Species Management

Ongoing invasive species control through mechanical means (i.e., hand pulling and mowing) will be required within any areas with exposed/disturbed soils and/or existing grassland areas within the north and south side of the project site.

- Any contractor working within the property must ensure that all equipment and vehicles are washed and free of weed seeds prior to mobilization and de-mobilization. Vehicles and equipment should not be stored, parked, or staged within weed infested areas if possible. Contractor clothing should also be inspected daily for signs of weed seeds. If found, weed seeds should be disposed of in a contained refuse bin for offsite disposal;
- Care must be taken to ensure that invasive species removal does not impact existing or planted native tree and shrub species; and,
- Invasive plant species must be disposed of in a landfill; however, invasive species material must not be composted in the yard waste section of the landfill. Invasive plant species must not be transported to or deposited in other natural areas.

8.13 Performance Bonding

Performance bonding may be required by the COK to ensure that the recommended mitigation measures are adhered to and an EM is retained to document compliance with municipal and provincial guidelines. Bonding in the amount of 125% of the estimated value of the prescribed works (i.e., monitoring) is generally required to ensure faithful performance and that all mitigation

measures are completed and function as intended. Security deposits shall remain in effect until the COK has been notified, in writing, by the EM that the objectives have been met and substantial completion of the restoration works has been achieved.

Ecoscape estimates that the total cost for habitat restoration works (not inclusive of proposed development) will be approximately **$5,680.00**, not including GST. The bonding is estimated to be **$7,100.00** (125% of cost), as shown in **Table 12.**

TABLE 12. Performance Bonding Cost Estimate

Item	Quantity	Cost per Unit	Material Cost	Installed Cost*
Trees (2 gal) pot)	10	$20.00	$200.00	$600.00
Shrubs (2 gal)	60	$20.00	$1,200.00	$3,600.00
Grass Seed (kg)	1	$60.00	$60.00	$180.00
Invasive Species Management (hand-pulling, mowing, etc.)				$300.00
Environmental monitoring** (includes substantial and total completion reports)				$1,000.00
			Total* **	$5,680.00
			Bond amount (125% of Total)	**$7,100.00**

*Installed costs are assumed to be based upon 3X the purchase price of materials. A landscaping company and distributor of native plant stock may be able to provide a more accurate estimate to complete the prescribed works.

**The above estimate for environmental monitoring is over the maintenance phase only.

***Costs provided are estimates for bonding purposes only. These costs may vary depending upon site conditions.

8.14 Environmental Monitoring

An EM should be retained to document compliance with proposed mitigation measures and to provide guidance during construction works. In the event that greater disturbance occurs due to unforeseen circumstances, the EM should recommend further measures to protect/restore the natural integrity of the site. The EM should be an appropriately Qualified Environmental Professional (QEP).

The EM's duties and schedule will include, as a minimum, the following:

- A pre-construction meeting prior to the implementation of works. During this visit, best management practices and erosion and sediment control measures will be reviewed;
- Visits should be conducted during construction and will target higher-risk activities. The EM should be notified prior to high-risk activities so they can schedule site visits accordingly;
- EM reports will be generated for each visit and submitted to the client; and,
- Following completion of the project, a substantial completion report will be prepared.

9.0 CONCLUSION

This report pertains to existing and potential site conditions at the subject property with respect to riparian and upland habitats in relation to the proposed development. As per the requirements of the COK, this report identifies potential environmental impacts and appropriate mitigation measures to protect the natural integrity of both terrestrial and aquatic communities. Provided that mitigation measures within this report are adhered to, impacts to aquatic and terrestrial communities should be avoided.

10.0 CLOSURE

This report has been prepared for the exclusive use of Frame Custom Homes. Ecoscape has prepared this assessment with the understanding that all available information on the present and proposed condition of the site has been disclosed. The client has acknowledged that in order for Ecoscape to properly provide this professional service, Ecoscape is relying upon full disclosure and accuracy of this information.

If you have any questions or comments, please contact the undersigned at your convenience.

Respectfully Submitted
ECOSCAPE ENVIRONMENTAL CONSULTANTS LTD.

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Attachments: Figures
Appendix A – Site Plan
Appendix B – Site Survey
Appendix C – Site Photos

11.0 REFERENCES

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FIGURES

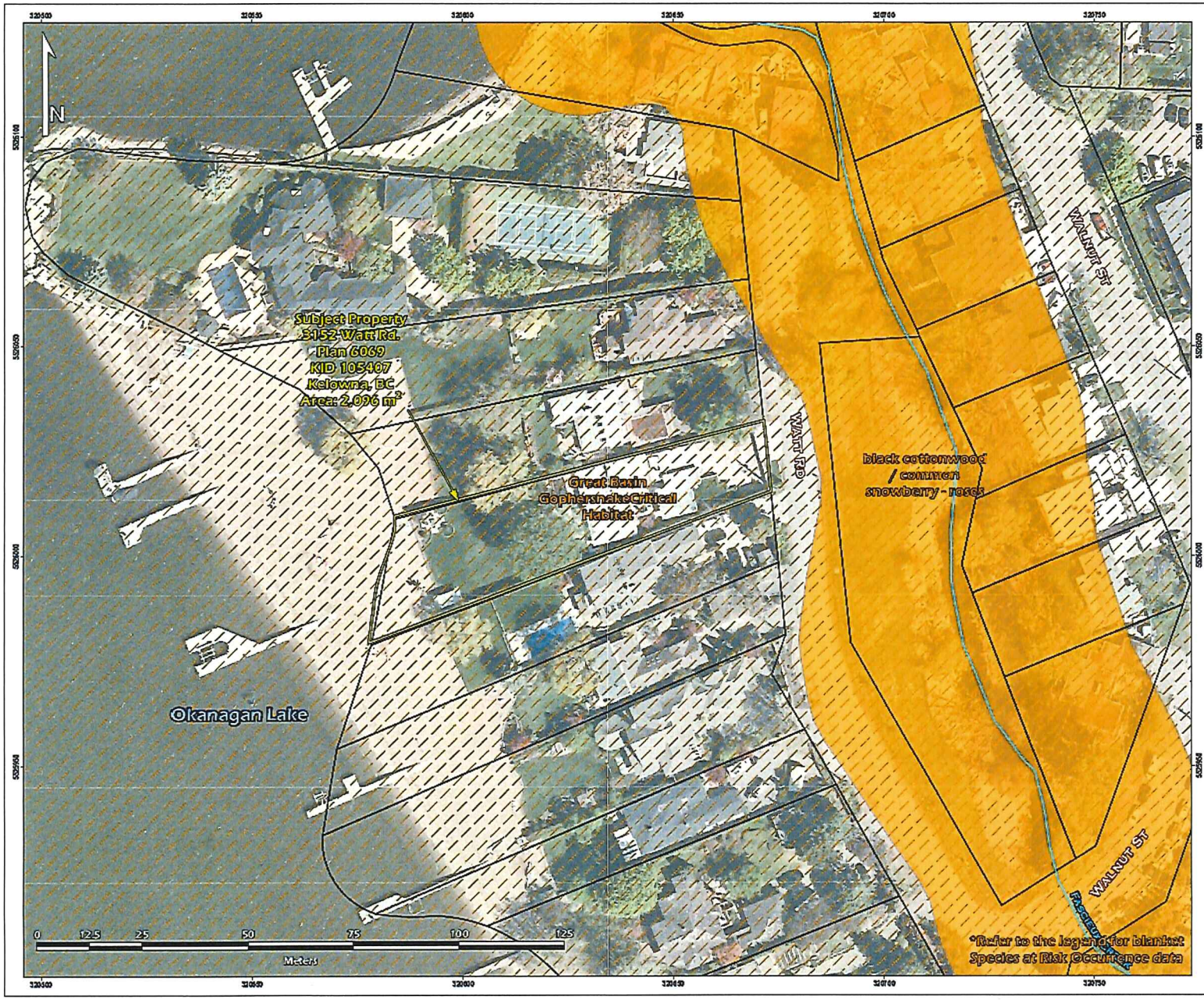

FIGURE 1
Site Location and Species at Risk Occurrences

Project:	Environmental Assessment
Location:	City of Kelowna
Project No.:	22-4386
Prepared for:	Frame Custom Homes
Prepared by:	Ecoscape Environmental Consultants Ltd. Dan Austin, GIS Specialist
Coordinate System:	NAD83-UTM Zone 11
Imagery:	Kelowna 2021
Field Visit	July 27, 2022
Map Date:	October 12, 2022

LEGEND

- Regional Location of Subject Property
- WSI Incidental
- WSI Survey
- Streams
- Okanagan Critical Habitat (Species at Risk)
- BC Conservation Data Center (CDC) Polygons
- Subject Property
- Cadastre

Regional Location of Subject Property

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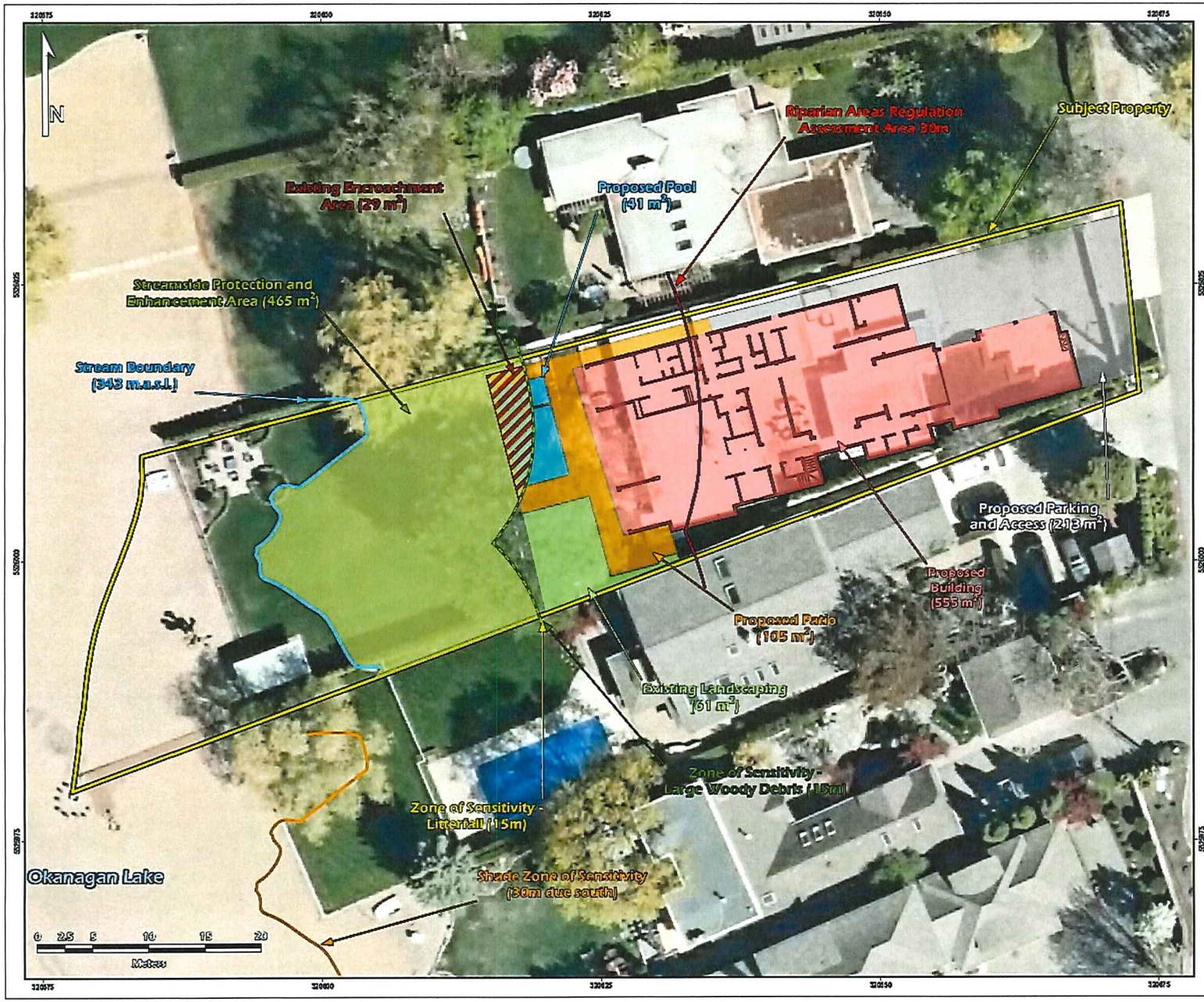

FIGURE 2

Site Plan

Project:	Environmental Assessment
Location:	City of Kelowna
Project No.:	22-4386
Prepared for:	Frame Custom Homes
Prepared by:	Ecoscape Environmental Consultants Ltd. Dan Austin, GIS Specialist
Coordinate System:	NAD83-UTM Zone 11
Imagery:	Kelowna 2021
Field Visit:	June 28, 2022
Map Date:	November 9, 2022

LEGEND

- Stream Boundary (343 masl)
- Zone of Sensitivity - Litterfall (15m)
- Zone of Sensitivity - Large Woody Debris (15m)
- Zone of Sensitivity - Shade (30m due south)
- Riparian Areas Regulation Assessment Area (30m)
- Proposed Access
- Proposed Building
- Proposed Patio
- Proposed Pool
- Existing Landscaping
- Streamside Protection and Enhancement Area (SPEA)
- Existing Distrubance within SPEA
- Subject Property
- Cadastre

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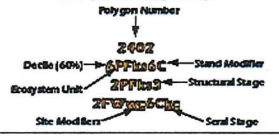
FIGURE 3
Ecosystem Polygons

Project:	Environmental Assessment
Location:	City of Kelowna
Project No.:	22-4386
Prepared for:	Frame Custom Homes
Prepared by:	Ecoscape Environmental Consultants Ltd. Dan Austin, GIS Specialist
Coordinate System:	NAD83-UTM Zone 11
Imagery:	Kelowna 2021
Field Visit:	July 27, 2022
Map Date:	August 11, 2022

LEGEND

- Ecosystem Polygon
- Subject Property
- Cadastre

Ecosystem Polygon Key



Ecosystem Units

UR Urban

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FIGURE 4
Environmental Sensitivity Analysis

Project:	Environmental Assessment
Location:	City of Kelowna
Project No.:	22-4386
Prepared for:	Frame Custom Homes
Prepared by:	Ecoscape Environmental Consultants Ltd. Dan Austin, GIS Specialist
Coordinate System:	NAD83-UTM Zone 11
Imagery:	Kelowna 2021
Field Visit:	July 27, 2022
Map Date:	August 11, 2022

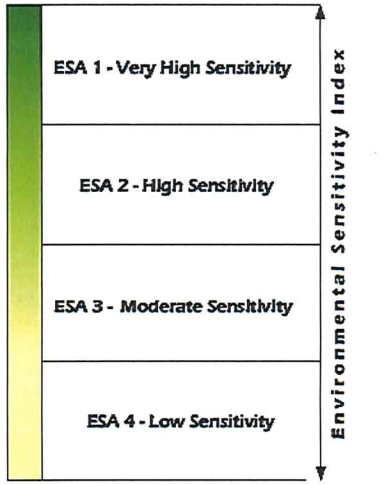
LEGEND

- 99 Ecosystem Polygon Number
- Streams
- Subject Property
- Cadastre

Environmental Sensitivity Rating

- Very High (ESA 1)
- High (ESA 2)
- Moderate (ESA 3)
- Low (ESA 4)

Environmental Sensitivity Gradient



ECOSCAPE

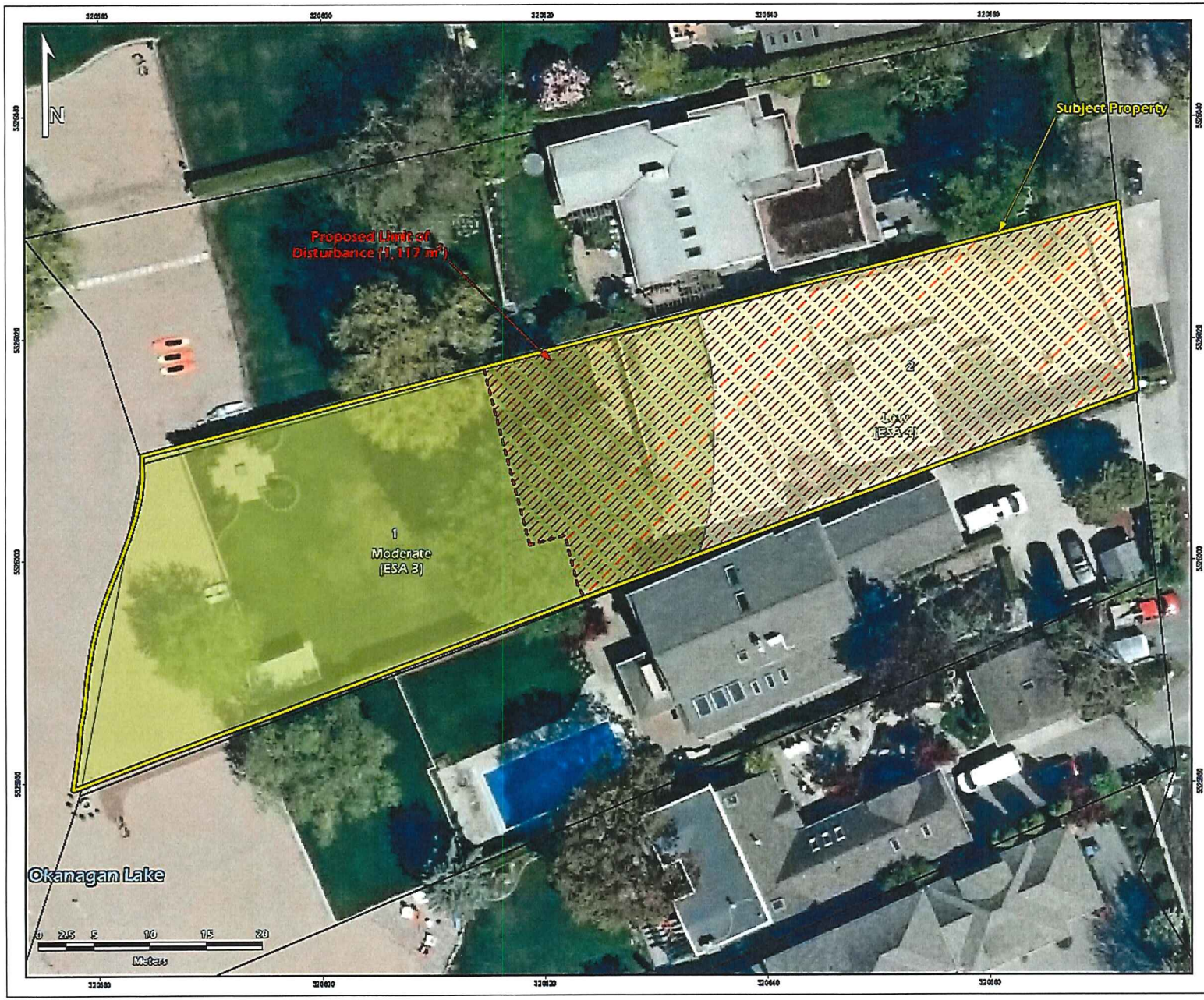


FIGURE 5
Impact Assessment

Project:	Environmental Assessment
Location:	City of Kelowna
Project No.:	22-4386
Prepared for:	Frame Custom Homes
Prepared by:	Ecoscape Environmental Consultants Ltd. Dan Austin, GIS Specialist
Coordinate System:	NAD83-UTM Zone 11
Imagery:	Kelowna 2021
Field Visit:	June 28, 2022
Map Date:	November 9, 2022

LEGEND

- 99 Ecosystem Polygon Number
- Streams
- Approximate Limit of Disturbance
- Subject Property
- Cadastre

Environmental Sensitivity Rating

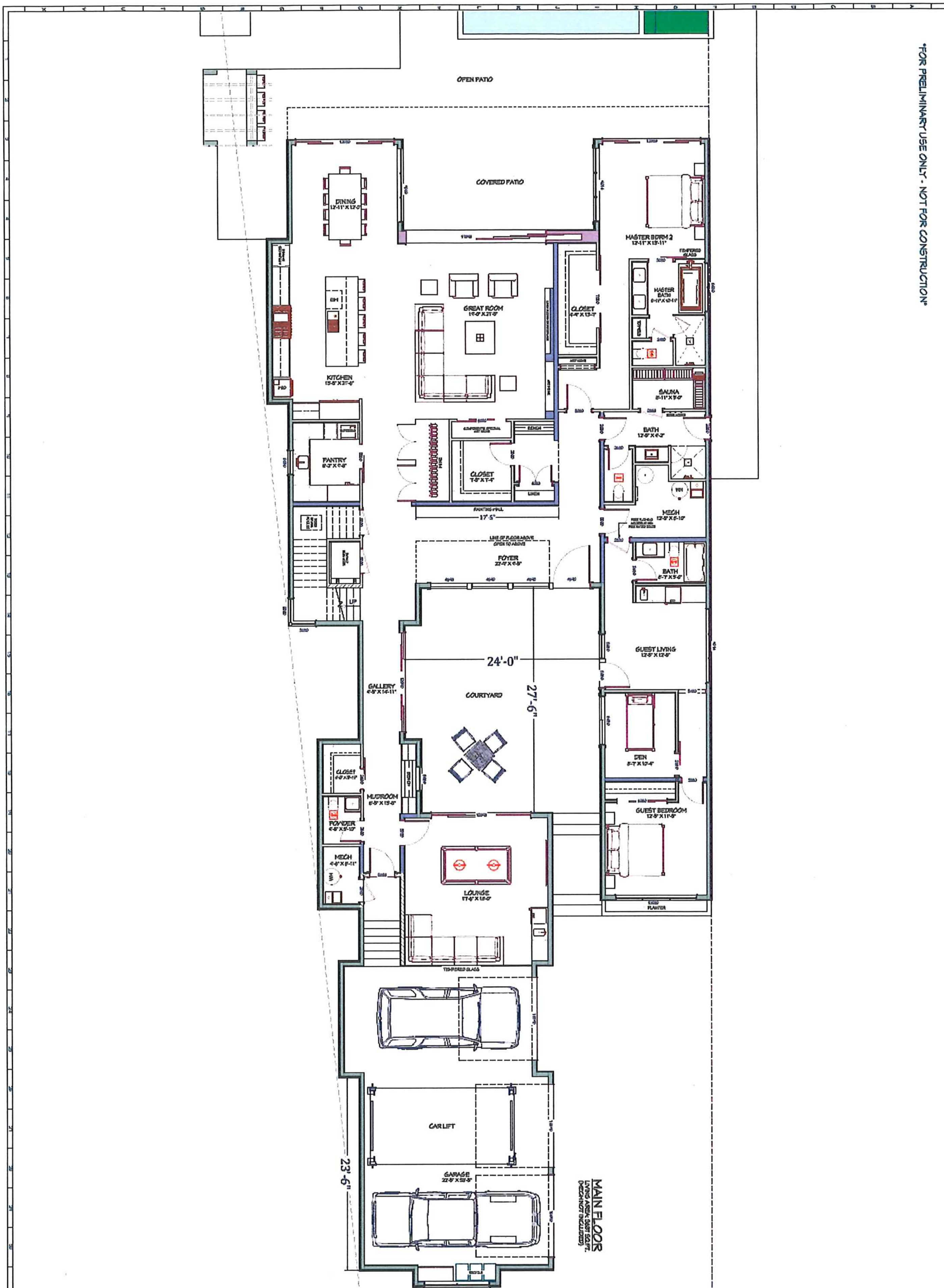
- Very High (ESA 1)
- High (ESA 2)
- Moderate (ESA 3)
- Low (ESA 4)

Area (m2)	Within Disturbance	Outside Disturbance	Total
Very High (ESA 1)	0	0	0
High (ESA 2)	0	0	0
Moderate (ESA 3)	380	977	1,357
Low (ESA 4)	737	2	739
Total	1,117	980	2,096

ECOSCAPE

APPENDIX A

Site Plan Provided by: Frame Custom Homes



"FOR PRELIMINARY USE ONLY - NOT FOR CONSTRUCTION"

DATE: 2022-10-04

SCALE: 1/4"=1'

SHEET: A-1

OKANAGAN PLANNING SOLUTIONS INC.
info@okanagansolutions.com

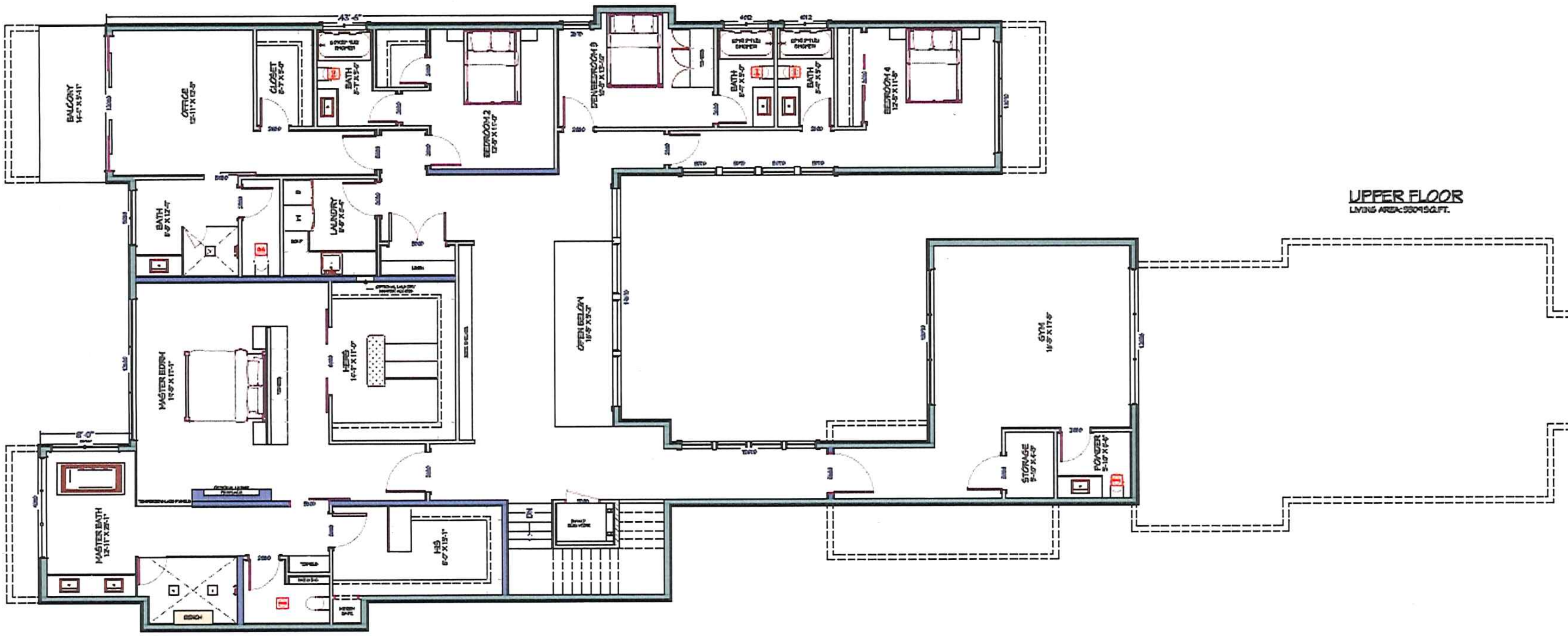
3152 WATT ROAD

Frame

REVISION TABLE

NUMBER	DATE	REVISED BY	DESCRIPTION
P-01	2022-05-15	DS-P	PRELIMINARY
P-02	2022-07-22	DS-P	PRELIMINARY
P-03	2022-10-04	DS-P	PRELIMINARY

"FOR PRELIMINARY USE ONLY - NOT FOR CONSTRUCTION"



REVISION TABLE			
NUMBER	DATE	REVISED BY	DESCRIPTION
P-21	2022-08-15	DS-P	PRELIMINARY
P-28	2022-09-23	DS-P	PRELIMINARY
P-29	2022-10-04	DS-P	PRELIMINARY

3152 WATT ROAD

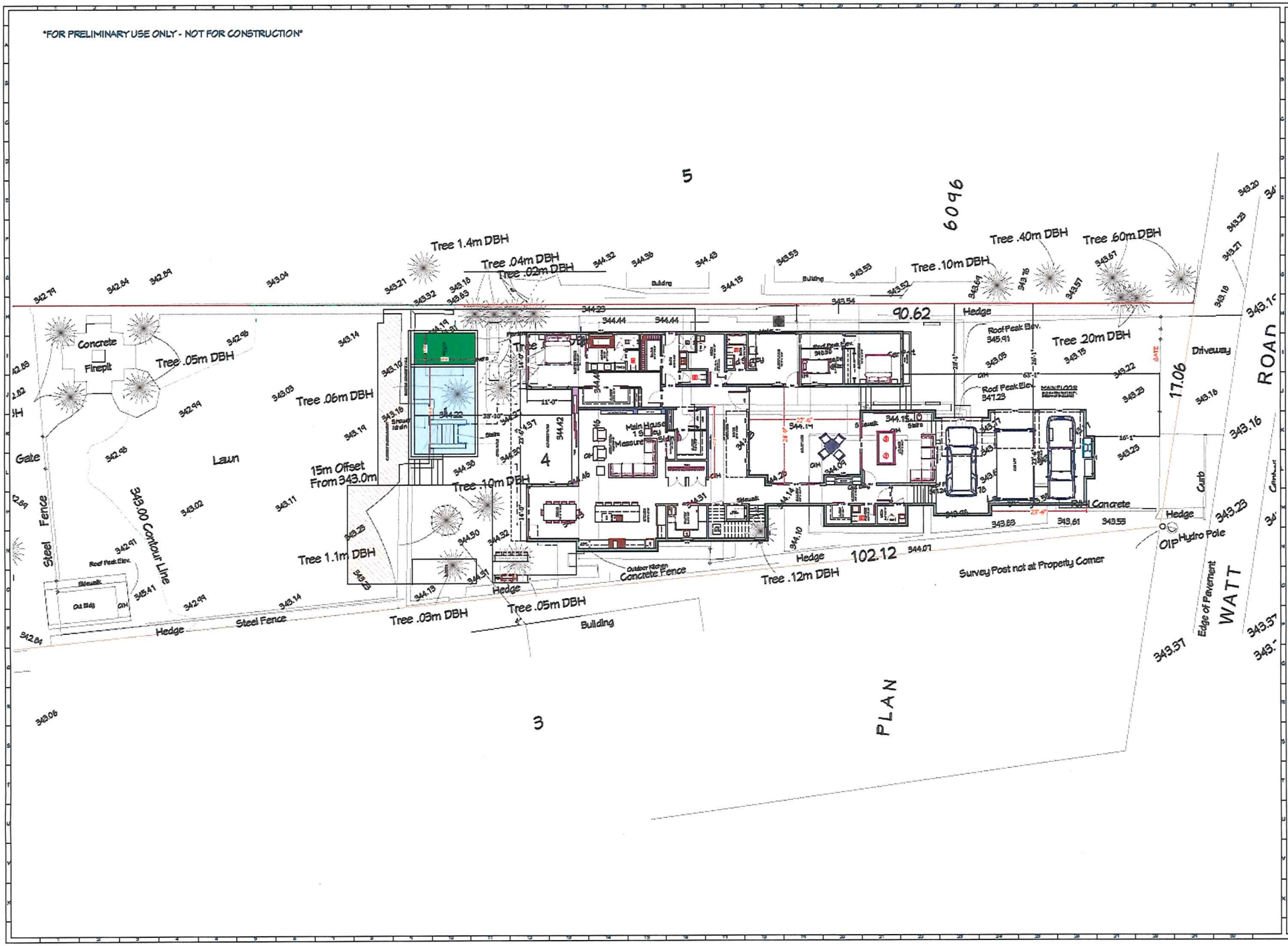
OKANAGAN PLANNING SOLUTIONS INC.
info@okanagansolutions.com

DATE: 2022-10-04

SCALE: 1/8"=1'

SHEET: A-2

FOR PRELIMINARY USE ONLY - NOT FOR CONSTRUCTION



NUMBER	DATE	REVISED BY	DESCRIPTION
#1	2022-03-15	JS	PRELIMINARY
#2	2022-09-23	JS	PRELIMINARY
#3	2022-10-04	JS	PRELIMINARY

3152 WATT ROAD

OKANAGAN PLANNING SOLUTIONS INC.
Info@okanaganplansolutions.com

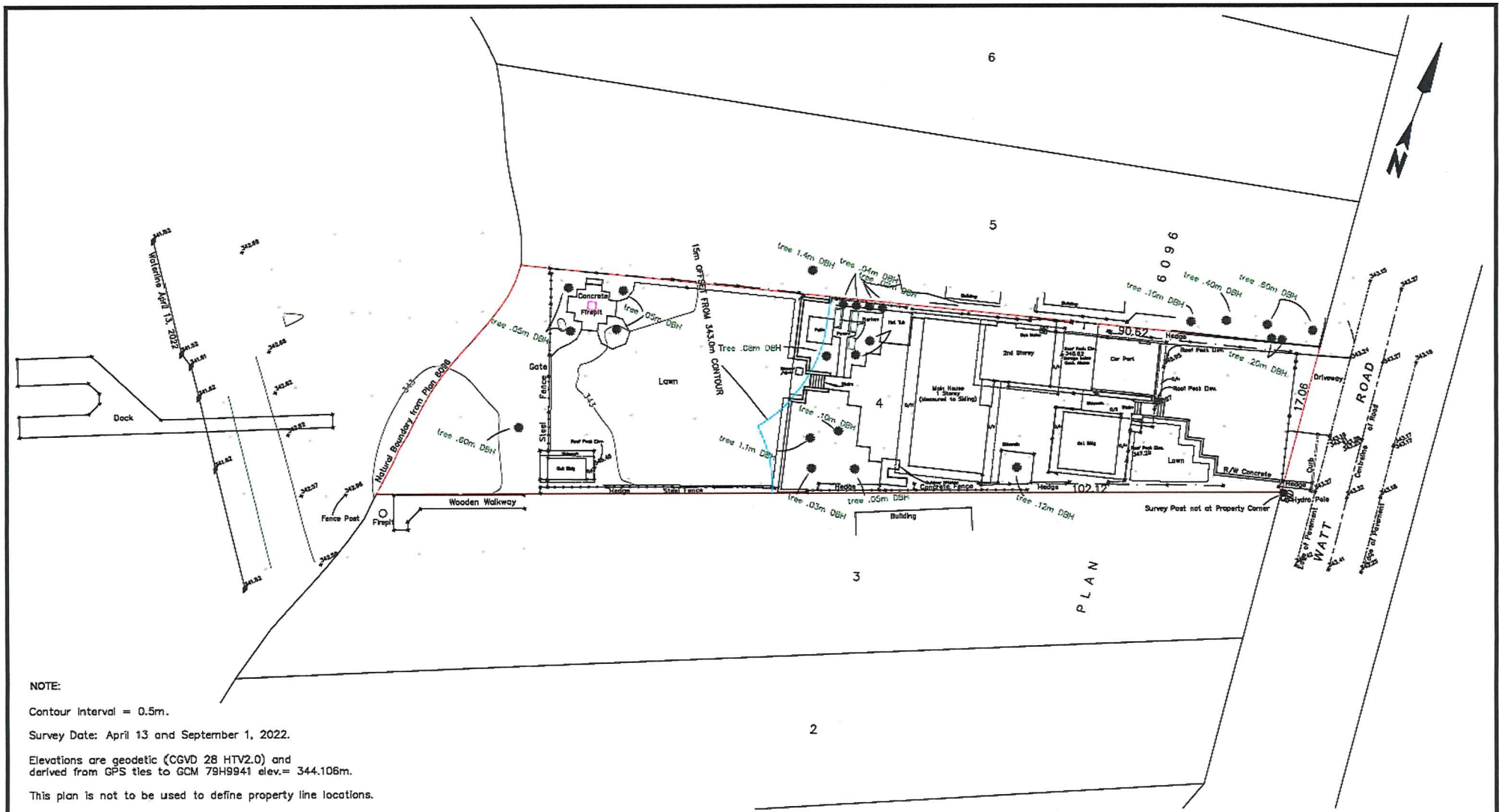
DATE: 2022-10-04

SCALE: 1/16"=1'

SHEET: A-3

APPENDIX B

Site Survey Provided by: Runnalls Denby



NOTE:

Contour Interval = 0.5m.

Survey Date: April 13 and September 1, 2022.

Elevations are geodetic (CGVD 28 HTV2.0) and derived from GPS ties to GCM 79H9941 elev.= 344.106m.

This plan is not to be used to define property line locations.

TITLE:

SITE PLAN OF LOT 4, DISTRICT LOT 14, O.D.Y.D., PLAN 6069 (3152 Watt Road, Kelowna)

DRAWN BY:

RUNNALLS DENBY
british columbia land surveyors
259A Lawrence Avenue
Kelowna, B.C.
V1Y 6L2
Phone: (250)763-7322
Fax: (250)763-4413
Email: rob@runnallsdenby.com

CLIENT: BILL FRAME

SCALE: 1:400 (11" x 17")

DATE: September 14, 2022

DWG. 16386 SITE

FILE No.: 16386

REV. 5

APPENDIX C

Site Photos

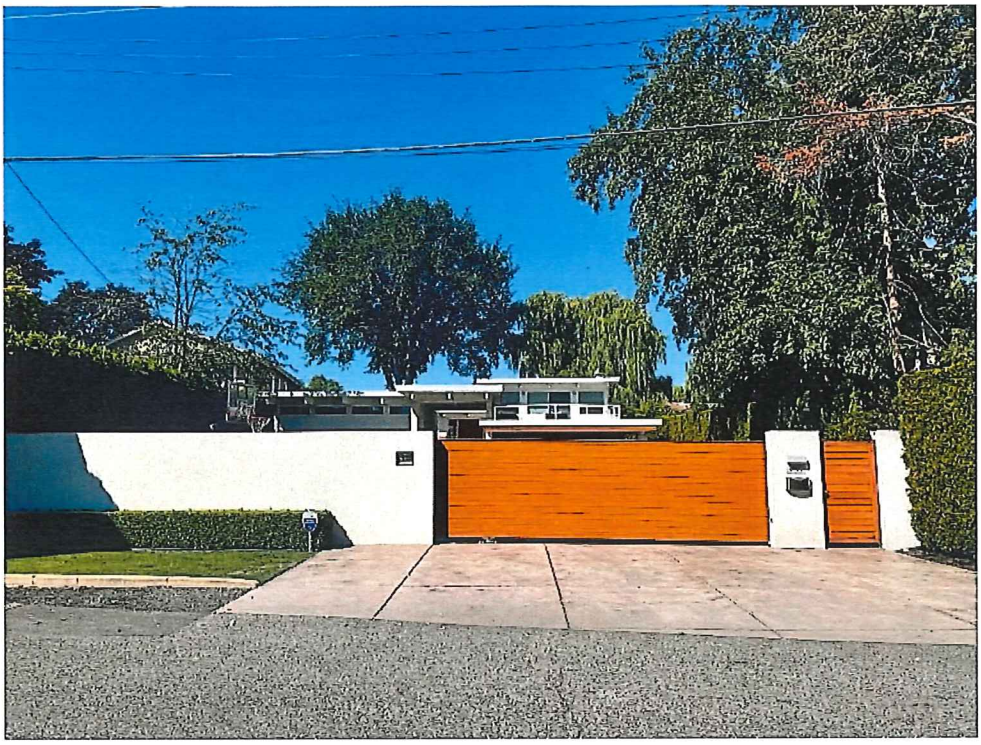


Photo 1. View facing west of the entrance to the subject property. (All photos taken July 27, 2022).

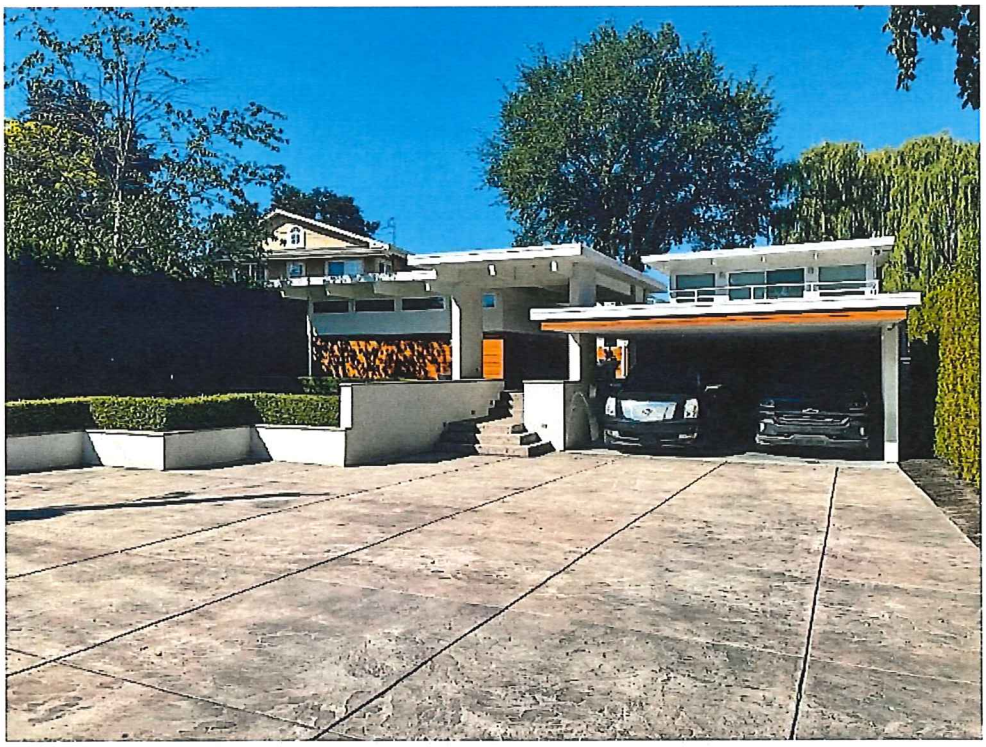


Photo 2. View facing southwest of the front yard of the subject property.

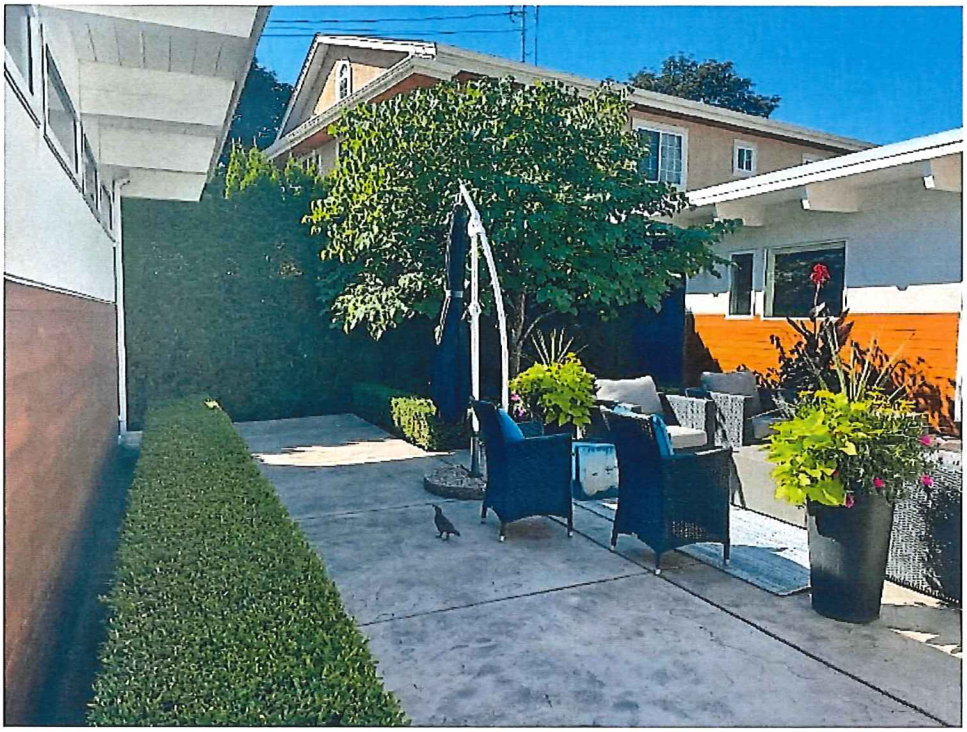


Photo 3. View facing south of the courtyard.

Photo 4. View facing southeast of a landscaped portion of the back yard adjacent to the existing residence.

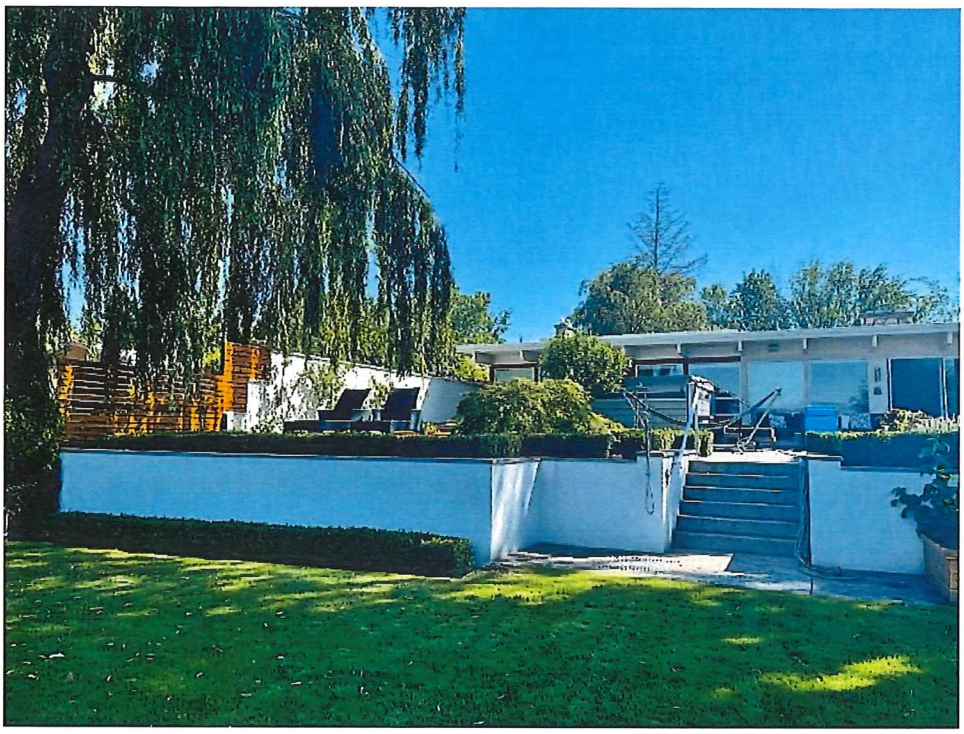


Photo 5. View facing northeast of the existing patio, stairs, and retaining wall in the backyard of the subject property.

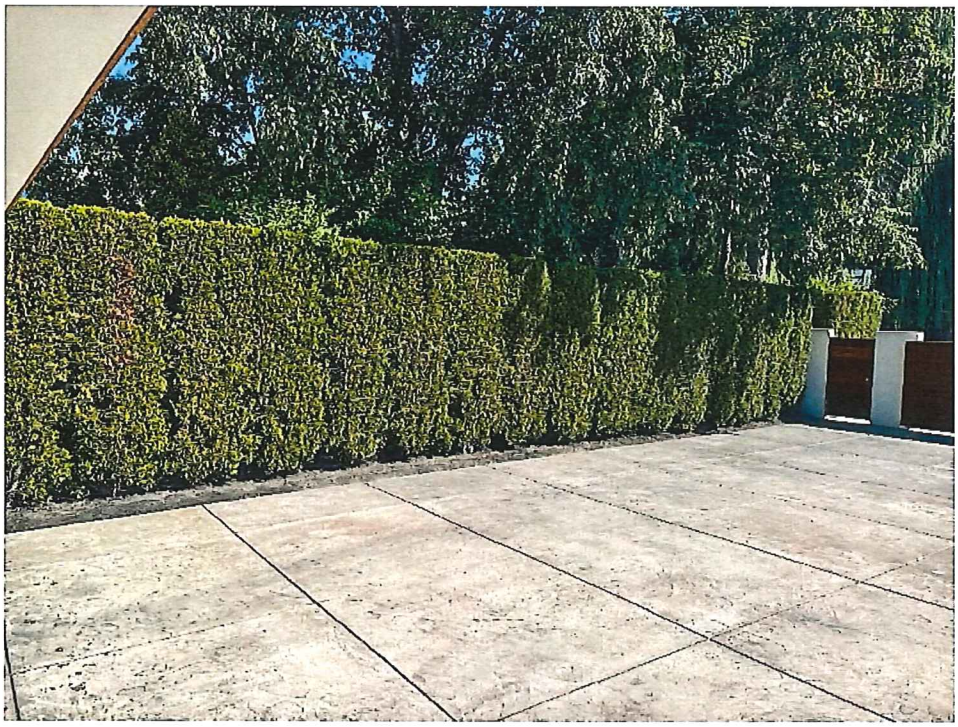


Photo 6. View facing northeast of the cedar hedges lining the subject property.

Photo 7. View facing west of existing shed and patio located within the SPEA.

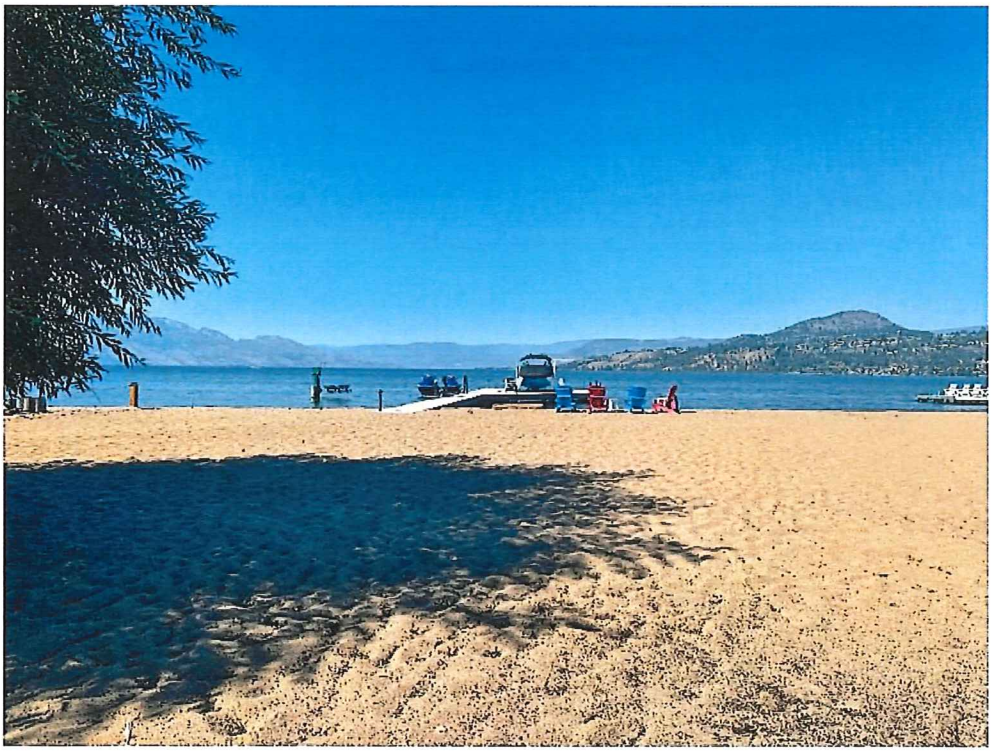


Photo 8. View facing west of existing dock, boat lift, sea-doo lifts, and removable furniture.

Photo 9. View facing southwest of pacific willow on subject property.

Photo 10. View facing east of mature trees occupying the subject property.

SCHEDULE D
This forms part of development
Permit # DP22-0238

CONTRACT AGREEMENT

ECOSCAPE ENVIRONMENTAL CONSULTANTS LTD.
#102 – 450 Neave Ct., Kelowna, BC. V1V 2M2
Tel: 250. 491.7337 Fax: 250. 491.7772
www.ecoscapeltd.com

We have initiated a project file for the work outlined below. Please inform us if we are incorrect in any of the details presented below.

We appreciate your business!

Project Name:	Environmental Monitoring Services for Single Family Home	**Project Location:**	3152 Watt Road, Kelowna, BC
Start Date:	11/28/2022 **Completion Date**	TBD	**Project Number** 22-4386
Project Description:	Environmental Monitoring services for Single Family Home during construction works per the City of Kelowna Development Permit requirements.		
Client:	Bill Frame Custom Homes	**Contact Person**	Bill Frame
Client Address:	PO Box 29106, Okanagan Mission RPO, Kelowna, BC, Canada V1W 4A7		
Phone No.:	(250) 718-8670	**Fax No.:**	N/A
Care of:	Above	**Email:**	billframe@framecustomhomes.ca
Purchase Order:			
Manager:	Kris Mohoruk, B.Sc	**Manager Phone**	(778) 940-1937
Budget:	Time & Expenses at 2022 rates	**Fees:**	$140/hour for Senior Biologist $120/hr for Project Manager $100/hr for Junior Biologist/Technician $100/hr for GIS Technician
		Disbursements:	Mileage

GST Included? No

Note: The retainer has been waived for this project.

1.0 General

This agreement shall be binding on the Client and Ecoscape Environmental Consultants Ltd. (Ecoscape) unless the Client provides written notice to Ecoscape within five (5) business days from the date of issuance that it rejects any part of this agreement. Ecoscape, may at its sole discretion and at any stage engage sub consultants to perform all or any part of the Services.

2.0 Scope of Work

The scope of work for services has been agreed upon in the proposal (noted above).

3.0 Compensation and Payment Terms

Charges for the Services rendered will be made in accordance with Ecoscape's Schedule of Fees and Disbursements in effect from time to time as the Services are rendered. All Charges will be payable in Canadian Dollars. Invoices will be due and payable by the Client within thirty (30) days of the date of the invoice without hold back. Interest on overdue accounts is 12% per annum.

4.0 Termination

Either party may terminate this engagement without cause upon thirty (30) days' notice in writing. On termination by either party under this paragraph, the Client shall forthwith pay Ecoscape its Charges for the Services performed, including all expenses and other charges incurred by Ecoscape for this Project. If either party breaches this engagement, the non-defaulting party may terminate this engagement after giving seven (7) days' notice to remedy the breach. On termination by Ecoscape under this paragraph, the Client shall forthwith pay to Ecoscape its Charges for the Services performed to the date of termination, including all fees and charges for this Project.

5.0 Professional Standards

In the performance of professional services, Ecoscape will use the degree of care and skill ordinarily exercised, conforming to recognized standards, and upholding professional ethics founded upon integrity, competence, and a responsibility to provide sound management and conservation of biological resources. Furthermore, Ecoscape reserves the right to report occurrences of rare and endangered species resulting from inventories and incidental observations to the Conservation Data Centre. The client shall be responsible for reporting the results of any investigation to the relevant regulatory agency if such reporting is required and the Client acknowledges that Ecoscape may be required by law to disclose information to regulatory agencies and hereby consents to such disclosure.

6.0 Environmental, Site Information and Disclosure

The client agrees to fully cooperate with Ecoscape with respect to the provision of all available information on the past, present, and proposed conditions of the site. The Client acknowledges that in order for Ecoscape to properly provide the professional service, Ecoscape is relying upon full disclosure and accuracy of this information. Ecoscape's field investigations and recommendations will not address or evaluate pollution of soil or pollution of groundwater. Ecoscape will co-operate with the Client's consultant during the field work phase of the investigation addressing pollution of soil or groundwater.

7.0 Limitation of Liability

Ecoscape shall not be responsible for:

(a) the failure of a contractor, retained by the Client, to perform the work required in the Project in accordance with the applicable contract documents or recommendations made in reports or in the field by Ecoscape;
(b) the design of or defects in equipment supplied or provided by the Client for incorporation into the Project;
(c) any Project decisions made by the Client if the decisions were made without the advice of Ecoscape or contrary to or inconsistent with Ecoscape's advice;
(d) any consequential loss, injury or damages suffered by the Client, including but not limited to loss of use, earnings and business interruption; and,
(e) the unauthorized distribution of any confidential document or report prepared by or on behalf of Ecoscape for the exclusive use of the Client.

The total amount of all claims the Client may have against Ecoscape under this engagement, including but not limited to claims for negligence, negligent misrepresentation and breach of contract, shall be strictly limited to $5000.00. Only if specifically agreed to in writing by Ecoscape would this be revised to the amount of any professional liability insurance Ecoscape may have available at the time such claims are made. In the event that Ecoscape is not carrying professional liability insurance at the time of a claim, the total amount payable would be $0 under either circumstance.

No claim may be brought against Ecoscape in contract or tort more than two (2) years after the Services were completed or terminated under this engagement.

8.0 Personal Liability

For the purposes of the limitation of liability provisions contained in the Agreement of the parties herein, the Client expressly agrees that it has entered into this Agreement with Ecoscape, both on its own behalf and as agent on behalf of its employees and principals and/or clients if the client is acting as an agent. The Client expressly agrees that Ecoscape's employees and principals shall have no personal liability to the Client in respect of a claim, whether in contract, tort and/or any other cause of action in law. Accordingly, the Client expressly agrees that it will bring no proceedings and take no action in any court of law against any of Ecoscape's employees or principals in their personal capacity.

9.0 Third-Party Liability

This report was prepared by Ecoscape for the account of the Client. The material in it reflects the judgment and opinion of Ecoscape in light of the information available to it at the time of preparation. Any use that a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. Ecoscape accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report. This report may not be used or relied upon by any other person unless that person is specifically named by us as a beneficiary of the Report. The Client agrees to maintain the confidentiality of the Report and reasonably protect the report from distribution to any other person.

10.0 Documents

All of the documents prepared by Ecoscape or on behalf of Ecoscape in connection with the Project are instruments of service for the execution of the Project. Ecoscape retains the property and copyright in these documents, whether the Project is executed or not. These documents may not be used on any other project without the prior written agreement of Ecoscape.

11.0 Field Services

Where applicable, field services recommended for the Project are the minimum necessary, in the sole discretion of Ecoscape, to carry out in general conformity with the intent of the Services. Field investigations may identify additional field requirements that are required to be undertaken prior to completion of this agreement. Ecoscape will not proceed with additional field works without the express written consent of the Client. If Ecoscape recommends additional field visits and the Client advises these works are not to be undertaken, Ecoscape will be required to prepare written documentation addressing field data collection limitations.

12.0 Dispute Resolution

If requested in writing by either the Client or Ecoscape, the Client and Ecoscape shall attempt to resolve any dispute between them arising out of or in connection with this Agreement by entering into structured non-binding negotiations with the assistance of a mediator on a without prejudice basis. The mediator shall be appointed by agreement of the parties. If a dispute cannot be settled within a period of thirty (30) calendar days with the mediator, the dispute shall be referred to and finally resolved by an arbitrator appointed by agreement of the parties.

13.0 Agreement

This agreement is binding and will ensure the benefit of the Client and Ecoscape. These conditions form a part of the proposal, with the same effect as if set forth therein. Verbal and email approvals to proceed with work outlined above are subject to the same conditions as this contract.

Ecoscape Environmental Consultants Ltd.: [signature] **Date:** 2022-11-28

Client Signature: Bill Frame **Date:** 11/28/2022

Client Name (please print) Frame Custom Homes Ltd **Project Number** 22-4386