CITY OF WEST KELOWNA
FLOODPLAIN EXEMPTION PERMIT
FEX 24-01

To: Jordan Creamore
8955 Jim Bailey Cres
Kelowna, BC, V4V 2L7

1. This **Floodplain Exemption Permit** is issued subject to compliance with all the Bylaws of the City of West Kelowna applicable thereto, except as specifically varied or supplemented by this Permit.

2. This Permit applies to and only to those lands within the City of West Kelowna described below, and any and all buildings, structures, and other developments thereon:

LOT 10, DISTRICT LOT 487 ODYD PLAN KAP8345
(2479 Whitworth Road)

3. **This Permit allows for the addition to an existing single-family dwelling on the subject property 2479 Whitworth Road. Specifically, this Floodplain Exemption Permit exempts the following:**

- To vary Zoning Bylaw No.0265 Floodplain Regulation Section 3.28.2 (a) ii. Flood Construction Level from 343.66 m to 343.56 m for the underside of the floor system.

Requirements in Relation to Floodplain

a) The foundation of the structures shall not be modified from the placement outlined in Schedule B & C; and
b) No mechanical equipment or damageable material are to be located within the crawlspace at any point of time.

Conditions of Issuance

a) An indemnity covenant registered on title in conformance with the Land Title Act Section 219 is required as a condition for permit issuance;

4. The land described herein shall be developed strictly in accordance with the terms and conditions of this Permit and any plans and specifications attached to this Permit, which shall form a part hereof. Should any changes be required to this permit, please ensure that you obtain written approval from City of West Kelowna prior to making any changes.

5. If this Floodplain Exemption Permit has not been issued within one year from approval, Floodplain Exemption Permit, shall be deemed to have been refused and the file will be closed.

6. **This Permit is not a Building Permit.**

7. **This Permit is not a Highways Permit.**

8. **This Permit is not an Archaeology Permit.**

   A: All archaeological sites in B.C. are protected under the Heritage Conservation Act. This applies to whether sites are located on public or private land and whether the site is known or unknown. If you think you have uncovered an archaeological site during a building project or renovation, please do not disturb the site further and call B.C.'s Archaeology Branch immediately at (250) 953-3334. Branch archaeologists will review your project plans and make recommendations to manage site impacts and secure the required permitting.

9. Subject to the terms of the permit, where the holder of a permit issued under the *Local Government Act* does not substantially commence any construction with respect to which the permit was issued within one year after the date it is issued, the permit lapses.

AUTHORIZING RESOLUTION (NO. CXX/24) PASSED BY THE MUNICIPAL COUNCIL ON August 27, 2024.

Signed on _____

_____
Corporate Officer

I hereby confirm that I have read and concur with the conditions of Development Permit FEX 24-01 and will ensure that copies of FEX 24-01 will be provided to onsite personnel at time of construction.

Signed on _____

_____
Property Owner or Agent

ISSUED on _____

Schedules:

Schedule A: Flood Hazard Assessment prepared by Water's Edge Engineering Ltd., dated March 16th, 2023, with Addendum dated August 13, 2024.
Schedule B: Development Plans prepared by Howe Sound Home Designs; construction addendum dated October 26, 2023.
Schedule C: Site Plans with Grades and Elevations prepared by Summit Land Surveying Ltd., dated November 28, 2023.

Schedule A

WATERS EDGE ENGINEERING LTD.

May 30, 2024

Rev. 1
WEEL FILE #: 3018

Debra Gahler c/o Jordan Creamore
Natural Factors Group of Nutrition Companies Inc.
1550 United Boulevard
Coquitlam, BC, V3K 6Y2

Sent Via Email: jcreamore@factorsgroup.com

Attention: Ms. Debra Gahler

Subject: Flood Hazard Assessment and Risk Analysis – Crawlspace at 2479 Whitworth Road, West Kelowna, BC (Reference City of West Kelowna Building Permit #PRBD20210298)

1.0 INTRODUCTION

Waters Edge Engineering Ltd. (Waters Edge) was retained by Natural Factors Group of Nutrition Companies Inc. (Natural Factors) on behalf of Debra Gahler (the owner) to complete a Flood Hazard Assessment exclusively for the recently added crawlspace and equipment forming part of the residence addition at 2479 Whitworth Road (subject property), located within the City of West Kelowna, BC, in the Gellatly area. The site location is shown in Figure 1 and the site plan is attached. The subject property is legally described as: PLAN 8345, LOT 10, DISTRICT LOT 487, OSOYOOS DIV OF YALE DISTRICT (PID: 009-833-846).

The subject property is approximately 0.23 ha and is bounded by Whitworth Road to the north, Okanagan Lake to the south, and existing residential properties to the east and west. The subject property sits within the historical alluvial fan of Powers Creek.

Figure 1 – Location Plan of 2479 Whitworth Road

A Flood Hazard Assessment report was requested by the City of West Kelowna to retroactively support a Development Permit Application (current Building Permit number is PRBD20210298) and support a Flood Exemption Permit application. The City of West Kelowna Zoning Bylaw No. 0265 (Section 3.28) provides Floodplain Regulations and triggers for the Flood Hazard Assessment are as follows:

- The underside of floor system will have a minimum elevation of 343.66 m.
    - Any constructed space below this elevation will not house goods susceptible to damage by floodwaters.
- The dwelling must be setback from the natural boundary of Okanagan Lake a minimum of 15 m.

Note, all elevations are meters above sea level, based in the CGVD28 Datum.

The main triggers for the Flood Hazard Assessment are the proximity of the property to Okanagan Lake, coupled with the low-lying nature of the surrounding area. An additional trigger was the expansion of the existing crawlspace as part of the ongoing renovations to the property. The property is also within the mapped alluvial fan of Powers Creek. The above-listed triggers require a Flood Hazard Assessment be conducted for the property per City of West Kelowna Zoning Bylaw No. 0265. This assessment is provided as a requirement of a Floodplain Exemption Permit application.

A variance to the horizontal setback is not requested for the following reasons. The restrictive covenant on file for the subject property defines the horizontal setback requirement to be “25 feet from the Original High Water Mark of Lake Okanagan, as shown on Plan 8345”. This high water mark is shown on the attached site plan, and the dwelling is in conformance with the restrictive covenant. The proposed works on site do not encroach towards the lake further than the existing condition and remain in conformance with the restrictive covenant. The high water mark in Plan 8345 is inland of the surveyed natural boundary from the 2008 survey (site plan attached). Bylaw No. 0265 defines the setback from “natural boundary”, this is a subjective evaluation performed on site by the surveyor, and may vary from assessment to assessment. Thus, the original high water mark, and restrictive covenant will be used and no variance is requested to horizontal setback.

1.1 BACKGROUND

The subject property is situated along the west shore of Okanagan Lake, on the Powers Creek alluvial fan. This area is low lying and is at risk of flooding from both Powers Creek and Okanagan Lake. The original house was constructed in approximately 1969 with a below-ground crawlspace. The pre-existing crawlspace lies below the Flood Construction Level (FCL) of Okanagan Lake (343.66 m) at an elevation of +/-342.7 m.

The current owner purchased the property in 2008 and obtained a Development Permit to add an addition to the house. At the time of permit issue, the addition was proposed to be slab on grade. Building plans were revised by the owner after the development permit was issued, to include a crawlspace under the addition to match the crawlspace under the original part of the residence. This change was not reflected on the original building permit.

The current owner has since completed the construction of the proposed addition to the house, including the additional crawlspace. The underside of the habitable floor structure is sited at 343.56 m and utility equipment has been installed in the crawlspace, which includes two heat recovery ventilator (HRV) units,

and two coil fans with associated wiring. This is in violation of Zoning Bylaw No. 0265, which states that the underside of the habitable floor structure must be above the FCL, and that the crawlspace located below the FCL must not house goods damageable by floodwaters. Since the equipment in the crawlspace is understood to be exclusively for cooling the home in the summer, it is understood that the house would remain habitable if the equipment was out of service.

1.2 OBJECTIVES AND SCOPE OF WORK

The objective of the FHA is to evaluate flood hazard conditions associated with the current Building Permit application associated with the subject property, and to identify the risks associated with a variance to the bylaw requirements.

Waters Edge conducted a field investigation and completed engineering calculations to determine the local flood risks specific to only the added crawl space, excluding all other property risks. This scope of work included the following:

- On site assessment or field investigation;
- Evaluation of flood risk from Lake Okanagan;
- Evaluation of flood risk from Powers Creek; and,
- Provide a statement of risk and liability.

2.0 FIELD INVESTIGATION

A site visit was conducted on January 30, 2024 by Joe Vandenberg, P.Eng., of Waters Edge Engineering Ltd. Following are the observations gathered from the site investigation.

2.1 SUBJECT PROPERTY CHARACTERISTICS

The subject property is a 0.23 ha lakefront residential lot, with a foundation and below-ground crawlspace for a single-family residence. At the time of the site visit, the subject property was an active construction site without final grading or landscaping. No final grading design has been provided for the property. A large rock pit was constructed in the north-east quadrant of the property to manage storm runoff from the north side of the property. Lawn drains and perimeter drains are connected to the rock pit.

The remainder of the property drains south towards Okanagan Lake. There is a 25 m long, 0.60m high retaining wall at the interface with Okanagan Lake, and another 19.5 m long, 1.0 m high retaining wall perpendicular to the lake along the east property line. It should be noted that the 25 m long retaining wall along the lake lies outside the title boundary, and that the top of the rock wall is at an elevation of 343.34 m. The retaining wall was constructed prior to the engagement of Water Edge, thus, Water Edge provides no comment on the wall.

2.2 POWERS CREEK WATERSHED CHARACTERISTICS

The subject property is within the distal part of the Powers Creek alluvial fan. The Powers Creek watershed has an area of 145.5 km^2 and contains a large portion of the Glenrosa and Gellatly neighbourhoods, with natural, forested headwaters. It is a large watershed that flows through a bedrock canyon before reaching the large alluvial fan; constructed over a period of thousands of years.

At the top of the alluvial fan, high freshet flows on Powers Creek have overtopped the banks in the past, most recently in 2016, 2017 and 2018. During these times, bank erosion threatened the stability of Gellatly Road (RDCO 2016). In response to the flooding in 2017, the City of West Kelowna constructed emergency erosion protection along Gellatly Road at Glen Canyon Regional Park to mitigate further flooding risk. Photos of the Powers Creek erosion protection are shown below in Figure 2. Photos of the 2017 and 2018 flood condition are shown in Figure 3 and Figure 4.

Figure 2 - Powers Creek Flood Protection along Right Bank at Glen Canyon Regional Park along Gellatly Road. Photos taken Jan 30, 2024.
Looking downstream (left photo) and upstream (right photo)

Figure 3 - Powers Creek emergency erosion protection at Glen Canyon Regional Park during 2017 flood event. Photo: GlobalNews.ca

Figure 4 - Powers Creek flood condition during 2018 flood event at Glen Canyon Regional Park. Photo: Dave Ogilvie, Castanet.net

The subject property is over 500 m straight line distance from the potential avulsion site at the fan apex at Glen Canyon Regional Park. The subject property is located at the distal end of the fan and is separated by cultivated fields and roads with associated drainage ditches.

2.3 OKANAGAN LAKEFRONT CHARACTERISTICS

The subject property is adjacent to Okanagan Lake and is situated below the FCL. Since this assessment is specifically relating to the crawlspace and does not apply to any other aspect of the property, only an overview of the lakefront characteristics is provided. Lakefront conditions at the subject property were documented during the site visit at seasonal low lake levels. At the time of the site visit, the lake elevation was 341.596 m; determined from the Okanagan Lake at Kelowna Water Survey of Canada Station (ID 08NM083).

Since the site is on the fan of Powers Creek, the lakefront beach substrates are derived from historic alluvial deposits or from sediments that have moved along the lakeshore. While Powers Creek is a significant source of sediment for Okanagan Lake, the outlet of the creek now lies on the far north side of the alluvial fan, over a kilometer north of the site. Therefore, no significant sources for sediment nourishment are observed near the site meaning erosive conditions are possible. Lakebed substrate along the shoreline fronting the property consists primarily of rounded cobbles ranging from 5 mm to 200 mm in diameter with coarse sand and gravels in the upper beach area near the wall.

The coarse rock is indicative of a high energy wave environment, which corresponds with exposure suggested by the greater than 10 km fetch distances over the lake. The site has considerable exposure to waves from both the SW and the ENE directions as evidenced by the fetch distances displayed in Figure 5. The largest wind-generated waves are incident at an acute angle to the shoreline from both directions; therefore, longshore sediment transport is anticipated in both directions and will vary depending on the storm and water level conditions. Sediments at the base of the lakeshore retaining wall are assumed to be mobile implying there is risk of undermining or failure of the wall. No mature vegetation was observed along the shoreline; woody vegetation would assist in stabilization.

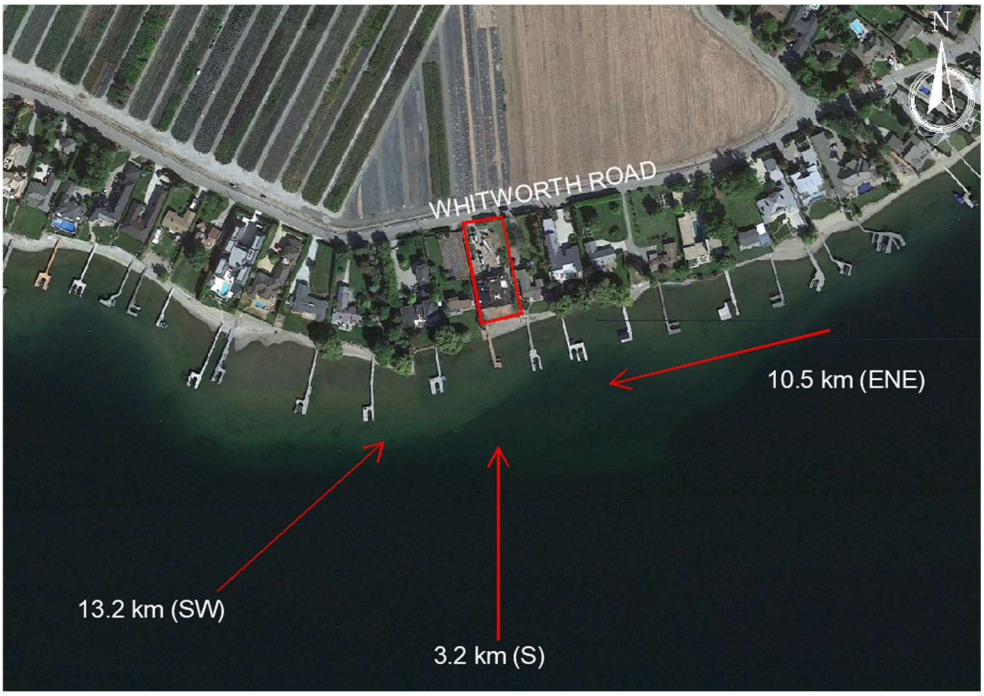


Figure 5 – Applicable Fetch Distances

Figure 6 - Lakefront Conditions at Subject Property

The shallow nearshore shelf fronting the subject property extends approximately 40 m into the lake as approximated from aerial photos. This shallow shelf offers some protection from incident waves by reducing the amount of wave energy reaching the property as waves undergo depth-limited nearshore transformations or breaking. This condition is dependant on lake elevation and will offer greater attenuation during low water periods and less attenuation during flood events. Accurately quantifying the impact of this shelf on incident wave energy will require additional assessment.

A retaining wall 25 m long, 0.60 m high, consisting of a ~0.10 m high poured concrete footing topped with stacked rock, separates the property yard area from the lake along its entire width as shown in Figure 5. The top elevation of the retaining wall is 343.34 m and the precise dimensions of the footing are unknown. There is evidence of scouring (erosion) at the base of the wall; the sediments likely mobilize seasonally with wave action and water level. Should scouring continue, the wall is at risk of failure. The age of the footing is unknown, and it is unknown if the structural integrity of the wall has been compromised in the past.

The low elevation of the wall and the property fronting the building results in the property being susceptible to damages during a flood event. Lakeside property loss and structural damages are often caused by the dynamic forces of wave events on the high water levels, such as impact damage by floating debris carried by waves or walls undermined and pulled offshore during wave overtopping as shown in the example photos from the 2017 Okanagan Lake flood in Figure 7. Note that the photos in Figure 7 are not of the subject property. The property is further at-risk of these damages along the sides where the neighbouring properties are lower elevation, enabling wave exposure to the side retaining walls.

While the crawlspace equipment is not anticipated to be at risk of direct wave impact, the property owner is advised of these risks to the outside of their property and structures.

Figure 7 – Okanagan Lake 2017 Flood Damage Examples (Debris Impact and Wall Failure)

3.0 FLOOD RISK ANALYSIS

We recognize that, overall, the subject property lies below the FCL of Okanagan Lake. The following analysis addresses the flood risk associated with the crawlspace within the recent addition to the pre-existing house. Flood risks associated with other elements situated on the subject property are outside the scope of this project.

3.1 FLOOD RISK FROM POWERS CREEK

The risk of flooding from Powers Creek was evaluated through the field investigation and from a review of existing floodplain analyses (RDCO, 2016) (Associated Engineering, 2022)[1]. The Regional Floodplain Management Plan: Phase 1, (RFMP) provided by the Regional District of Central Okanagan (RDCO, 2016) contains overview-level information pertaining to Powers Creek flood risk. Following this, a more detailed flood mitigation plan that provides inundation modeling of the design flood was completed by Associated Engineering on behalf of the City of West Kelowna (2022).

As reported by Associated Engineering, at the modeled 200-yr flow plus climate change condition, Powers Creek overtops the channel and inundates parts of the alluvial fan. The most hazardous areas are in and near the main channel. Overland flow across the fan away from the main channel is shallow (<0.5 m depth) and/or slow moving, which is less hazardous. A portion of overland flow appears to be directed toward Whitworth Road, with some detention at the road itself. Flows overtop the road towards three properties on the lakeside of the road (including the subject property) and is likely dictated by topographic elevation. There are no mapped storm drain culverts along Whitworth Road (CWK GIS). Based on site observations, the property and home are raised by fill and are considered to be situated above this potential inundation.

Given the distance (>500 m) and potential for minor variations in topography along this distance, the potential for damageable inundation to the subject property is considered relatively low. It is judged that incidental flood flows from Powers Creek, should they reach the subject property, are managed with current site grading. Thus, the overall flood risk to the subject property from Powers Creek is assessed as being "very low".

3.2 FLOOD RISK FROM OKANAGAN LAKE IN THE CRAWLSPACE AREA

The risk of flooding from Okanagan Lake was evaluated through the field investigation, a review of surveyed site plan drawings, previous reporting and available floodplain mapping. As seen in the attached survey, the entire subject property is below the FCL, and the underside of the constructed floor system is 343.56 m, also below the FCL. The owner has also installed utility equipment in the crawlspace. This includes coil fans, air handling units and associated ductwork. This section focuses on the flood risks in the crawlspace and therefore assumes that wave effects are not applicable, other than set-up which would impact groundwater.

Recent reporting from the Okanagan Basin Water Board (OBWB/NHC 2020) assessed the predicted flood levels on Okanagan Lake and accounts for climate change. At the property location, the OBWB/NHC 2020 flood mapping recommends increasing the flood construction level to 344.3 m at the road-side of the property and 347.3m at the building facing the shoreline to account for wave effects. This is due to updated modelling, and the incorporation of wind, wave, and climate change data in the elevation recommendation. At these updated levels, the entire property and building would be at risk.

This update to the flood construction level has not yet been adopted in the City of West Kelowna's Bylaws. However, this recommendation provides guidance on how the flood levels are predicted to increase, which has a direct impact on the risk assessment as it speaks to the potential impacts of climate change and increases to risk of higher, more frequent flood elevations on Okanagan Lake. These findings ultimately

[1] The most recent reporting from Associated Engineering is not publicly available.

increase the potential flood risk to the subject property. There is additional uncertainty in future lake elevations due to the lake elevation management at the Okanagan Lake Dam. Any changes to dam operating procedure may impact the property.

The following list and Figure 8 (which is clipped from the attached Site Plan) provides key development-related elevation data points relative to the Flood Construction Level of Okanagan Lake. The full cross section of the property is attached.

- Top of Floor Elevation: 343.82 m (0.16 m above FCL)
- Underside of floor system elevation: 343.56 m (0.10 m below FCL)
- Bottom of crawlspace elevation: ~342.7 m (0.96 m below FCL)
- Flood elevations:
    - Flood Construction Level: 343.66 m (red horizontal line)
    - Still Water Mid-century Design Event (2017 Level, Approx. 200-yr): 343.26 m (blue horizontal line), wave effects and freeboard are above this level.
    - Still Water Mid-century 20-year Flood level: 342.67m, wave effects and freeboard are above this level.
    - High Target (Full Pool) Lake Level: 342.48 m (pink horizontal line)

Note the crawlspace floor is coincident with the Mid-Century 20-year flood level for Okanagan Lake.

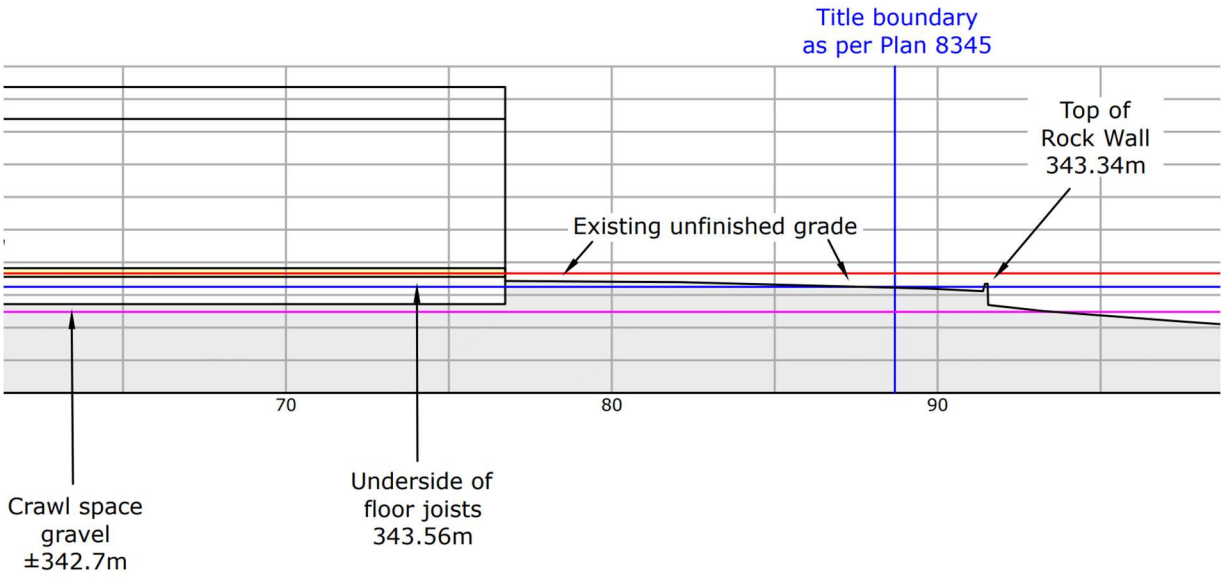


Figure 8 – Flood Elevations at the Subject Property – From "Plan Showing Grades and Elevations for Lot 10" by Summit Land Surveying

The elevation of the top of retaining wall along the lake is approximately 343.34 m which is approximately 0.08 m higher than the mid-century design event, equal to the 2017 observed flood condition on Okanagan Lake. While this will mitigate some flood risk from a still water condition, the property remains at risk from dynamic wave effects such as setup, run up, and overtopping. Risk from wave effects is compounded should

waves carry debris onto the property. This debris may impact and damage structures. Additional analysis is required to accurately quantify this risk as this is out of scope for this assessment.

Because the house is already constructed, measures to raise the floor system are not practical. Measures to reduce the flood risk to the utility equipment located in the crawl space have been adopted by the owner and include two sump pumps and a hard-wired generator in case of a power outage. A seepage triggered electrical shutoff to all wiring and mechanical equipment below FCL is required as described in Section 4.0.

3.3 FLOOD RISK FROM GROUNDWATER COMPOUNDING

A high groundwater condition coincident with a flood condition on Okanagan Lake will present additional risk of elevated water levels or seepage into the crawlspace. This scenario may arise if a long duration precipitation event or if a period of elevated discharge from Powers Creek occurs at the same time as a flood event on Okanagan Lake. These risks would be greatest during the freshet period, when rainfall events are common, Powers Creek is at high flow, and when Okanagan Lake could be in a flood condition; the groundwater elevation will be influenced by all these factors. It is also noted that an elevated groundwater condition may be higher than the still water flood level on the lake, which is pertinent to the flood risk to the crawlspace. A comprehensive groundwater analysis has not been performed and is required to accurately quantify these conditions.

3.4 COMBINED FLOOD RISK ANALYSIS

EGBC has published guidelines on assessing the combined risks, including loss of life and economic loss. The Professional Practice Guidelines for Legislated Flood Assessments in a Changing Climate in BC (EGBC, 2018) include direction on how to evaluate the risks. Attached is the risk evaluation matrix adapted for this study specifically at the recently added crawlspace at the north side of the house, away from the lake. The combined likelihood of a damaging flood event with the consequences of the event are used to evaluate an overall flood risk rating. The following ratings are used to evaluate risk:

Likelihood of a Damaging Flood Event = Likely:

- Flooding of the crawlspace is "likely". Inundation of the crawlspace is likely to occur every 10 to 20 years on average. The floor of the crawlspace is at the predicted 20-year lake flood level, and there are other compounding factors described above.
- Flooding of the residence is "unlikely". Inundation of the residence addition is estimated to be ~200 years on average based on the elevation of underside of the floor joists and the northside location.

Consequence of a Damaging Flood Event = Minor/Moderate:

- Safety (injury/loss of life) is "Negligible". The likelihood for injury or loss of life is rated negligible because the crawlspace is not occupied. However, this rating assumes there are no live electrical wires in this area at the time of flooding.
- Economic (monetary loss) is estimated to be <$100,000, which is considered "Moderate". The full extent of loss varies depending on the severity of the flood event and extent of damage. This includes restoring or replacing equipment following a flood, as well as all associated labour and drying efforts.
- Social and Cultural Impact is "Negligible". There is no transfer of flood risk to adjacent properties. Only the persons occupying the property are impacted.

- Intangibles (personal suffering) is estimated to be "Moderate" to "Major". Impacts associated with a flood condition could last for an extended period of time, considering restoration. Restoration and recovery may take months depending on the severity of the flood event.
- Ecological (flora and fauna) impact is "Minor" as it is understood that there will be no chemicals or environmentally-damaging products within the crawlspace. The impact consequences are governed by the persistence of flood waters, and the ability to leach out of the crawlspace.

The overall flood risk to the equipment in the recently added crawlspace is determined to be **Moderate/High** and the overall flood risk to the habitable portion of the residence above this part of the crawlspace is estimated to be **Low** (see attached matrix). This is due to the expected frequency of the potentially damaging flood events and the location being on the north side of the property, away from wave effects. The potential impacts of a damaging flood event are minor for most indices but are moderate to major with respect to economic loss and/or personal hardship. Assuming the residence can still be occupied and used if the crawlspace is inundated, the personal hardship consequence index is anticipated to be lower. Because the equipment located within the crawlspace is understood to be only for cooling and ventilation and is not considered critical infrastructure for a habitable dwelling.

4.0 DISCUSSION AND RECOMMENDATIONS

The purpose of the flood hazard assessment is to evaluate the flood risk to the components making up the Building Permit application, including the residential addition and associated crawlspace, and to communicate this risk to the property owner. The flood hazard assessment forms part of a Floodplain Exemption Permit application to the City of West Kelowna.

As demonstrated in the report, the subject property, as a whole, is at high risk of damageable flooding from Okanagan Lake and very low risk of damageable flooding from Powers Creek. The recent OBWB/NHC 2020 study predicts higher flood levels on the lake, and presents predicted wave effects, which are in excess of the predicted still water flood levels; these levels place the entire property and building at risk, but the study has not yet been adopted by the City of West Kelowna.

The evaluated flood risk to the crawlspace is rated moderate to high and the flood risk to the habitable portion of the addition is rated low.

Prior to Waters Edge's engagement with the owner, construction of the addition had already commenced. Construction activities also included but were not limited to demolition, renovation, and addition to the existing home, establishing servicing connections, interim grading and filling, renovation of the existing retaining wall, and construction of a rock pit drainage system. Waters Edge did not provide any engineering input or otherwise on these constructed items. Waters Edge acknowledges the existence and installation of these items but can not comment on the design or implementation methods.

Notwithstanding, Waters Edge recommends that the retaining wall along the lakefront be periodically inspected to monitor for evidence of scouring, and the risk of undermining the retaining wall footing. This is at the discretion of the homeowner.

Options to fully mitigate flood risk on the subject property are limited, given the proximity and relative elevation to the lake and the neighbouring properties. Thus, Waters Edge recommends the following efforts

to partially mitigate the risk of damages due to inundation from a still-water Okanagan Lake and Powers Creek flood condition:

- that finished site grading direct runoff away from the residence.
- that water-proofing the foundation and crawlspace be considered under professional guidance.
- that water sensors be placed within the crawlspace to detect seepage and automatically shutoff the power to the all wiring below the FCL and the mechanical equipment, and that a sump pump system be installed with backup power with automated operation capabilities.
- that the homeowner consider flood mitigation measures to reduce the risk of flooding and mitigation of damages along the lake side of the subject property. Flood mitigation measures are recommended to protect the pre-existing dwelling (not the addition being considered for this assessment) from external flood and wave impacts.

Waters Edge states that the crawlspace and residential addition may be used safely for the use intended with the following risks and conditions:

- The property, as a whole, is at risk of flooding from Okanagan Lake and may sustain damage from elevated lake levels or wave action or groundwater seepage.
- In the event of a flood, it is likely that flood waters will enter into the crawlspace.
- The mechanical equipment (cooling and ventilating fans) in the crawlspace is at risk of flood damage and would require cleaning or replacement in the event of inundation.
- An automatic water sensor and alarm that will shut off all electrical lines within the crawlspace below FCL is required. This is critical to mitigate risk of electrocution. All electrical utilities not connected to the shutoff are to be rated to be submerged.
- All electrical wiring within the crawlspace is to be installed as high as possible to limit exposure to flood water. Any wiring installed below the FCL and not controlled by the automatic water sensor shut off should be rated to be submerged.
- No other equipment other than that which is described in this assessment shall be housed in the crawlspace.
- No storage of damageable or deleterious goods or substances is permitted in the crawlspace.

The property is in compliance with the original restrictive covenant pertaining to the horizontal setback distance from Okanagan Lake.

In its current state, the constructed residential addition on the subject property is not in conformance with the City of West Kelowna floodplain regulations. It is understood that the owner is willing to accept risk of flood damage to 2479 Whitworth Road, its structures and occupants, without providing additional flood mitigation, and is willing to absolve the City of West Kelowna and Waters Edge of any responsibility or liability.

Because the proposed addition cannot be considered in isolation to the property as a whole, and because the property as a whole is considered to be at risk from flooding, Waters Edge is unable to provide a Flood Assurance Statement.

5.0 CLOSURE

As with any natural system, the estimates presented in this report attempt to quantify something that is difficult to put values on and the specific numbers presented must be read with an understanding of a large margin of error that is inherent in these types of works.

It is noted that construction activities have been conducted on the subject property prior to this assessment. These activities include foundation, grading, rock pit and retaining wall construction. This assessment has not evaluated the impact of these activities to the overall flood risk at the subject property. **Waters Edge has not provided, and does not provide any comment on the groundwater, foundation, lot grading, rock pit, and retaining walls on site.**

This document has been prepared for Debra Gahler in support of their development at 2479 Whitworth Road. It is intended for the exclusive use of both Debra Gahler and the City of West Kelowna in their pursuit to obtain a Floodplain Exemption Permit and may not be relied upon by any other party or for any other aspect of this project or another project. Waters Edge provides opinions in this document based on the historical information available and provided by others and provides no warranty on this information. Climate change may impact the estimated return period events of storms and water levels as well as sediment trends. All project guidance, estimations and correspondence are bound by the terms in the Services Agreement.

5.1 QUALITY ASSURANCE STATEMENT

The Qualified Professionals (QP) have performed the evaluation of the area proposed for development or to be subject to a bylaw:

- With due consideration of any applicable legislation, and
- With due consideration of the "Flood Hazard Area Use Management Guidelines", and
- With due consideration of the "Professional Practice Guidelines: Legislated Flood Assessments in a Changing Climate in BC", and that
- The QPs have the qualifications to carry out the flood hazard assessment.

Waters Edge Engineering trusts this meets your present requirements. If you require additional information, please do not hesitate to contact us.

Sincerely,
Waters Edge Engineering Ltd.
Permit to Practice #1000939

2024-05-30

Joe Vandenberg, P.Eng.
Civil Engineer
Joe@WatersEdgeLTD.ca
(778) 760-3833

Reviewed By:

Jennifer Clarke, M.Sc., P.Geo.
Geomorphologist
Clarke Geoscience Ltd.
jen@clarkegeoscience.com

Enclosed:

Site Plan and Cross Section
Photo Summary from Site Visit
Risk Matrix

References:

Associated Engineering (2022) Flood Mapping Project – Flood Inundation Assessment and Mapping & Flood Risk Assessment and Mitigation Plan. Prepared for the City of West Kelowna. July 2023.

City of West Kelowna (2022). Zoning Bylaw No. 0265, August 2022

Engineers and Geoscientists of British Columbia (2018). Professional Practice Guidelines: Legislated Flood Assessments in a Changing Climate in BC. August 28, 2018

Okanagan Basin Water Board (2020). Okanagan Mainstem Floodplain Mapping Project, Final Report, Prepared by Northwest Hydraulic Consultants Ltd. (NHC), March 2020.

Regional District of Central Okanagan (2016). Regional Floodplain Management Plan: Phase 1, Prepared by Associated Environmental, June 2016.

RISK MATRIX EVALUATION FOR THE ADDITION AND CRAWLSPACE

			RISK EVALUATION AND RESPONSE					
			VH	Very High	Risk is unacceptable short-term (before next flood season); Risk reduction required; long-term Risk reduction plan must be developed and implemented			
			H	High	Risk is unacceptable; medium-term Risk reduction plan must be developed and implemented in a reasonable (<5 years) time frame; planning should begin as soon as feasible			
LIKELIHOOD DESCRIPTIONS Likelihood of Undesirable Outcome			**M**	Moderate	Risk may be tolerable; more detailed review required; reduce Risk to low where reasonably practicable			
			L	Low	Risk is tolerable; continue to monitor if resources allow			
LIKELIHOOD DESCRIPTIONS		**PROBABILITY RANGE**	**VL**	Very Low	Risk is broadly acceptable; no further review or Risk reduction required			
Scenario can be expected on average every other year	Very Likely	0.5 – 0.2	M	H	H	VH	VH	VH
Scenario typically occurs on average every 10 years	Likely	0.2 – 0.07	L	M	H	H	VH	VH
Scenario typically occurs on average every 50 years	Moderate	0.07 – 0.02	L	L	M	H	H	VH
Scenario occurs on average every 100 years	Unlikely	0.02 – 0.007	VL	L	L	M	H	H
Scenario occurs on average every 200 years	Very Unlikely	0.007 – 0.004	VL	VL	L	L	M	H
Scenario occurs on average every 500 years	Extremely Unlikely	0.004 – 0.0013	VL	VL	VL	L	L	M
CONSEQUENCE DESCRIPTIONS	**INDICES**		**1**	**2**	**3**	**4**	**5**	**6**
			Negligible	**Minor**	**Moderate**	**Major**	**Severe**	**Catastrophic**
	SAFETY (INJURY/LOSS OF LIFE)		Minor injuries of few individuals	Major injury of 1 person	Major injury of several persons	Single fatality	<10 fatalities	>10 fatalities
	ECONOMIC (MONETARY LOSSES)		Negligible; no business interruption; <$1,000	Some asset loss; <$10,000 damages	Serious asset loss; several days business interruption; <$100,000	Major asset loss; several weeks business interruption; <$1 million	Severe asset loss; several months business interruption; <$10 million	Total loss of asset; 1 year or more business interruption; >$10 million
	SOCIAL AND CULTURAL		Negligible impact	Slight impact; recoverable within days	Moderate impact; recoverable within weeks	Recoverable within months	Long-term (years) loss of social and cultural values	Complete loss of significant social and cultural values
	INTANGIBLES (PERSONAL SUFFERING)		Negligible impact	Slight impact; recoverable within days	Moderate impact; recoverable within weeks	Personal hardship; usually recoverable within months	Leaves significant personal hardship for years	Irreparable personal hardship
	ECOLOGICAL (FLORA AND FAUNA)		Negligible impact	Slight impact; recoverable within days	Moderate impact; recoverable within weeks	Recoverable within months	Severe species loss	Irreparable species loss

Crawlspace

Dwelling

unacceptable

tolerable

acceptable

Figure E - 4: Example Risk matrix to determine the relative level of Flood Risk for Proposed Developments.

SURVEY AND SITE PLAN

PLAN SHOWING GRADES AND ELEVATIONS FOR LOT 10, DISTRICT LOT 487, ODYD, PLAN 8345

0 5 15 25 m

Scale 1:250

The intended plot size of this plan is 432mm in width by 559mm in height (C-size) when plotted at a scale of 1:250.

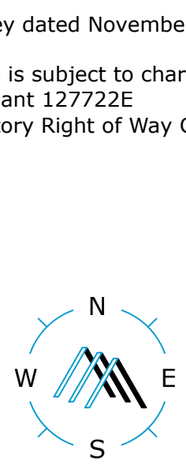
Address: 2479 Whitworth Road, West Kelowna, BC
PID: 009-833-846

NOTE: Lot dimensions and area shown may vary upon completion of a comprehensive legal survey.

Field survey dated November 27, 2023.

The parcel is subject to charges on title:

- Covenant 127722E
- Statutory Right of Way CB648417, CB648418



Summit Land Surveying
Operated by Fusion Land Surveying Ltd.
1-2413 Main Street, West Kelowna, BC
250.768.0215 - summitsurveying.ca
File: 21182-HT Date: November 28, 2023

VERTICAL PROFILE OF LOT 10, DISTRICT LOT 487, ODYD, PLAN 8345

0 5 15 25 m

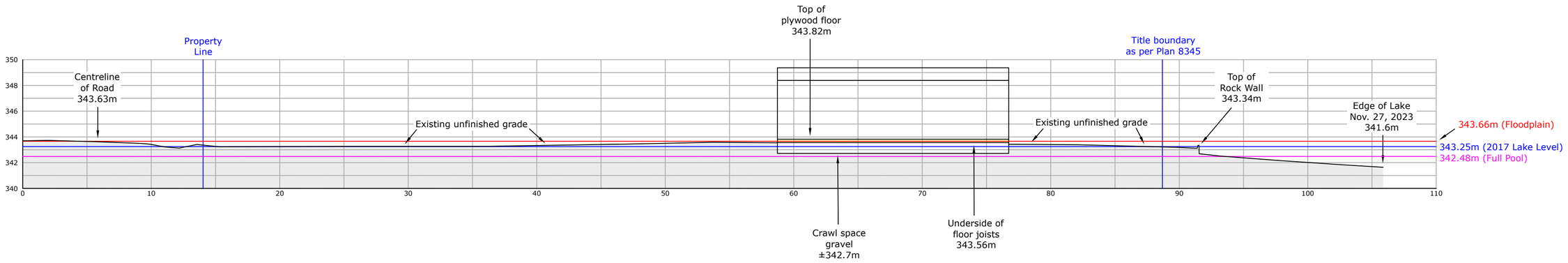
Scale 1:250

The intended plot size of this plan is 559mm in width by 432mm in height (C-size) when plotted at a scale of 1:250.

Address: 2479 Whitworth Road, West Kelowna, BC
PID: 009-833-846

Field survey dated November 27, 2023.

VERTICAL PROFILE



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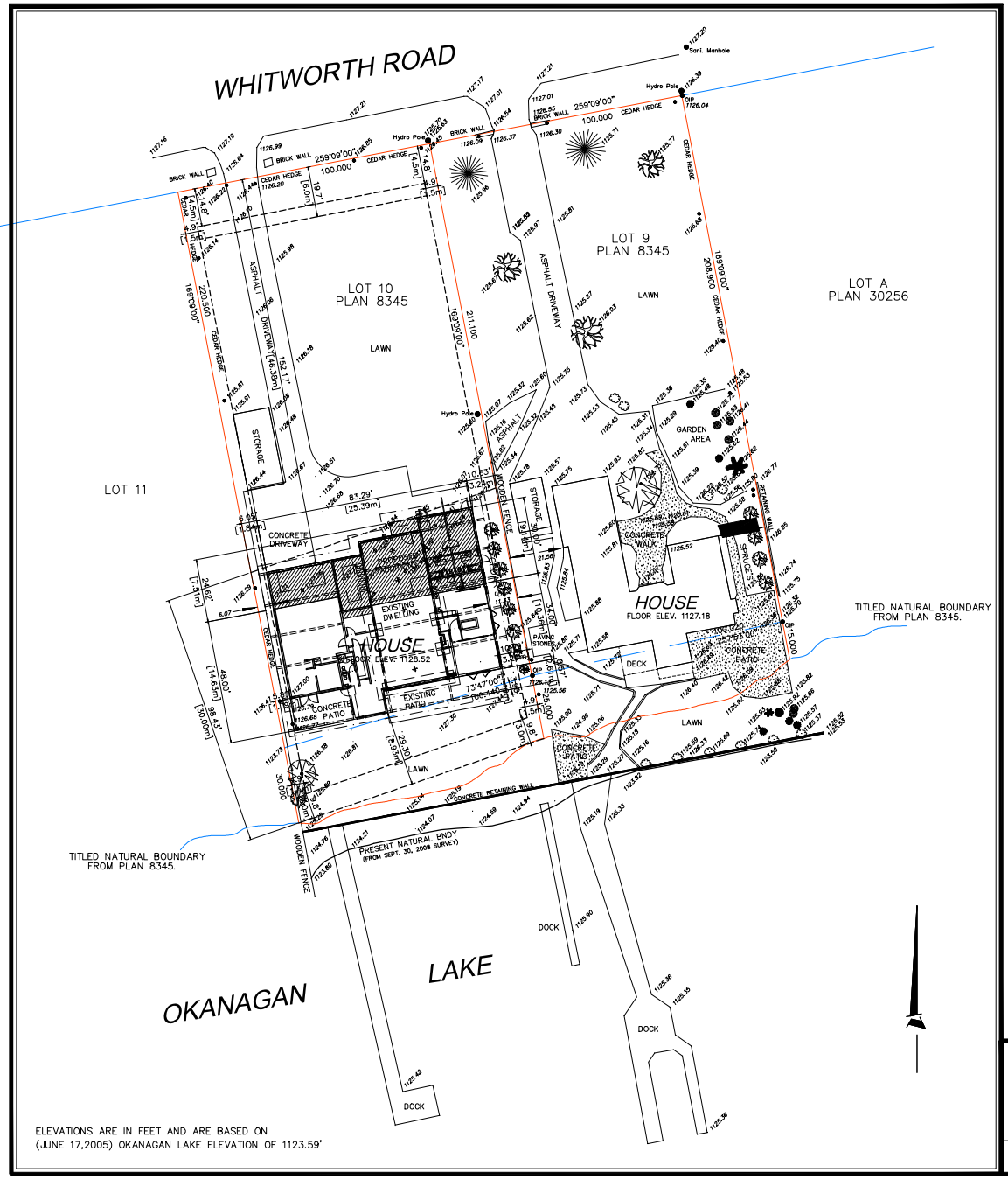
1-2413 Main Street, West Kelowna, BC
250.768.0215 - summitsurveying.ca
File: 21182-HT Date: November 28, 2023

SITE PLAN OF LOTS 9 AND 10, PLAN 8345, DISTRICT LOT 487, O.D.Y.D.



SITE PLAN

SCALE: 1" = 20'-0"

LEGAL DESCRIPTION:

LOT:	9 & 10
DISTRICT LOTS:	487
PLAN:	8345
LTO PID:	005-636-221

BYLAW INFORMATION

ZONE:	RI
SITE AREA:	24655.88 sq.ft.
MAX. SITE COVERAGE (40%):	9862.36 sq.ft.
SITE COVERAGE SHOWN:	9246.72 sq.ft.
FLOOR AREA SHOWN:	3893.28 sq.ft.
GARAGE AREA SHOWN:	891.28 sq.ft.
TOTAL GROUND FLOOR SHOWN:	4836.84 sq.ft.
LOT DEPTH:	243.25 ft.
LOT WIDTH:	100.00 ft.
MIN. FRONT YARD:	14.80 ft.
FRONT YARD SHOWN:	14.73 ft.
MIN. FRONT YARD GARAGE SETBACK:	19.70 ft.
FRONT YARD GARAGE SETBACK SHOWN:	156.68 ft.
MIN. REAR YARD:	9.80 ft.
REAR YARD SHOWN:	29.30 ft.
MIN. INTERIOR SIDEYARD:	4.90 ft.
INTERIOR SIDEYARD SHOWN:	9.89 ft.
MAX. EAVE HEIGHT:	29.50 ft.
LOWEST GRADE:	126.24 ft.
MIN. SLAB ELEVATION:	127.59 ft.
CONCRETE SLAB ELEVATION SHOWN:	128.52 ft.
MAX. EAVE ELEVATION:	156.74 ft.
EAVE ELEVATION SHOWN:	154.89 ft.
EAVE HEIGHT SHOWN:	28.61 ft.
MAX. BUILDING HEIGHT:	29.50 ft.
RIDGE HEIGHT ELEVATION SHOWN:	148.74 ft.
BUILDING HEIGHT SHOWN:	21.54 ft.

DRAWN BY: RUNNALLS DENBY
british columbia land surveyors
#2-1470 Water Street
Kelowna, B.C. V1Y 1J5
Phone: (250)763-7322
Fax: (250)763-4413
Email: neil@runnallsdenby.com

CLIENT: ROLAND GAHLER

SCALE: 1" : 20'
DATE: OCT. 3rd, 2008
DWG: 11738 SITE 2 IMPERIAL
FILE No: 11738
REV. 0

howe sound home designs
RESIDENTIAL DESIGN SERVICES.
CUSTOM HOME DESIGNS.
3014 EDGEMONT BOULEVARD, NORTH VANCOUVER, B.C. V7R 2N4
CEL: (604) 657-6463 EMAIL: evdeerden@shawbiz.ca

REFERENCE DRAWINGS:

no.	description
DI	CONSTRUCTION DETAILS
SI	SITE PLAN IN METRIC
SFI	STEEL FRAME DRAWING

REVISIONS:

no.	date	description
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6	AUG. 10/21	RE-ISSUED FOR CONSTRUCTION
7	AUG. 24/21	RE-ISSUED FOR CONSTRUCTION
8	SEPT. 08/21	REVISED FOR CONSTRUCTION CORRECTION
9	SEPT. 20/21	STEEL FRAME DRAWING REVISED
10	OCT. 21/21	BEDROOMS & HEADER HEIGHTS
11	DEC. 08/21	TRANSOMS, EN SUITE, CANOPY
12	JAN. 05/22	ROOF ASSEMBLY, LAM. BEAMS
13	MAR. 25/22	GRADE FOR ASSEMBLY, LAM. BEAMS
14	NOV. 27/25	CONSTRUCTION ADDENDUM, NO STRUCTURAL CHANGES, PRE-ISSUED SECURITY SHUTTERS

PROJECT:
PROPOSED RENOVATION
2479 WHITWORTH ROAD
WEST KELOWNA, B.C.

SHEET TITLE:
SITE PLAN

CHECKED BY:	ERIC
DRAWN BY:	ERIC
DATE:	AUG. 02, 2010
SCALE:	1" = 20'-0"
PROJECT NO:	2019
DRAWING NO:	1 of 6

PHOTO LOG

Photo 1: Powers Creek – looking upstream at Glen Canyon Regional Park

Photo 2: Powers Creek – looking downstream at Glen Canyon Regional Park.

Photo 3: Powers Creek – looking upstream at Glen Canyon Regional Park.

Photo 4: Looking north from the dock

Photo 5: looking south

Photo 6: looking north along east side of dwelling

Photo 7: looking north along retaining wall

Photo 8: Looking south along retaining wall

Photo 9: looking west along north side of dwelling

Photo 10: looking south at dwelling and rock pit (black HDPE Pipe in foreground)

Photo 11: Looking north at rock pit location

Photo 12: looking east along Whitworth road

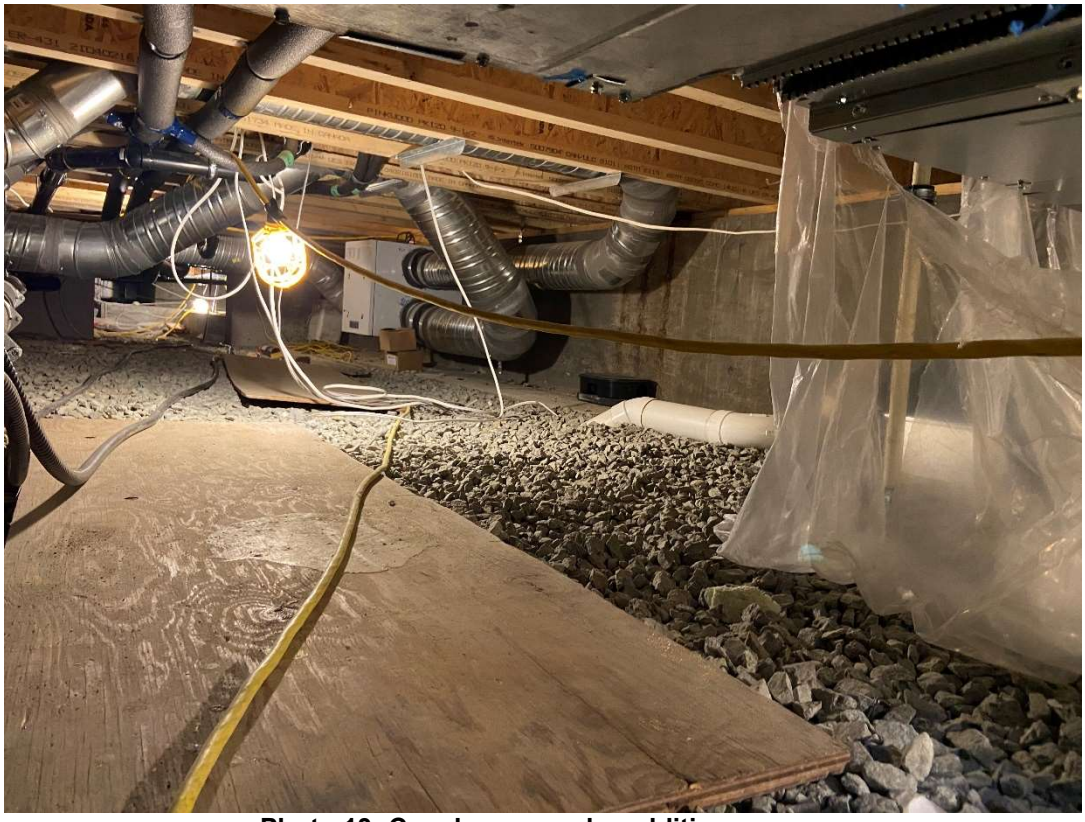


Photo 13: Crawlspace under addition

Photo 14: Looking east along retaining wall at lakefront

Photo 15: PVC pipe from lawn drain under retaining wall

Photo 16: minor scouring under at lakefront retaining wall

WATERS EDGE ENGINEERING LTD.

August 13, 2024

Rev. 0
WEEL FILE #: 3018

Debra Gahler c/o Jordan Creamore
Natural Factors Group of Nutrition Companies Inc.
1550 United Boulevard
Coquitlam, BC, V3K 6Y2

Sent Via Email: jcreamore@factorsgroup.com

Attention: Ms. Debra Gahler

Subject: ADDENDUM - Flood Hazard Assessment and Risk Analysis – 2479 Whitworth Road, West Kelowna, BC

At your request we provide the following Addendum to the Flood Hazard Assessment and Risk Analysis report for 2479 Whitworth Road, West Kelowna, BC, dated May 30, 2024. This Addendum should be read in context with the original report.

The subject property is legally described as: PLAN 8345, LOT 10, DISTRICT LOT 487, OSOYOOS DIV OF YALE DISTRICT (PID: 009-833-846).

It is understood that City of West Kelowna will not support the mechanical equipment located within the residential crawlspace due to flood risk. Thus, this equipment will be removed.

The underside of the residential flood system, however, remains at 353.56 m, which is 0.1 m below the regulated Flood Construction Elevation of 343.66 m[1]. This will remain part of the current Flood Exemption Permit application.

As noted in the original report, the still water mid-century design event (2017 Level, Approx. 200-yr) reported in the updated floodplain modeling (OBWB 2020) is 343.26 m. This level, which does not include wave effects or freeboard, is below the underside of the residential floor system and has not been adopted by the City of West Kelowna.

With removal of the mechanical equipment, some of the original recommendations to at least partially mitigate the risk of inundation from a still-water flood condition remain. These include:

- that finished site grading direct runoff away from the residence; and,
- that no mechanical equipment, nor good damageable by flood waters be located within the crawlspace.

On the basis of the current bylaw, the minor (0.1 m) variance in flood construction elevation to accommodate the underside of the floor system will not significantly increase flood risk to the subject property. Thus, the subject property is considered “safe for intended use”.

[1] City of West Kelowna Zoning Bylaw No. 0265 (Section 3.28) Note, all elevations are meters above sea level, based in the CGVD28 Datum.

CLOSURE

As with any natural system, the estimates presented in this report attempt to quantify something that is difficult to put values on and the specific numbers presented must be read with an understanding of a large margin of error that is inherent in these types of works.

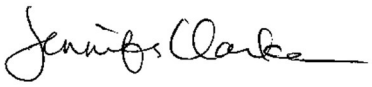
It is noted that construction activities have been conducted on the subject property prior to this assessment. These activities include foundation, grading, rock pit and retaining wall construction. This assessment has not evaluated the impact of these activities to the overall flood risk at the subject property. Waters Edge has not provided, and does not provide any comment on the foundation, lot grading, rock pit, and retaining walls on site.

This document has been prepared for Debra Gahler in support of their development at 2479 Whitworth Road. It is intended for the exclusive of both Debra Gahler and the City of West Kelowna in their pursuit to obtain a Floodplain Exemption Permit and may not be relied upon by any other party or for any other project. Waters Edge provides opinions in this document based on the historical information available and provided by others and provides no warranty on this information. Climate change may impact the estimated return period events of storms and water levels as well as sediment trends. All project guidance, estimations and correspondence are bound by the terms in the Services Agreement

Waters Edge Engineering trusts this meets your present requirements. If you require additional information, please do not hesitate to contact us.

Sincerely,
Waters Edge Engineering Ltd.
Permit to Practice #1000939

Reviewed By:



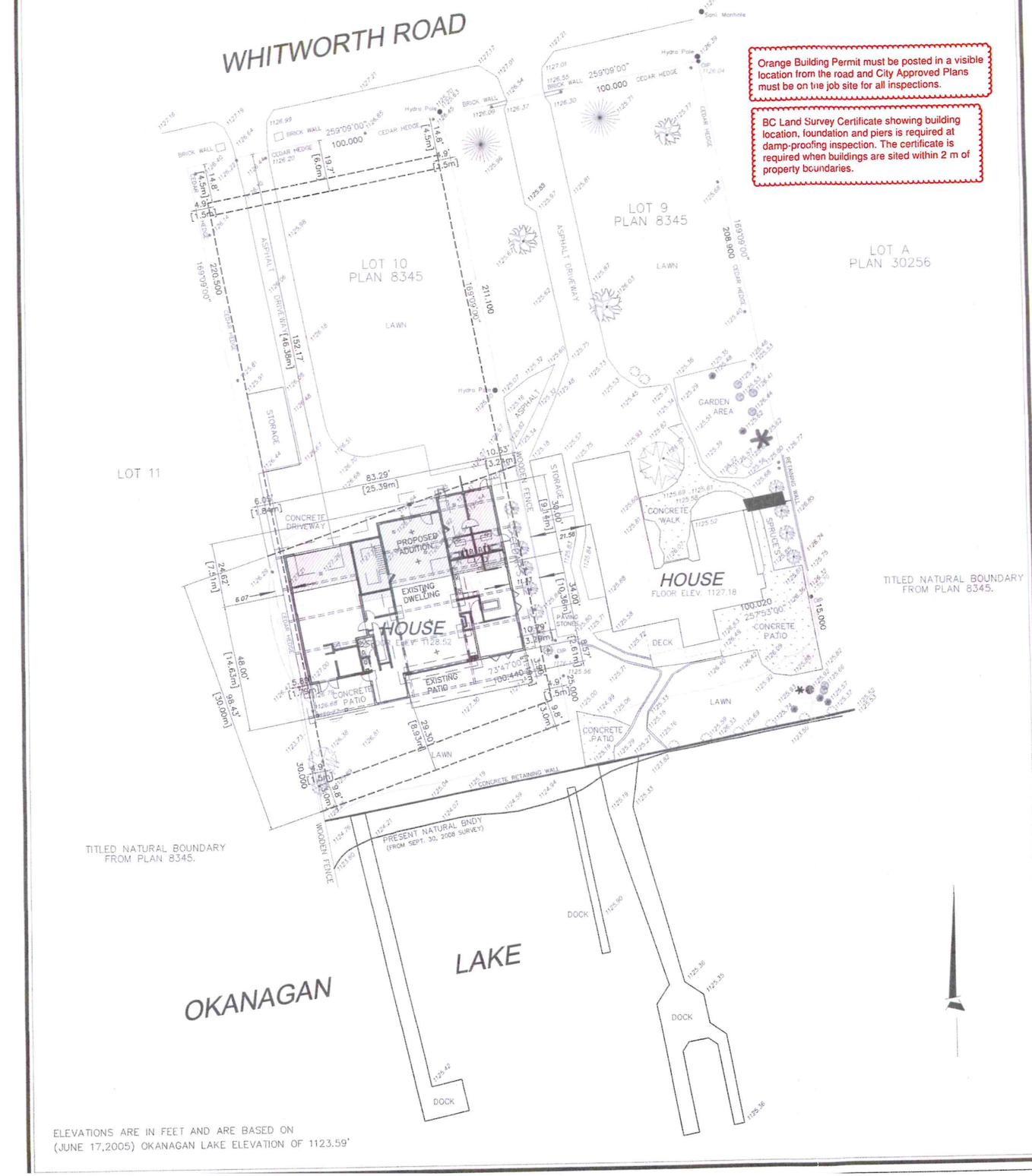
Joe Vandenberg, P.Eng.
Civil Engineer
Joe@WatersEdgeLTD.ca
(778) 760-3833

Jennifer Clarke, M.Sc., P.Geo.
Geomorphologist
Clarke Geoscience Ltd.
jen@clarkegeoscience.com

References:

Okanagan Basin Water Board (2020). Okanagan Mainstem Floodplain Mapping Project, Final Report, Prepared by Northwest Hydraulic Consultants Ltd. (NHC), March 2020.

Schedule B



Orange Building Permit must be posted in a visible location from the road and City Approved Plans must be on the job site for all inspections.

BC Land Survey Certificate showing building location, foundation and piers is required at damp-proofing inspection. The certificate is required when buildings are sited within 2 m of property boundaries.

SITE PLAN OF LOTS 9 AND 10, PLAN 8345, DISTRICT LOT 487, O.D.Y.D.

As per Zoning Bylaw Section 3.28 Floodplain Regulations:

3.28 FLOODPLAIN REGULATIONS

.1 Floodplain Designation:

(a) The following land is designated as a floodplain:

i. Land lower than 343.66 m (1.127 ft) ASL Geodetic Survey of Canada (CGVD28); and
ii. Land lower than 1.5 m (4.9 ft) above the natural boundary of any stream.

.2 Flood Construction Levels:

(a) The underside of any floor system, and top of any pad supporting any space or room that is used for dwelling purposes, business, or the storage of goods which are susceptible to damage by floodwater, shall meet the following flood construction levels:

i. 343.66 m (1,127.5 ft) ASL above Geodetic Survey of Canada datum (CGVD28) ; and
ii. 1.5 m (4.9 ft) above the natural boundary of any stream.

.3 Exemptions from Flood Construction Levels:

(a) Section 3.28.2 shall not apply to the following uses, with the exception that all main electrical switchgear shall be installed no lower than the specified flood construction level:

i. The portion of a building or structure used exclusively as a carport, garage or entrance foyer;
ii. Agricultural buildings excluding dwelling units and buildings for the keeping of animals; and
iii. On-loading and off-loading facilities associated with water-oriented industry and with portable sawmills and shakermills.

.4 Minimum Siting Distances:

(a) Any landfill or structural support required to elevate a floor system or pad to achieve the flood construction levels specified in Section 3.28.2 shall be sited at least:

i. 15.0 m (49.2 ft) from the natural boundary of Okanagan Lake;
ii. 7.5 m (24.6 ft) from the natural boundary of a lake, swamp or pond;
iii. 15.0 m (49.2 ft) from the natural boundary of any stream; and
iv. 7.5 m (24.6 ft) from any structure providing flood protection or seepage control.

SITE PLAN

SCALE: 1" = 20'-0"

LEGAL DESCRIPTION:

LOT:	9 & 10
DISTRICT LOTS:	487
PLAN:	8345
LTO PID:	005-636-221

BYLAW INFORMATION

	RI
ZONE:	
SITE AREA:	24855.85 sq.ft.
MAX. SITE COVERAGE (40%):	9862.36 sq.ft.
SITE COVERAGE SHOWN:	5246.72 sq.ft.
FLOOR AREA SHOWN:	3818.28 sq.ft.
GARAGE AREA SHOWN:	1017.26 sq.ft.
TOTAL GROUND FLOOR SHOWN:	4836.54 sq.ft.
LOT DEPTH:	243.25 ft.
LOT WIDTH:	100.00 ft.
MIN. FRONT YARD:	14.80 ft.
FRONT YARD SHOWN:	141.73 ft.
MIN. FRONT YARD GARAGE SETBACK:	19.70 ft.
FRONT YARD GARAGE SETBACK SHOWN:	156.68 ft.
MIN. REAR YARD:	9.80 ft.
REAR YARD SHOWN:	29.30 ft.
MIN. INTERIOR SIDEYARD:	4.90 ft.
INTERIOR SIDEYARD SHOWN:	5.89 ft.
MAX. EAVE HEIGHT:	29.50 ft.
LOWEST GRADE:	1126.24 ft.
MIN. SLAB ELEVATION:	1127.50 ft.
CONCRETE SLAB ELEVATION SHOWN:	1128.52 ft.
MAX. EAVE ELEVATION:	1155.74 ft.
EAVE ELEVATION SHOWN:	1144.85 ft.
EAVE HEIGHT SHOWN:	18.61 ft.
MAX. BUILDING HEIGHT:	29.50 ft.
RIDGE HEIGHT ELEVATION SHOWN:	1148.74 ft.
BUILDING HEIGHT SHOWN:	21.54 ft.

CITY OF WEST KELOWNA BUILDING DEPARTMENT
BP #: 2021-0298 A
REVIEWER: Jackson Naish
DATE: Nov 17/23

DRAWN BY: RUNNALLS DENBY
british columbia land surveyors
#2-1470 Water Street, Kelowna, B.C. V1Y 1J5
Phone: (250)763-7322 Fax: (250)763-4413
Email: neil@runnallsdenby.com

CLIENT: ROLAND GAHLER

SCALE: 1" : 20'
DATE: OCT. 3rd, 2008
DWG: 11738 SITE 2 IMPERIAL
FILE No: 11738 REV: 0

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RESIDENTIAL DESIGN SERVICES.
CUSTOM HOME DESIGNS.
3014 EDGEMONT BOULEVARD, NORTH VANCOUVER, B.C. V7R 2N4
CEL: (604) 657-6463 EMAIL: evdeerderi@shawbiz.ca

REFERENCE DRAWINGS:

no.	description
DI	CONSTRUCTION DETAILS
SI	SITE PLAN IN METRIC
SFI	STEEL FRAME DRAWING

REVISIONS:

no.	date	description
5	APR. 22/21	RE-ISSUED FOR BUILDING PERMIT
6	AUG. 10/21	RE-ISSUED FOR CONSTRUCTION
7	AUG. 24/21	RE-ISSUED FOR CONSTRUCTION
8	SEPT. 08/21	ISSUED FOR CONSTRUCTION CLARIFICATION
9	SEPT. 20/21	STEEL FRAME DRAWING NOTES
10	OCT. 21/21	BEDROOMS & THEATER HEIGHTS
11	DEC. 08/21	TRANSOMS, EN SUITE, CANOPY
12	JAN. 05/22	ROOF ASSEMBLY, CANT. BEAMS
13	MAR. 28/23	GARAGE ROOF ASSEMBLY, CANT. BEAMS
14	OCT. 26/23	CONSTRUCTION ADDENDUM

PROJECT:
PROPOSED RENOVATION
2479 WHITWORTH ROAD
WEST KELOWNA, B.C.

SHEET TITLE:
SITE PLAN

CHECKED BY: ERIC
DRAWN BY: ERIC
DATE: AUG 03, 2010
SCALE: 1" = 20'-0"
PROJECT NO: 2019
DRAWING NO: 1 of 6

Minimum Footing Depth of 600mm (24") is required for frost protection.
- To the underside of the footing.
(As per Building Bylaw 0086)

The sub-floor depressurization system rough-in shall include:

a) a gas-permeable layer installed in the space between the air barrier system and the ground to allow the depressurization of that space,
b) a 4" radon vent pipe that has one or more inlets that allow for the effective depressurization of the gas-permeable layer,
i) terminates outside the building in a manner that does not constitute a hazard, and
ii) is clearly labeled "RADON VENT PIPE".

Foundation drainage is required as per code. Section 9.14.2.1 & damp-proofing per Section 9.13.2

See Structural Engineer Drawings for footing / foundation design

FOUNDATION PLAN

SITE COVERAGE AREA: 5246.72 sq.ft.

CITY OF WEST KELOWNA BUILDING DEPARTMENT
BP #: 2021-0298 A
REVIEWER: Jackson Naish
DATE: Nov 17/23

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S1	SITE PLAN IN METRIC
SM	STEEL FRAME DRAWING

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PROJECT:
PROPOSED RENOVATION
2479 WHITWORTH ROAD
WEST KELOWNA, B.C.

SHEET TITLE:
FOUNDATION PLAN

CHECKED BY:	ERIC
DRAWN BY:	ERIC
DATE:	AUG 02, 2020
SCALE:	1/4" = 1'-0"
PROJECT NO:	2019
DRAWING NO:	2 of 6

All plumbing works to be tested and inspected on site.
- DWV air test must be 5 psi & maintained for at least 15 min without a drop in pressure.
- Water Distribution air test must be 100 psi & maintained for at least 2 hours without a drop in pressure.

Each bedroom or combination bedroom shall have at least one outside window or exterior door openable from the inside without the use of keys, tools or special knowledge and without the removal of sashes or hardware.
- The window shall provide an unobstructed opening of not less than 0.35 m2 in area with no dimension less than 380 mm (15") and;
- maintain the required opening during an emergency without the need for additional support.

Any relief valve must be protected by a floor drain as per BC Plumbing Code 2.6.1.7 (5)(B)

Range hood fan must vent directly outside and be non-combustible material

Doors between an attached garage and a dwelling unit are required to be tight fitted, self-closing & weather stripped.

Access Door

GROUND FLOOR PLAN

FLOOR AREA: 3898.28 sq.ft.
GARAGE AREA: 1017.26 sq.ft.
TOTAL AREA: 4836.54 sq.ft.

CITY OF WEST KELOWNA
BUILDING DEPARTMENT
BP #: 2021-0298 A
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home designs
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PROJECT:
PROPOSED RENOVATION
2479 WHITWORTH ROAD
WEST KELOWNA, B.C.

SHEET TITLE:
GROUND FLOOR PLAN

CHECKED BY:	ERIC
DRAWN BY:	ERIC
DATE:	AUG 02, 2020
SCALE:	1/4" = 1'-0"
PROJECT NO:	2019
DRAWING NO:	3 of 6

GENERAL NOTES:

CHECK ALL DIMENSIONS AND NOTES. NOTIFY THE DESIGNER OF ANY DISCREPANCIES BEFORE WORK COMMENCES. ALL MATERIAL AND WORKMANSHIP TO MEET THE REQUIREMENTS OF THE CURRENT ISSUE OF THE B.C.B.C. THE BUILDING DEPARTMENT MAY REQUIRE A REG'D P. ENGINEER'S DRAWINGS

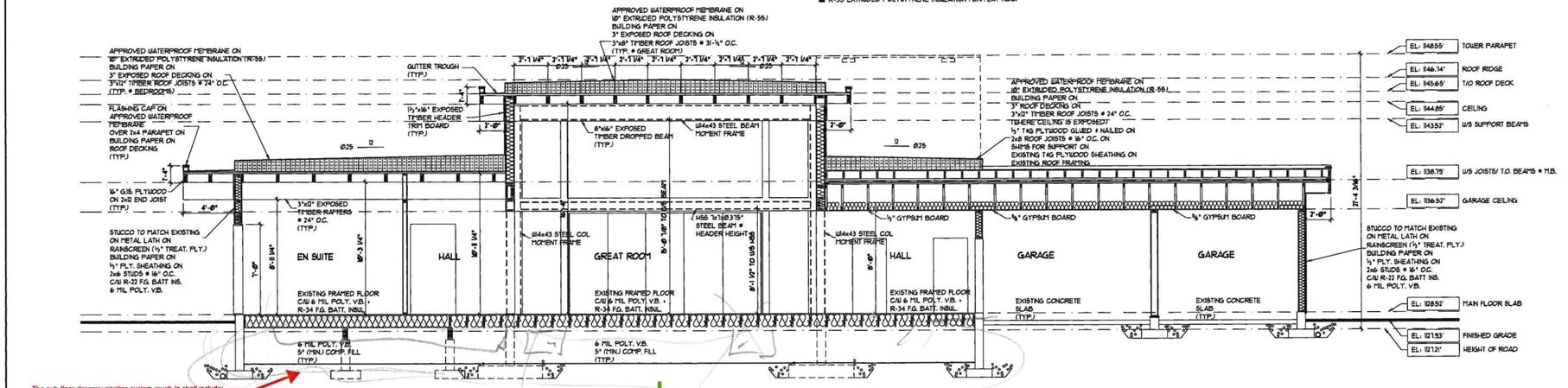
EXCAVATION: 9.12 FOUNDATIONS SHALL EXTEND TO UNDISTURBED SOIL
WATERPROOFING: 9.13 APPLY 2 CTS. OF ASPH. EMUL. TO EXT. FACE OF CONC. WALLS
DRAINAGE: 9.14 CLEAN DRAIN ROCK OVER 100mm DRAIN TILE
FOOTINGS AND FOUNDATIONS: 9.15 ALL CONC. TO BE 25 MPa AT 28 DAYS
PROVIDE P.ENG. DESIGN WHERE SOIL BEARING IS LESS THAN 75 KPa OR UNUSUAL COND. EXIST. COVERAGE MUST EQUAL MAX. FROST DEPTH.
STRIP FOOTINGS: 9.15.3 MIN. 450x200mm
COLUMN FOOTINGS: 9.15.3.6 MIN. 650x650x225mm
WALLS: 9.15.4 (THICKNESS SEE PLAN) MIN. 225mm ABOVE F.G.
WALLS EXCEEDING TABLE 9.15.4.A TO BE DESIGNED BY P.ENG.
PROVIDE 13mm DIA. A.B. @ 2.4M O.C.
PIERS: MIN. 200x200mm CONC. 50mm ABOVE F.G.
PROVIDE AN APPROVED ANCHOR TO RESIST UPLIFT.
SLABS: 9.16
CRAWLSPACE: 40mm CONC. ON Ø.15mm POLY. OVER MIN. 150mm GRAVEL
VEHICLE PARKING: 90mm CONC. C/U REINF. (SLOPE 1%) ON MIN. 130mm COMP. GRAVEL
BASEMENT: 90mm CONC. C/U REINF. ON Ø.15mm POLY. + MIN. 130mm COMP. GRAVEL
REINFORCING: ALL STRUCTURAL CONC. REINF. (WHERE REQ'D) SHALL BE DESIGNED BY P. ENG. GROUND SLAB REINF. TO BE MIN. 6x6x10/10 WWM. OR 10M BARS @ 600mm O.C.E/W
DAMPPROOFING: 9.13.5-6 / 9.23.2.3
INTERIOR CLADDING: Ø.15mm POLY.
PLATES: TYPE 'S' ROLL ROOFING OR Ø.15mm POLY.
CRAWL SPACES: 9.18 MIN. 450mm CLR. TO U/S OF BEAMS + JSTS., WITH MIN. 600x600mm TO ALL MECH. EQ. + C.O.'S, + A 500x1200mm ACCESS HATCH.

MASONRY:
FOUNDATIONS: 9.15 TO BE DESIGNED BY P. ENG C/U REINF.
VENEER: 9.20 MASONRY WALLS C/U WEEP HOLES TO BE ATTACHED TO FRAMING WITH #7x200mm CORR. RES. STRAPS @ 5 PER TABLE 9.20.5.A
FIREPLACES + CHIMNEYS: 9.21 / 9.22 MIN. HEARTH OF 400mm (FRONT), 200mm (E/S) OF OPENING. PROVIDE 100mm DUCT FOR COMB. AIR
MANUFACTURED FIREPLACES: ULC 5610
WOOD BURNING: 100mm DUCT, HEARTH ON 13mm WONDER BOARD OR EQUIVALENT
GAS: TO MEET PROVINCIAL GAS INSPECTORS APPROVAL
MECHANICAL:
PLUMBING: 9.31 DESIGNED TO B.C.B.C. DRAWINGS BY OTHERS (IF REQ'D.)
VENTILATION: 9.32
FRESH AIR MAKEUP: NAT. VENT SEE TABLE 9.32.2.A
MECH. VENT. TO PROVIDE 1/2 AIR EXCH. PER HOUR. DESIGN TO BE PROVIDED BY P. ENG. WHERE REQUIRED
CRAWL SPACE: X-VENTED TO EXTERIOR, OR BASEMENT: 1/500 OF FLOOR AREA
ATTIC: X-VENTED TO EXTERIOR: 1/300 OF CEILING AREA
ENCLOSED JOIST SPACES: FLAT ROOF, ROOF DECKS + VAULTED CEILINGS: X-VENTED 1/150 OF CEILING AREA MIN. 50mm AIR FLOW E/U BY STRAPPING T.O. JSTS. WITH 2x4 + KEEPING A 25mm SPACE BETWEEN INSUL. AND TOP OF JSTS.
HEATING: 9.33 DESIGNED TO B.C.B.C. DRAWINGS BY OTHERS (IF REQ'D.)
ELECTRICAL: 9.34 SEE ELEC. LAYOUT. SMOKE ALARM TO SUBSECTION 9.10.18
FRAMING AND INSULATION: 9.23 / 9.25
STR. LUMBER SPEC.: ALL MATERIAL SIZES AND SPANS ARE BASED ON D/F UNLESS SHOWN OTHERWISE. (ASSUMED 3.0 KPa GROUND SNOW LOAD + 0.3 KPa RAIN LOAD + 4.8 KPa FLOOR LOAD)
JOISTS- D/F #2, STUDS- D/F CONST. + STD. SUBSTITUTE GRADES OR SPECIES MUST SATISFY THE B.C.B.C. TABLES A-1 THRU A-11, HEADERS 9.23.12 ARE 2-2x10'S MAX. U.D.L. ONE FLR. + ROOF OR 3-2x10'S MAX. U.D.L. TWO FLOORS + ROOF, UNLESS SPECIFIED OTHERWISE. K.D. OR MANUF. HEADERS RECOMMENDED. MANUF. TO PROVIDE P. ENG. DRAWINGS FOR TRUSSES, JOISTS, BEAMS + BRACING. ROOF + FLOOR JOISTS TO HAVE X- BRACING @ 2.1M O.C. TEMP. + PERMANENT BRACING + FASTENERS TO MEET THE B.C.B.C. + BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR. PLATE HEIGHTS CALCULATED ASSUMING 150mm BIRDS MOUTH FOR RAFTERS + ROOF JOISTS, C/U TRUSS CANTILEVER AS SHOWN ON SECTION DRAWINGS. PROVIDE FRAMING CLEARANCES:
TO FIREPLACES- 100mm INSIDE - 50mm OUTSIDE
TO CHIMNEYS- 50mm INSIDE - 25mm OUTSIDE

EXTERIOR WALLS: 9.23.16 R-22 INSUL. C/U Ø.15mm POLY.
☐ 1½" CULTURE STONE VENEER, C/U STUCCO LATH, B.P. ON 13mm PLY. SHEATHING
☐ HORIZONTAL SIDING ON 12mm TREATED PLY. STRIPS, B.P. ON 13mm PLY. SHEATHING
☐ VINYL OR METAL SIDING, B.P. ON 13mm PLY. SHEATHING
■ STUCCO, C/U STUCCO LATH, B.P. ON 13mm PLY.
INTERIOR WALLS:
■ 12mm DRYWALL OR FIN. AS SHOWN
☐ 16mm DRYWALL OR FIN. AS SHOWN
☐ R-14 F.G. BATT INSUL., 6 MIL POLY. V.B. AT PERIMETER CONC. FOUNDATIONS
FLOORS: 9.23.14 WATER RESISTANT FLOORING REQUIRED IN ENTRY, SERVICE + BATHROOM AREAS. R-28 INSULATION C/U Ø.15mm POLY. OVER UNHEATED SPACES
☐ CARPET C/U UNDERLAY
☐ RUBBER BACKED CARPET
■ CERAMIC/ STONE TILE ON 19mm GROUT
☐ 38mm TOPPING FOR W/I RAD. HEAT
☐ 19mm T+G PLYWOOD SHEATHING
☐ 16mm T+G PLYWOOD SHEATHING
☐ SHEET VINYL
☐ VINYL / ASPHALT TILE
■ HARDWOOD FLOORING
■ 100mm CONCRETE SLAB C/U R-12 INSULATION
DECKS: PROVIDE OVERFLOW DRAINS FOR ENCLOSED DECKS
☐ TREATED CEDAR DECKING TO MATCH EXISTING
☐ W/P DECKING ON 19mm T+G GI5 PLY (SLOPE 1%)
☐ W/P DECKING ON 19mm T+G GI5 PLY (SLOPE 2%), R-35 INSUL.
CEILINGS: PROVIDE MIN. R-50 INSUL., C/U Ø.15mm POLY.
■ 12mm DRYWALL TO U/S OF JOISTS @ 16" O.C.
■ 16mm DRYWALL TO U/S OF ROOF TRUSSES @ 24" O.C.
ROOFS: 9.23.15 / 9.26
☐ 450mm CEDAR SHAKES C/U 150mm EXP. + B.P. BETWEEN
☐ 450mm CEDAR SHINGLES C/U 140mm EXP.
■ 5" ROOF DECKING- EXPOSED TO THE INTERIOR
☐ STANDING SEAM METAL ON B.P. APPLY TO MANUF. SPEC.
☐ DURODI COMPOSITE SHINGLES, APPLY TO MANUF. SPECS.
☐ 4 PLY HOT MOPPED TAR + GRAVEL - CLASS 'A'
■ APPROVED TORCH ON SHEET ROOFING
■ 12mm PLYWOOD SHEATHING
☐ 25mm PLYWOOD SHEATHING
☐ 2x4 STRAPPING (SPACING AS REQUIRED)
■ R-55 EXTRUDED POLYSTYRENE INSULATION FOR FLAT ROOF

MILLWORK AND GLAZING:
DOORS: 9.6 FOR SAFETY AND SECURITY SEE SECT. 9.6 DOORS BETWEEN GARAGES AND DWELLINGS TO BE SELF CLOSING C/W WEATHER STRIPPING
WINDOWS: 9.7 FLASH ALL OPENINGS GREATER 1/4 OF THE OVERHANG DISTANCE BELOW COVERAGE. MIN. GLAZING TO CONFORM TO 9.7.1 MIN. GLASS SIZE TO CONFORM TO 9.29.4.A. SAFETY GLASS REQUIRED WITHIN 1500mm OF DOORS, IN GUARD RAILS, IN ENCLOSED TUBS OR SHOWERS OR WHERE OPENING CAN BE MISTAKEN FOR A DOOR OPENING
STAIRS: 9.3.1.5 / 9.8 SEE SECTION DRAWINGS FOR STAIR SPECS.
GUARDRAILS: 9.8.8 NO HORIZ. MEMBER FACILITATING FOOT OR HAND HOLD BETWEEN 100 + 1500mm ON INSIDE FACE OF GUARDRAIL. NO OPENING GREATER THAN 100mm
INSIDE GUARDS TO BE MIN. 900mm IN HEIGHT
EXTERIOR GUARDS TO BE MIN. 1070mm IN HEIGHT

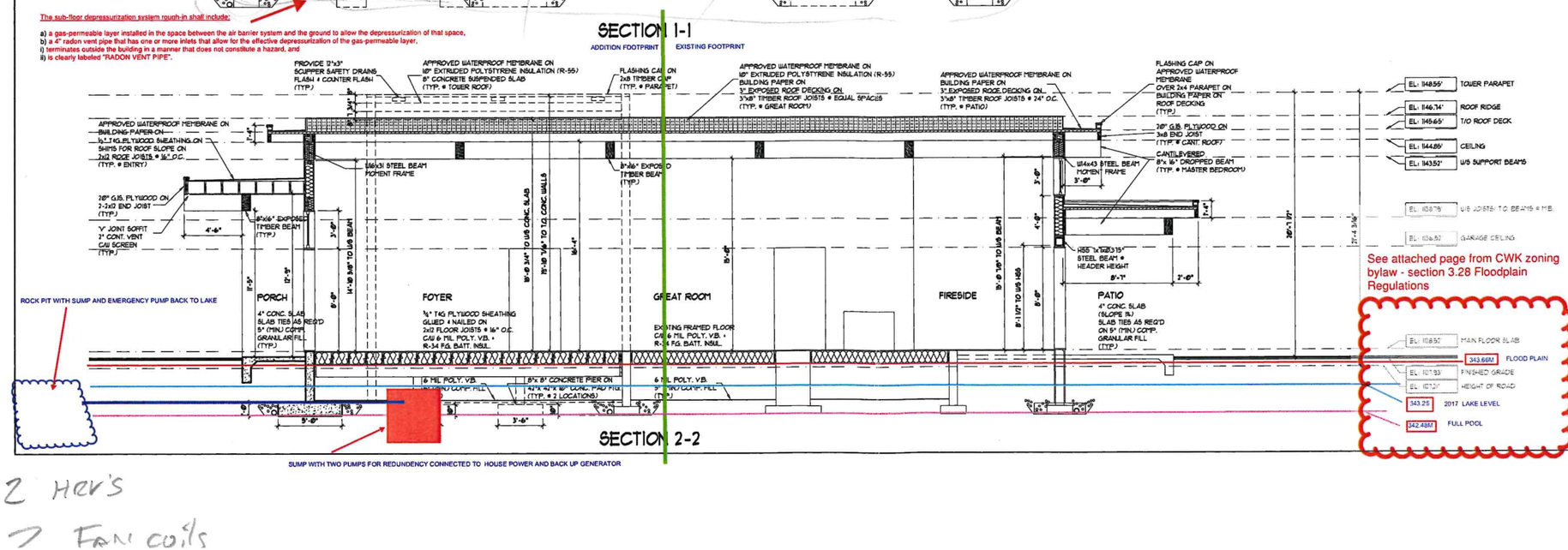
WALL LEGEND:
- 2x4 STUDS @ 400mm O.C.
- 2x6 STUDS @ 400mm O.C.
- 2x8 STUDS @ 600mm O.C.
- 2x8 STUDS @ 400mm O.C.
- EXISTING STUD WALLS
- EXIST. WALL TO BE REMOVED



SECTION 1-1

ADDITION FOOTPRINT | EXISTING FOOTPRINT

The sub-floor depressurization system rough-in shall include:
a) a gas-permeable layer installed in the space between the air barrier system and the ground to allow the depressurization of that space,
b) a 4" radon vent pipe that has one or more inlets that allow for the effective depressurization of the gas-permeable layer,
i) terminates outside the building in a manner that does not constitute a hazard, and
ii) is clearly labeled "RADON VENT PIPE".



SECTION 2-2

See attached page from CWK zoning bylaw - section 3.28 Floodplain Regulations

crawl 2 Hrv's
garage 2 Fan coils

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REFERENCE DRAWINGS:

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P1	CONSTRUCTION DETAILS
S1	SITE PLAN IN METRIC
SF1	STEEL FRAME DRAWING

REVISIONS:

no.	date	description
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9	SEPT. 20/21	STEEL FRAME DRAWING ADDED
10	OCT. 21/21	DETAILING & HEADER HEIGHTS
11	DEC. 08/21	TRANSOMS, EN SUITE, CANOPY
12	JAN. 05/22	ROOF ASSEMBLY, CANT. BEAMS
13	MAR. 28/22	GARAGE ROOF ASSEMBLY, CANT. BEAMS
14	OCT. 26/22	CONSTRUCTION ADDENDUM

PROJECT:
PROPOSED RENOVATION
2479 WHITWORTH ROAD
WEST KELOWNA, B.C.

SHEET TITLE:
SECTIONS 1-1 & 2-2 & GENERAL NOTES

CHECKED BY:	ERIC
DRAWN BY:	ERIC
DATE:	AUG 07, 2020
SCALE:	1/4" = 1'-0"
PROJECT NO:	2019
DRAWING NO:	4 of 6

NORTH (FRONT) ELEVATION

PL 3.5m

Flashing shall be installed at:

a) every horizontal junction between cladding elements,
b) every horizontal offset in the cladding, and
c) every horizontal line where the cladding substrates change and where
  i) the substrates differ sufficiently for stresses to be concentrated along that line, or
  ii) the installation of the cladding on the lower substrate may compromise the drainage of moisture from behind the cladding above.

Windows, doors and skylights and their components shall conform to:

a) AAMA/WDMA/CSA 101/I.S.2/A440, "NAFS – North American Fenestration Standard/Specification for Windows, Doors, and Skylights" (Harmonized Standard), and
b) CSA A440S1, "Canadian Supplement to AAMA/WDMA/CSA101/I.S.2/A440, NAFS – North American Fenestration Standard/Specification for Windows, Doors, and Skylights".

SOUTH (REAR) ELEVATION

CITY OF WEST KELOWNA BUILDING DEPARTMENT
BP # 2021-0298 A
REVIEWER: Jackson Naish
DATE: Nov 17/23

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REFERENCE DRAWINGS:

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D1	CONSTRUCTION DETAILS
S1	SITE PLAN IN METRIC
SF1	STEEL FRAME DRAWING

REVISIONS:

no.	date	description
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7	AUG. 24/21	RE-ISSUED FOR CONSTRUCTION
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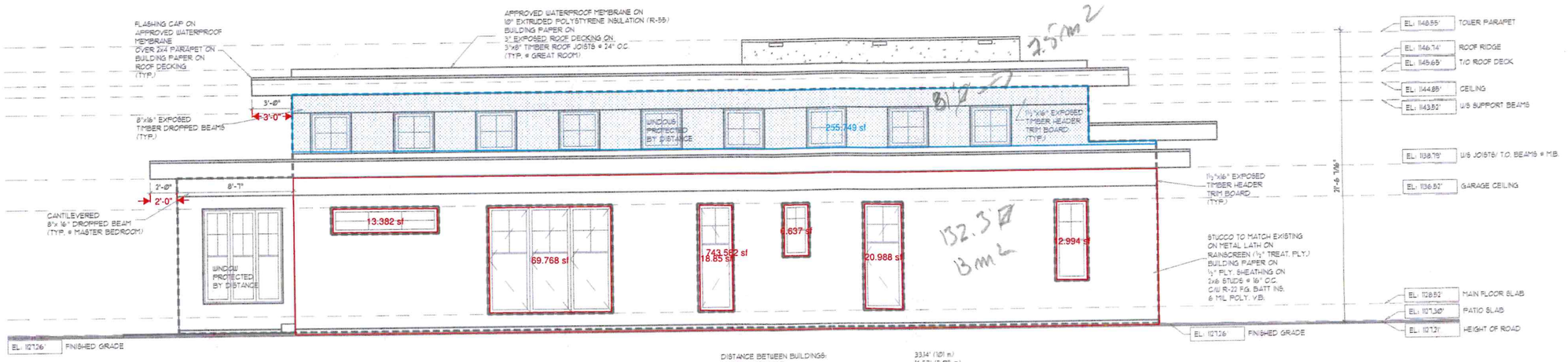
13	MAR. 28/22	GARAGE ROOF ASSEMBLY, CANT. BEAMS
14	OCT. 26/23	CONSTRUCTION ADDENDUM

PROJECT:
PROPOSED RENOVATION
2479 WHITWORTH ROAD
WEST KELOWNA, B.C.

SHEET TITLE:
NORTH & SOUTH ELEVATIONS

CHECKED BY: ERIC
DRAWN BY: ERIC
DATE: AUG 02, 2020
SCALE: 1/4" = 1'-0"
PROJECT NO: 2019
DRAWING NO: 5 of 6



EAST (LEFT) ELEVATION

As per Survey Certificate from Summit Land Surveying (Sept 30/2021)

LD = 33.30 ft (10.15 m) front of new foundation & 33.46 ft (10.2 m) rear of new foundation

EBF = 255.749 sqft (23.759 sqm) x unlimited %

Spatial Separation OK

DISTANCE BETWEEN BUILDINGS: 33.14' (10.1 m)
LIMITING DISTANCE: 16.57' (5.05 m)
AREA OF EXPOSED BUILDING: 1195.76 sq.ft. (111.46 m2)
PERCENTAGE CALCULATION: (165.2 x 7.14 12 = 15.68 %
MAX. AREA UNPROTECTED OPNGS (TABLE 9.10.14.4.A): 188.06 sq.ft. (17.47 m2)
UNPROTECTED OPENINGS SHOWN: 151.61 sq.ft. (14.64 m2)

As per Survey Certificate from Summit Land Surveying (Sept 30/2021)

LD = 3.52 m of new foundation

EBF = 743.582 sqft (69.08 sqm) x 0.2056 = 152.88sqft (14.20 sqm)

Permitted glazed openings = 152.88 sqft (14.20 sqm)

Glazing shown = 142.56 sqft (13.24sqm)

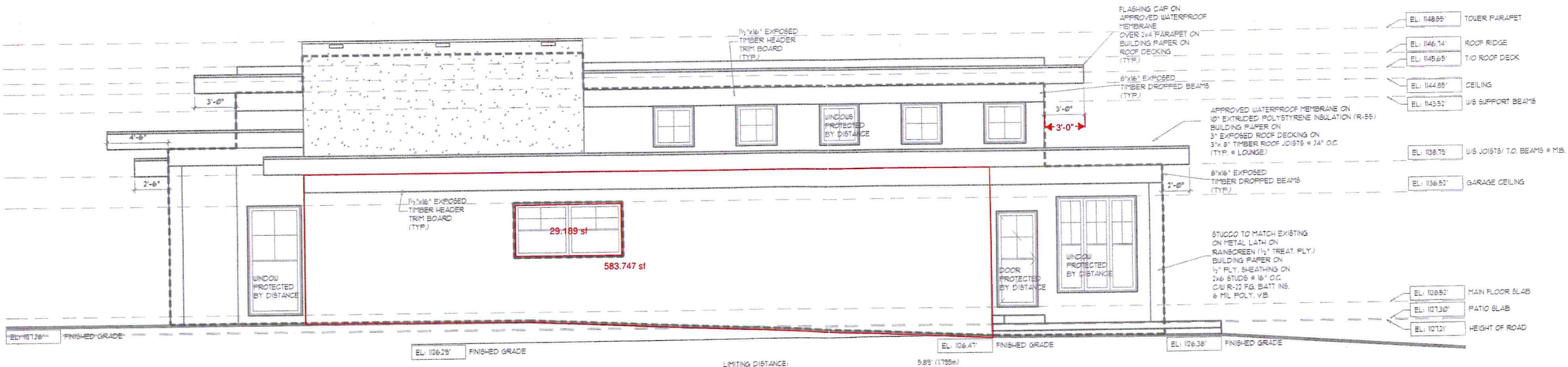
Spatial Separation OK ✓

64' x 10.25 = 656' @ 6 l/m2

% perm 21.98 = 143 @

proposed 188 @

IN EXCESS: 45 @



WEST (RIGHT) ELEVATION

LIMITING DISTANCE: 5.89' (1.795m)
AREA OF EXPOSED BUILDING: 1261.47 sq.ft. (117.154 m2)
PERCENTAGE CALCULATION: (@2.285/@5 x 1/4 7 = 7.58 %
MAX. AREA UNPROTECTED OPNGS (TABLE 9.10.14.4.A): 95.75 sq.ft. (8.895 m2)
UNPROTECTED OPENINGS SHOWN: 32.00 sq.ft. (2.97 m2)

As per Survey Certificate from Summit Land Surveying (Sept 30/2021)

LD = 1.83 m of new foundation

EBF = 583.74 sqft (54.23 sqm)

Permitted glazed openings = EBF x 0.0915 = 53.41 sqft

Glazing shown = 29.18 sqft

Spatial Separation OK ✓

CITY OF WEST KELOWNA BUILDING DEPARTMENT
BP #: 2021-0298 A
REVIEWER: Jackson Naish
DATE: Nov 17/23

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REFERENCE DRAWINGS:

no.	description
DI	CONSTRUCTION DETAILS
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SM	STEEL FRAME DRAWING

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no.	date	description
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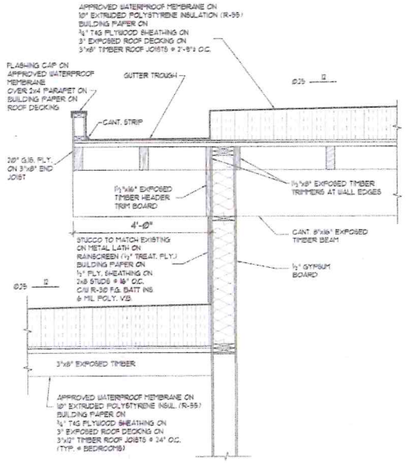
14	OCT. 26/23	CONSTRUCTION ADDENDUM

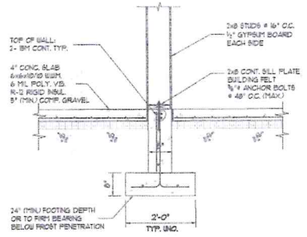
PROJECT:
PROPOSED RENOVATION
2479 WHITWORTH ROAD
WEST KELOWNA, B.C.

SHEET TITLE:
EAST & WEST ELEVATIONS

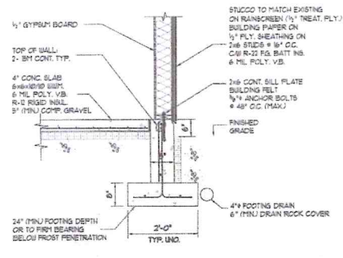
CHECKED BY:	ERIC
DRAWN BY:	ERIC
DATE:	AUG 02, 2020
SCALE:	1/4" = 1'-0"
PROJECT NO:	2019
DRAWING NO:	6 of 6



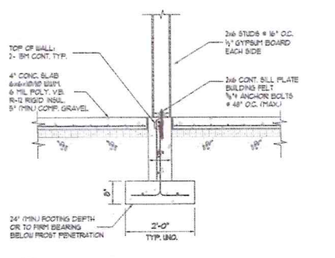
S01 / D1 TYPICAL EAVE & SOFFIT DETAIL
1/2" = 1'-0"



FD03 / D1 2x8 INTERIOR STUD WALL
1/2" = 1'-0"

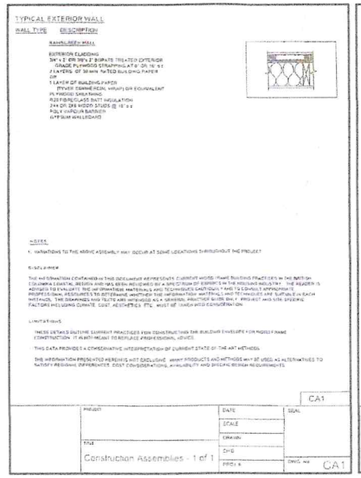


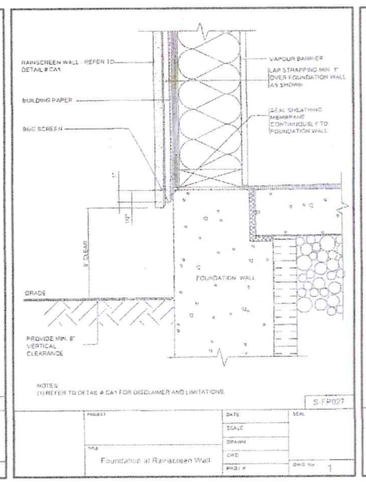
FD01 / D1 TYPICAL EXTERIOR FOUNDATION WALL
1/2" = 1'-0"

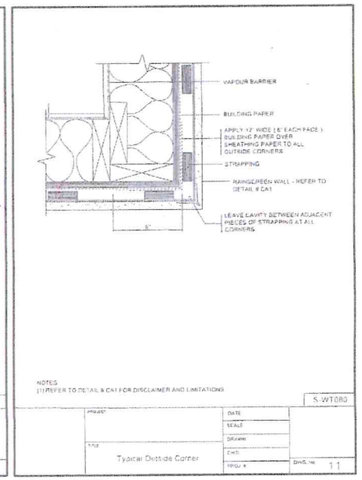


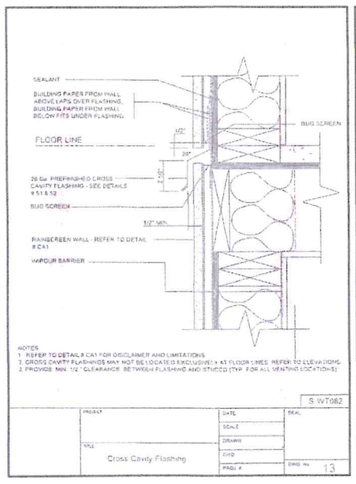
FD01 / D1 TYPICAL INTERIOR FOUNDATION WALL
1/2" = 1'-0"

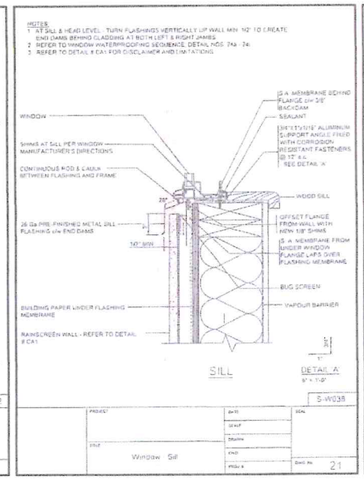
CITY OF WEST KELOWNA
BUILDING DEPARTMENT
BP #: 2021-0298 A
REVIEWER: Jackson Naish
DATE: Nov 17/23

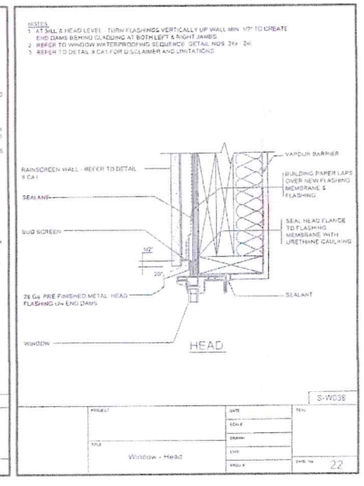


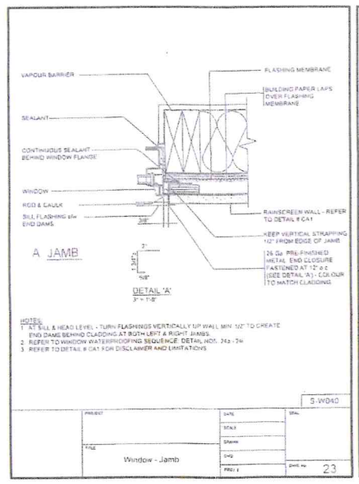


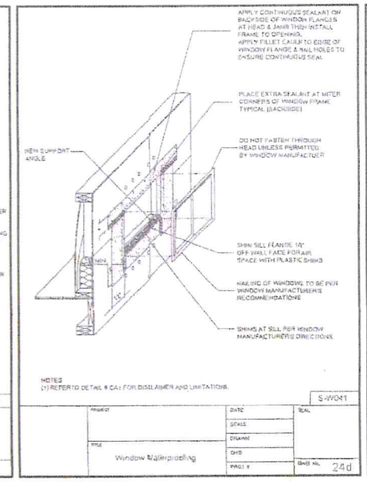


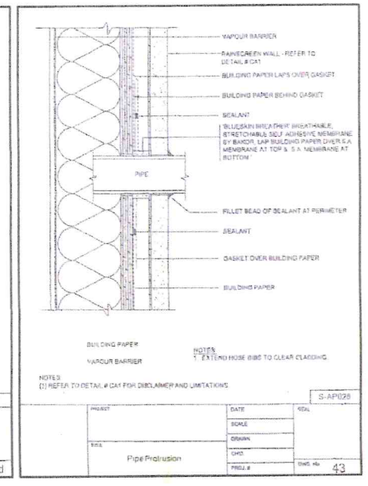












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REFERENCE DRAWINGS:

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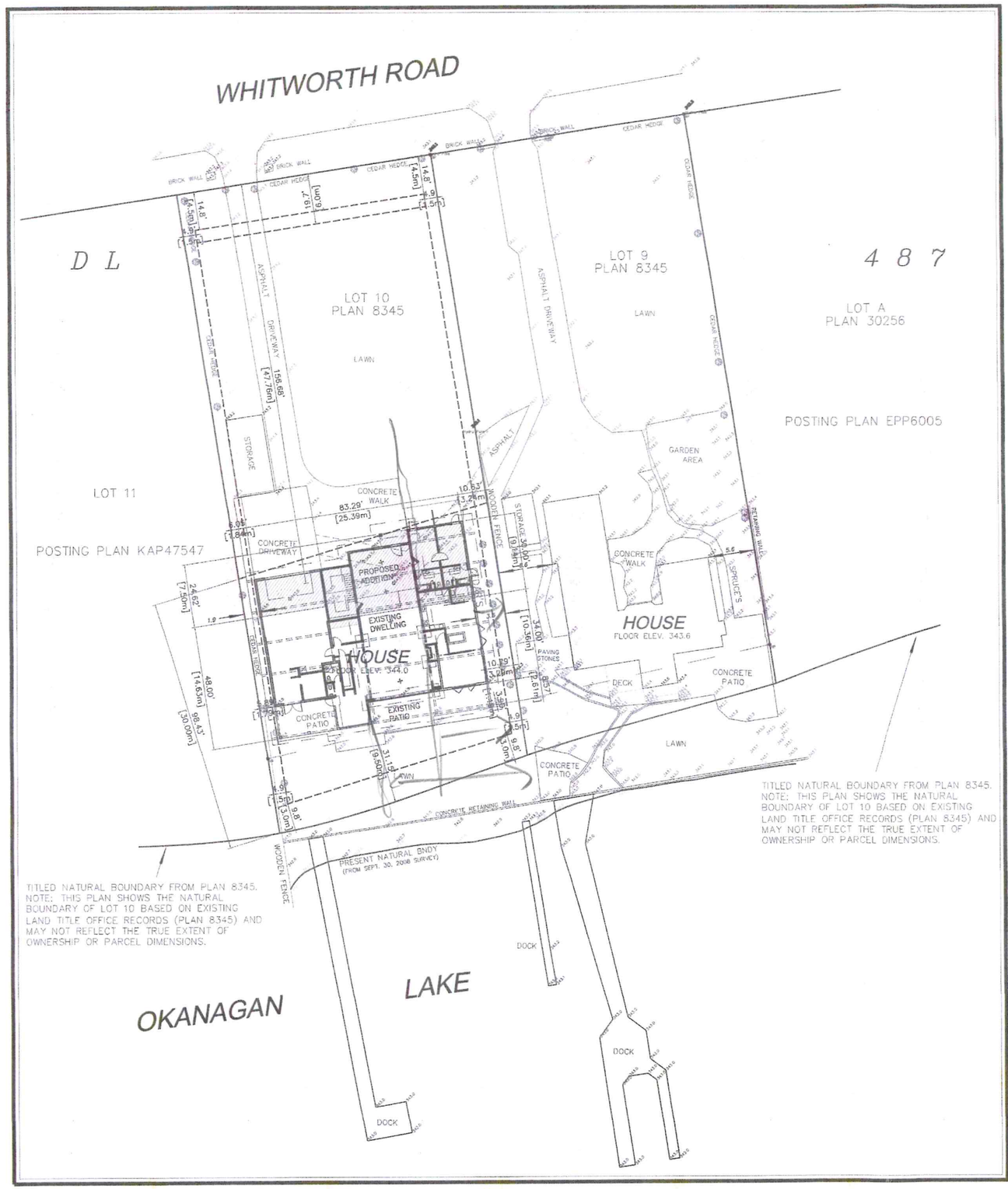
PROJECT:
PROPOSED RENOVATION
2479 WHITWORTH ROAD
WEST KELOWNA, B.C.

SHEET TITLE:
CONSTRUCTION DETAILS

CHECKED BY: ERIC
DRAWN BY: ERIC
DATE: AUG 07, 2020
SCALE: 1/2" = 1'-0" (U.N.O.)
PROJECT NO: 2019
DRAWING NO: D1



SITE PLAN OF LOTS 9 AND 10, PLAN 8345, DISTRICT LOT 487, O.D.Y.D.

NOTE: Elevations are in metres and are based on (June 17,2005) Okanagan Lake elevation of 342.5m.

The site data on this Site Plan was derived from field surveys completed in 2005 and 2008.

As this was done back in 2008, we cannot guarantee any changes to title, surrounding legal cadatre or site conditions.

SITE PLAN

SCALE: 1" = 20'-0"

LEGAL DESCRIPTION:

LOT:	9 & 10
DISTRICT LOTS:	487
PLAN:	8345
LTO PID:	009-636-221

BYLAW INFORMATION

ZONE:	RI
SITE AREA:	24658.88 sq.ft.
MAX. SITE COVERAGE (40%):	9863.36 sq.ft.
SITE COVERAGE SHOWN:	9246.72 sq.ft.
FLOOR AREA SHOWN:	3878.28 sq.ft.
GARAGE AREA SHOWN:	1017.26 sq.ft.
TOTAL GROUND FLOOR SHOWN:	4836.54 sq.ft.
LOT DEPTH:	243.25 ft.
LOT WIDTH:	100.00 ft.
MIN. FRONT YARD:	14.80 ft.
FRONT YARD SHOWN:	14.73 ft.
MIN. FRONT YARD GARAGE SETBACK:	19.70 ft.
FRONT YARD GARAGE SETBACK SHOWN:	156.68 ft.
MIN. REAR YARD:	9.80 ft.
REAR YARD SHOWN:	29.30 ft.
MIN. INTERIOR SIDEYARD:	4.80 ft.
INTERIOR SIDEYARD SHOWN:	9.83 ft.
MAX. EAVE HEIGHT:	29.50 ft.
LOWEST GRADE:	1126.24 ft.
MIN. SLAB ELEVATION:	1127.50 ft.
CONCRETE SLAB ELEVATION SHOWN:	1128.52 ft.
MAX. EAVE ELEVATION:	1158.74 ft.
EAVE ELEVATION SHOWN:	1144.85 ft.
EAVE HEIGHT SHOWN:	18.61 ft.
MAX. BUILDING HEIGHT:	29.50 ft.
RIDGE HEIGHT ELEVATION SHOWN:	1148.74 ft.
BUILDING HEIGHT SHOWN:	21.84 ft.

CITY OF WEST KELOWNA
BUILDING DEPARTMENT
BP #: 2021-0298 A
REVIEWER: Jackson Naish
DATE: Nov 17/23

DRAWN BY: RUNNALLS DENBY
british columbia land surveyors
#2-1470 Water Street
Kelowna, B.C. V1Y 1J6
Phone: (250)763-7322
Fax: (250)763-4413
Email: neil@runnallsdenby.com

CLIENT: ROLAND GAHLER

SCALE: 1 : 250
DATE: OCT. 3rd, 2008
DWG: 11738 SITE 2
FILE No: 11738
REV. 0

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RESIDENTIAL DESIGN SERVICES.
CUSTOM HOME DESIGNS.
3014 EDGEMONT BOULEVARD, NORTH VANCOUVER, B.C. V7R 2N4
CEL: (604) 657-6463 EMAIL: evdeerden@shawbiz.ca

REFERENCE DRAWINGS:

no.	description
D1	CONSTRUCTION DETAILS
S1	SITE PLAN IN METRIC
SP1	STEEL FRAME DRAWING

REVISIONS:

no.	date	description
5	APR. 22/21	RE-ISSUED FOR BUILDING PERMIT
6	AUG. 10/21	RE-ISSUED FOR CONSTRUCTION
7	AUG. 24/21	RE-ISSUED FOR CONSTRUCTION
8	SEPT. 08/21	ISSUED FOR CONSTRUCTION CORRECTION
9	SEPT. 20/21	STEEL FRAME DRAWING ADDED
10	OCT. 21/21	DORMERS & HEADER HEIGHTS
11	DEC. 08/21	TRANSOMS, EN SUITE, CANOPY
12	JAN. 05/22	ROOF ASSEMBLY, CANT. FRAMING
13	MAR. 28/22	GARAGE ROOF ASSEMBLY, CANT. FRAMING
14	OCT. 26/23	CONSTRUCTION ADDENDUM

PROJECT:
PROPOSED RENOVATION
2479 WHITWORTH ROAD
WEST KELOWNA, B.C.

SHEET TITLE:
SITE PLAN

CHECKED BY: ERIC
DRAWN BY: ERIC
DATE: AUG 03, 2020
SCALE: 1 : 250
PROJECT NO: 2019
DRAWING NO: S1

Schedule C

PLAN SHOWING GRADES AND ELEVATIONS FOR LOT 10, DISTRICT LOT 487, ODYD, PLAN 8345

SHEET 1 OF 2

0 5 15 25 m

Scale 1:250

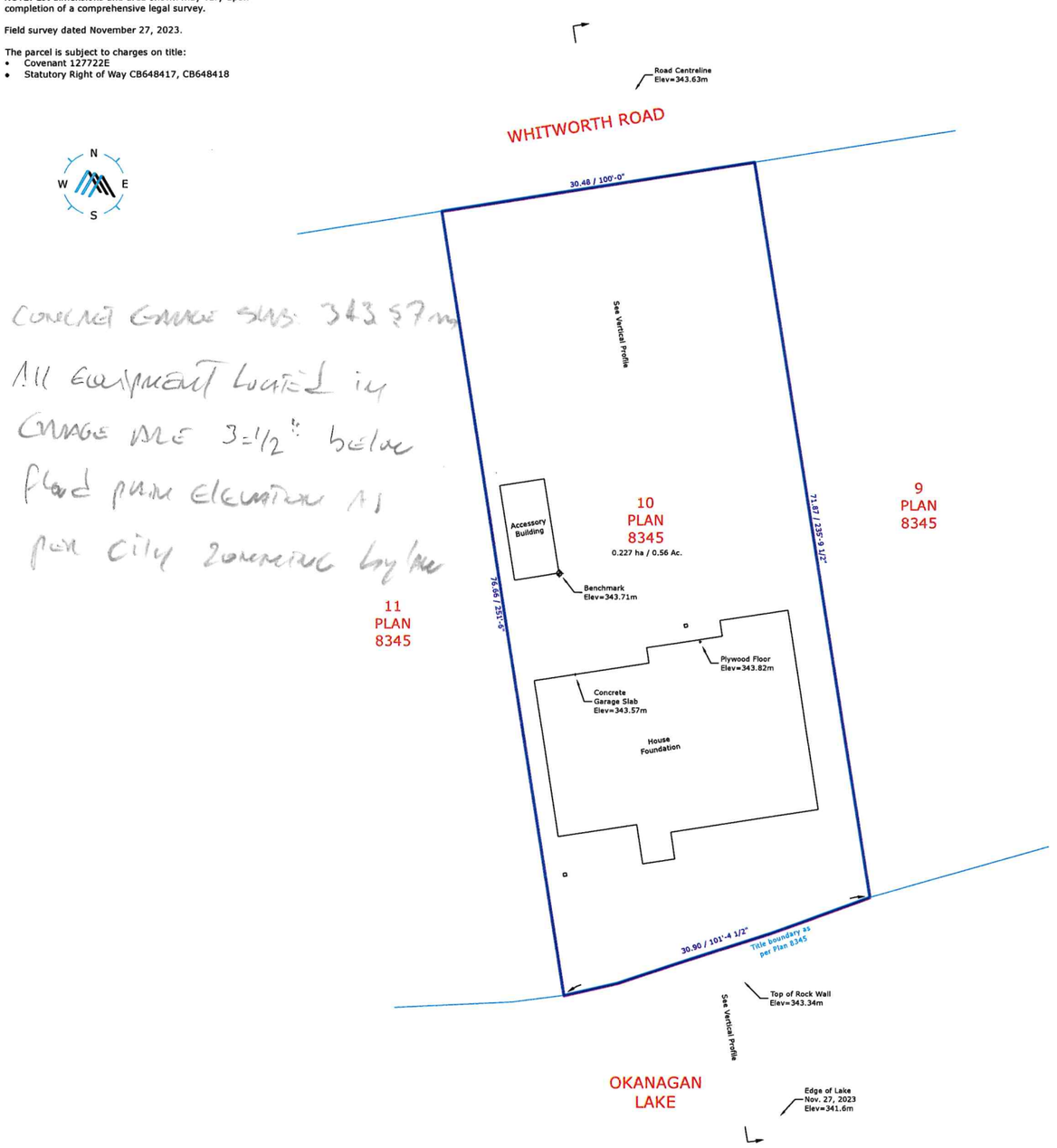
The intended plot size of this plan is 432mm in width by 559mm in height (C-size) when plotted at a scale of 1:250.

Address: 2479 Whitworth Road, West Kelowna, BC
PID: 009-833-846

NOTE: Lot dimensions and area shown may vary upon completion of a comprehensive legal survey.

Field survey dated November 27, 2023.

The parcel is subject to charges on title:
- Covenant 127722E
- Statutory Right of Way CB648417, CB648418



CONCRETE GARAGE SLAB 343.57m
All Equipment Located in
GARAGE MUST 3-1/2" below
Flood plain Elevation As
per City Zoning bylaw

Summit Land Surveying
Operated by Fusion Land Surveying Ltd.
1-2413 Main Street, West Kelowna, BC
250.768.0215 - summitsurveying.ca
File: 21182-HT Date: November 28, 2023

210298

VERTICAL PROFILE OF LOT 10, DISTRICT LOT 487, ODYD, PLAN 8345

210298

0 5 15 25 m

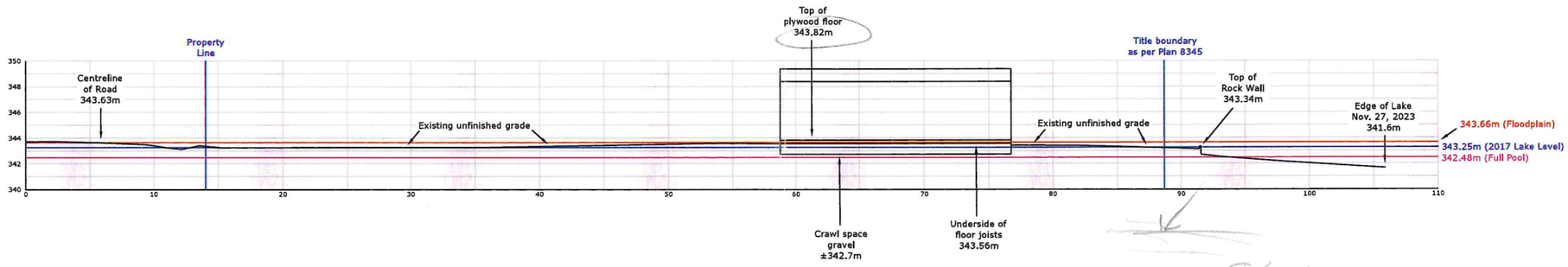
Scale 1:250

The intended plot size of this plan is 559mm in width by 432mm in height (C-size) when plotted at a scale of 1:250.

Address: 2479 Whitworth Road, West Kelowna, BC
PID: 009-833-846

Field survey dated November 27, 2023.

VERTICAL PROFILE



Top plywood floor: 343.82m

Flood plain elev. 343.66m

160mm (6")

NOTES:

1. Flow system partially under flood plain elevation as per City zoning bylaw
2. All equipment located in crawl space are within flood plain area as per zoning bylaw.

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