RYZUK GEOTECHNICAL

January 20, 2026
Project #: 10451-6

Max Reno Design Build
5285 West Saanich Road, Victoria V9E 2E8
Attention: Margeret Cormode (margaret@macreno.com)

PROPOSED SINGLE-FAMILY DWELLING
445 Grafton Street, Esquimalt, BC

1. INTRODUCTION

The Capital Regional District (CRD) Tsunami Hazard Zone map shows that the subject site is located within the Tsunami Hazard Zone. In accordance with the Township of Esquimalt's (Township or Esquimalt herein) Official Community Plan, Bylaw No. 2922, all lands located within this zone are designated as part of Development Permit Area (DPA) 2, Protection of Development from Hazardous Conditions. In accordance with the DPA 2 guidelines, "no building intended for the occupation of people shall be built within an area impacted by a tsunami without the recommendation and guidance of a professional geotechnical engineer." We understand that the Township has further requested that a qualified geotechnical engineer establish a specific flood construction level (FCL) and provide an assessment of the existing seawall. However, a detailed assessment of the reinforced concrete seawall will be conducted by a qualified structural engineer, as this falls outside our scope of expertise.

As requested, we attended the referenced site on January 7, 2026, to complete a site reconnaissance in support of the proposed development. This included traversing the property and the surrounding land on foot to conduct a visual assessment of the existing geotechnical conditions. We have also completed a geotechnical desktop review of the site, which included available geological mapping, satellite imagery, the architectural drawings, applicable bylaws, and flood/tsunami hazard literature. Our work has been carried out in accordance with Section 56 of the Community Charter. Our assessment and reporting have been completed following Engineers and Geoscientists of BC's (EGBC) *Legislated Flood Assessments in a Changing Climate in BC* (Version 2.1), and our completed *Flood Assessment Assurance Statement* is attached.

The following report summarizes our observations, comments, and recommendations. It has been prepared to address the DPA 2 guidelines. Esquimalt is an approved user of this report and may rely on its content for Development and Building Permit approval. Our work has been carried out in accordance with, and is subject to, the accepted Terms of Engagement.

2. PROPOSED DEVELOPMENT & SITE DESCRIPTION

From the architectural drawing set provided by Mac Reno Design Build, dated December 12, 2025, we understand that the development involves demolishing the existing single-family residence (SFR) with a detached garage and constructing a larger SFR in approximately the same footprint. The drawings show that the new residence would consist of a single storey over a basement level. They show an average existing grade of about 6.65 m around the building, with basement and main-floor elevations of 4.31 m and 7.10 m, respectively. Lastly, the drawings indicate that the proposed SFR would be offset at least 10 m from the Natural Boundary (NB) of the Juan de Fuca Straight. We understand that all elevations are referenced from the Canadian Geodetic Vertical Datum of 1928 (CGVD28). We have attached Sheet No. A0.2, which shows the locations of the proposed/existing structures, site features, and topographic information. We have also attached Site Photos showing the existing site features for reference.

The irregular shaped lot is about 0.2 ha and located near the terminus of Grafton Street. It is bounded by residential lots to the north and east, the NB of Juan de Fuca Straight to the southeast, municipal parkland to the southwest (Denniston Water Access), and Grafton Street to the west. A shared paved driveway extending east from Grafton Street separates the subject site from the neighbouring property to the north.

3. SURFACE & SUBSURFACE CONDITIONS

The site topography generally slopes gently southward from the shared driveway to the crest of the existing seawall and NB. Bedrock is mostly exposed along the NB outside of the seawall area. However, an up to 3 m tall dry-stack boulder wall/slope armouring was noted along a portion of the NB, directly west of the seawall, as shown in Photo 2. Most of the site is grassed with several mature trees sparsely spaced throughout the property. There are also several short rock and mortar landscaping walls between the existing residence and the seawall/NB.

The reinforced concrete seawall was approximately 3.4 m tall and 0.45 m thick at the cap, with a staircase along its west side providing access to the NB and pebble beach area at the toe of the wall, as shown in Photo 3. A roughly 100 mm diameter pipe outlet and several smaller weep holes were noted along the face of the seawall. The seawall generally appears to be in good condition and statically stable. We are unsure of the seawall foundation embedment and condition, or the underlying soils supporting it, but no undermining at the toe was observed. We are unsure of the site's existing stormwater management infrastructure. However, the pipe outlet may serve as the property's foundation drainage and stormwater discharge.

The wall/slope armouring appears to be in good condition and statically stable. The boulders were generally observed to be at least 1 m in diameter, with some smaller boulders near the crest, and to consist of hard crystalline rock. The boulders were stacked in an interlocking fashion at a roughly 45-degree inclination. The exposed bedrock consisted of metamorphosed igneous rock.

Quaternary geological mapping of Greater Victoria, taken from the Ministry of Energy and Mines, shows that the property is within the "R1" unit, which consists of outcropping and shallow bedrock conditions. Bedrock mapping from the Geological Survey of Canada indicates that the site bedrock comprises the Lower Devonian and Older Saltspring Intrusions, consisting of meta

granodiorite, meta quartz porphyry, and quartz-sericite schist. This is generally consistent with the metamorphosed igneous bedrock exposures observed on site.

Based on our field observations and background review, we expect shallow bedrock conditions throughout the site. However, localized pockets of native soil may be present within bedrock depressions, and we expect surficial fills associated with past construction to be present on the site.

4. GEOTECHNICAL ASSESSMENT

On the basis of our site reconnaissance and background review, we consider the proposed development to be feasible from a geotechnical perspective. However, the residence must be sufficiently raised above the FCL, as detailed in Section 5 of this report, to accommodate the risk of coastal flooding and tsunami flood inundation. We expect that rock excavation (blasting) will be required to expose the basement design grade. We did not observe any indications of other geological hazards that would preclude safe development, including erosion, slope instability, riparian flooding, or subsidence.

5. DETERMINATION OF FLOOD CONSTRUCTION LEVEL

The FCL may be defined as the minimum required elevation of the underside of a wooden floor system (floor joist) or the top of a concrete slab floor, for habitable buildings. For a manufactured home, the FCL is the minimum required elevation above the top of the pad.

5.1 REVIEWED PUBLICATIONS

The available publications reviewed and referenced for this purpose consist of:

1. Engineers and Geoscientists BC - Professional Practice Guidelines – Legislated Flood Assessments in a Changing Climate in BC, V2.1 August 28, 2018
2. Province of British Columbia – Flood Hazard Area Land Use Management (FHALUM) Guidelines, May 2004, Amended January 2018 (Sections 3.5 & 3.6)
3. Ausenco Sandwell – Climate Change Adaption Guidelines for Sea Dikes and Coastal Flood Hazard Land Use; Draft Policy Discussion Paper, 27 January 2011 “AS(2011a)”
4. Ausenco Sandwell – Climate Change Adaption Guidelines for Sea Dikes and Coastal Flood Hazard Land Use; Guidelines for Management of Coastal Flood Hazard Land Use, 27 January 2011 “AS(2011b)”
5. Kerr Wood Leidal - Provincial Guidelines for Coastal Floodplain Mapping, June 2011
6. AECOM – Capital Regional District; Coastal Sea Level Rise Risk Assessment, January 2015
7. Capital Regional District (CRD) – Capital Region Coastal Flood Inundation Mapping Project – Task 1, Task 2, Task 3, Version 2.0, October 2021
8. Province of British Columbia – Guidelines for Management of Coastal Flood Hazard Land Use, January 2011
9. Province of British Columbia – Coastal Floodplain Mapping, June 2011
10. James et al. – Relative Sea-level Projections in Canada and the Adjacent Mainland United States, 2014
11. Associated Engineering - Capital Region Coastal Flooding Inundation Mapping Project, 2021

5.2 METHODOLOGY

The FCL for the coastal site was calculated following the methodology outlined in the Province of British Columbia's coastal flood hazard guidelines and mapping, using the "Combined Method" outlined in FHALUM. Additional information required to establish the FCL was obtained from the Canadian Hydrographic Service (CHS) online. The Combined Method utilizes the highest predicted tide (HHWLT, from the CHS) as a base, upon which the predicted Sea Level Rise (SLR), storm surge, wave effect, local uplift/subsidence, as well as an additional free board factor were considered.

5.3 CALCULATION OF FLOOD CONSTRUCTION LEVEL

The Provincial Guidelines outline a 1.0 m sea-level rise from 2000 to 2100; accordingly, a factor of 0.74 m was applied to account for the predicted sea-level rise from 2026 to 2100. In addition, a correction factor has been considered to account for regional uplift/subsidence. A regional subsidence rate of -0.79 mm/year was selected for the Esquimalt Area based on research completed by James et al. Therefore, the FCL has been increased by 0.79 mm/year over 74 years. The following table summarizes the FCL calculation:

TABLE 1. SUMMARY OF FLOOD CONSTRUCTION LEVEL CALCULATION

Item	(m)	Notes
Higher High Water Large Tide (HHWLT)	1.22	As per CHS, based on the Esquimalt Government Harbour tidal gauge 07110, converted to the CGVD28 datum
Total storm surge during "designated storm"	1.3	As per 2011 guidelines for 1/500 AEP storm event
Estimated wave effect	0.65	As per Provincial Guidelines
Subsidence	+0.06	0.79 mm/year of subsidence for 74 years
Sea level rise (SLR)	0.74	As per Provincial Guidelines
Free Board Factor	0.3	As per note 4 of Section 3.5 of FHALUM: "Given that the "Combined Method" provides conservative values for Year 2100 Designated Flood Levels (because the method assumes the Designated Storm occurs in conjunction with a high tide) the freeboard may be reduced from 0.6 m to 0.3 m for this method for situations where the full FCL may be difficult to achieve."
Flood Construction Level (CGVD28)	**+4.27**	

Based on the above, and in accordance with Provincial Guidelines, an FCL, or minimum habitable floor elevation of **+4.27 m (CGVD28)** has been calculated to accommodate the coastal flooding risk.

5.4 TSUNAMI INUNDATION REVIEW

The south coast of Vancouver Island, including Esquimalt, is identified as Zone D by the provincial Ministry of Public Safety and the Solicitor General. This area is a high-risk seismic zone and is vulnerable to flooding during a tsunami. Tsunamis are waves created when a large body of water is rapidly displaced by processes such as earthquakes or landslides. Submarine earthquakes have triggered the largest tsunamis impacting the BC coast. Earthquake-triggered tsunamis that could impact the BC coast are monitored by the Alaska and Pacific tsunami warning centers, which use tidal gauges to detect whether a tsunami has formed, forecast its path, and issue warnings if needed. Based on the reviewed literature, the expected travel time for a tsunami generated by a Cascadia Subduction Zone earthquake to reach Esquimalt Harbour is approximately 75 minutes.

Regarding tsunami flood inundation risk, we have not undertaken detailed wave run-up analyses or associated magnitude return period frequency analyses of potential tsunami events to quantify the risk at the referenced site. A review of the document Task 3 – Tsunami Modelling and Mapping Report indicates a maximum water level of 4.48 (m CGVD2013) for Esquimalt, considering a Cascadia Subduction Zone Northern Segment design earthquake of 1:500 annual probability of exceedance. Benchmark information from the Esquimalt Government Harbour tidal gauge station online (CHS) suggests this is equivalent to a CGVD28 elevation of **4.32 m**. As per Amendment Section 3.5 of the FHALUM, the greater of the tsunami maximum water level and FCL shall apply. The tsunami maximum water level is the higher of the two for the subject site; accordingly, a tsunami elevation of **+4.32 m (CGVD28)** applies for the site. We strongly recommend that residents review and understand the Provincial Tsunami Advanced Warning System.

5.5 SETBACK

Guidelines in the FHALUM (amended Sections 3.5 & 3.6) regarding building setback from bodies of water state that the setback should be “the greater of 15 m from the future Estimated Natural Boundary (ENB) of the sea at Year 2100, or a distance to where the native land elevation equals the FCL.” The guidelines also state that “on existing lots, if meeting the setback guidelines noted above would sterilize the lot (i.e., not allow even one of the land uses or structures permitted under current zoning), the development approving official may agree to modify setback requirements as recommended by a suitably qualified [professional] experienced in coastal engineering, provided that this is augmented through a restrictive covenant stipulating the hazard, building requirements, and liability disclaimer.” As the residence will be located within 15 m of the ENB, the setback requirements will need to be modified. This is typically accompanied by registration of a covenant on title informing future owners of the risk and saving harmless the municipality. Given the projected sea level rise and that non-erosional bedrock, boulders, and a reinforced concrete sea wall are present along the NB, we do not expect the ENB to regress such that the safe access or egress would not be possible without considerable advance warning.

5.6 ROLE OF QUALIFIED PROFESSIONALS

Section 3.7.2.1 of the EGBC Guidelines notes that the Province of BC has not adopted Flood Risk tolerance criteria, yet professional practice standards generally imply some level of risk tolerance. Commentary within this Section advises that when a Qualified Professional (QP) provides the

statement that “the land may be safely used for the use intended” that the QP is declaring that the risks and consequences of a given Hazard Scenario are tolerable or acceptable. As defined by the Guidelines, “tolerable” risks are “those that society can live with given the perceived or real benefit that emerges by developing in a hazardous area”, while “acceptable” risks are those broadly accepted by society. In the case of tolerable risks, such require monitoring and typically there are conditions associated with the safe land use. It is not for the QP to stipulate the tolerable or acceptable risk criterion and accordingly the definition of safe use must be clearly outlined in the reports such that the Regulatory Agency is aware of the implications in their decision making.

It is important to note that the objectives of the FHALUM Guidelines and as elaborated upon in the EGBC Professional Practice Guidelines is “to reduce or prevent injury, human trauma, and loss of life and to minimize property damage from flooding events in B.C.” It is also critically important to recognize that both documents have been prepared to address ***all*** types of flooding, not simply coastal flooding due to sea level rise. The potential for injury, trauma, loss of life and property damage is orders of magnitude greater when one considers flooding of major systems such as the Fraser River, or high energy events such as debris flows, torrents or major channel avulsion. Sea level rise is foreseeable and in conjunction with extreme tides the design event will be highly predictable such that the public has sufficient time to protect themselves and their assets before inundation would occur.

It also must be recognized that it is not an absolute requirement for a QP to adhere to each and every stipulation within either the EGBC Guidelines or the FHALUM Guidelines. This is clearly stated in Section 1.4 of the EGBC Guidelines:

> *“Notwithstanding the purpose and scope of these guidelines, an Engineering/Geoscience Professional’s decision not to follow one or more aspects of the guidelines does not necessarily represent a failure to meet required professional obligations. Such judgements and decisions depend upon weighing facts and circumstances to determine whether another reasonable and prudent QP, in a similar situation, would have conducted himself/herself similarly.”*

6. GEOTECHNICAL RECOMMENDATIONS

We understand that the proposed basement main floor elevation (MFE) is 4.31 m (CGVD28). Although we have calculated a tsunami elevation of 4.32 m (CGVD28) to accommodate the anticipated maximum tsunami flood inundation level, we consider the difference between the proposed elevations negligible, and the proposed MFE of +4.31 (CGVD28) safe with respect to coastal flooding and tsunami inundation.

In addition to the above, we consider a minimum 10 m NB setback to be geotechnically acceptable, as non-erodible rock, boulders, and a reinforced concrete seawall are present along the NB. The existing site grade between the NB and the residence is at least 6.2 m (CGVD28); therefore, waves and/or floodwaters are not expected to reach the residence, including the lower laying basement. Our recommendations for site preparation, foundations, slab-on-grade construction, foundation drainage, and backfill are detailed below.

6.1 SITE PREPARATION

The building areas should be stripped of all loose and deleterious materials, such as surficial topsoil and existing fills, to expose suitable undisturbed native mineral soils or intact bedrock. Excavations are expected to reach a depth of up to 3 m to expose the foundation design grade. Based on the anticipated subsurface conditions, shallow temporary excavation cutslopes are expected to be stable at a 0.75H:1V (Horizontal to Vertical) configuration in fills and native soils, and near-vertical in bedrock. According to WorkSafeBC guidelines, excavations deeper than 1.2 m with slopes steeper than 0.75H:1V must be inspected and approved by a qualified geotechnical professional before workers enter the excavation.

Please note that there is a high likelihood of encountering shallow bedrock, which we expect will require rock excavation (blasting) to expose the design grades. Blasting should be undertaken with care to ensure surrounding structures and infrastructure are not damaged. Vibration monitoring during blasting should also be conducted to ensure peak particle velocities remain below thresholds for adjacent structures/infrastructure. It is likely that neighbouring residents will raise concerns about vibrations, even if they are not structurally harmful, and a pre-blast survey of neighbouring structures may be warranted to verify or address these concerns in the event of future damage claims.

Construction within 15 m of the NB may also require environmental monitoring and erosion/sediment control measures in accordance with relevant bylaws and regulations. These details should be confirmed by others, if required, as they are outside of our scope of expertise.

6.2 FOUNDATION CONSIDERATIONS

The architectural drawing set shows that the residence would be supported by conventional shallow spread footings. We anticipate that foundations would bear on intact/fractured in place bedrock or engineered fill atop such; however, local pockets of native soil may be present in the local bedrock depressions at the foundation grade.

All footing subgrade locations should be inspected and approved by a qualified geotechnical professional before placement of fill, formwork, or concrete. Where the subgrade consists of bedrock sloping steeper than 6H:1V that is not naturally keyed, drilled and grouted/epoxied dowels should be incorporated into the foundations to resist sliding, or the subgrade should be chipped flat. The dowels should consist of 15M (or larger) reinforced steel and be embedded into sound bedrock by at least 0.45 m. The spacing of dowels and the bedrock conditions can be confirmed during the construction field review.

Minimum widths of 400 mm and 600 mm are recommended for strip and pad footings, respectively. However, strip footing widths can be reduced to 200 mm when bearing directly over intact bedrock. We also recommend that footings extend at least 450 mm below adjacent finished grades for frost protection, unless cast/secured directly atop clean bedrock.

Provided our recommendations are followed, we anticipate the proposed foundation subgrade to be capable of providing stable long-term support to the proposed foundation elements based on Serviceability Limit State (SLS) and Ultimate Limit State (ULS) bearing resistances of 150 kPa and 225 kPa, respectively, for approved native mineral soil and engineered fill atop approved

subgrade, and 3,000 kPa ULS for intact or fracture in place bedrock. Engineered fill must consist of select, well-graded, and free-draining granular fill placed and compacted in suitably thin lifts under the supervision of a qualified geotechnical professional. All engineered fill should be compacted to at least 98 % of the fill's Standard Proctor Maximum Dry Density (SPMDD) value.

6.3 SLAB ON GRADE CONSTRUCTION

Slab on grade construction is considered feasible for the proposed residence. We recommend that a minimum of 150 mm of free draining 19 mm minus crushed rock product be placed directly below the slabs for levelling, as well as a subslab vapour barrier, to avoid capillary rise of moisture into the slab. Furthermore, sub-slab fills should be compacted to at least 95 % of the SPMDD value.

6.4 FOUNDATION DRAINAGE

We expect that conventional perimeter foundation drainage tied into free draining granular backfill material will be sufficient to prevent the buildup of hydrostatic pressure against foundation walls. This, however, does not preclude the possibility of dampness and/or minor seepage, which would be considered building envelope concerns.

The foundation drain arrangement (perforated pipe and uniform gravel/drain rock) should be covered with non-woven geotextile filter fabric (not landscape fabric) or a suitably graded granular medium to prevent the migration of finer materials from the backfill into voids within the drain arrangement. Any part of a structure extending below the perimeter drain invert should have a similar drainage arrangement or be designed to prevent moisture ingress and resist associated hydrostatic forces. The drainage invert should be elevated above the tsunami elevation of **+4.32 m (CGVD28)** to prevent backflow during coastal flooding or tsunami flood inundation.

Stormwater can be discharged downslope of the residence to the NB or conveyed to a municipal storm line, if present. Stormwater discharged at the NB should outlet onto bedrock or a concrete splay pad to prevent erosion at the discharge point.

6.5 FOUNDATION WALL BACKFILL

Foundation walls should be backfilled with free draining, well graded granular material, with less than 5% passing the #200 sieve. Backfill should be placed and compacted in maximum 300 mm lifts to at least 95% of SPMDD. Additionally, adequate drainage should be provided for the backfill to prevent the buildup of hydrostatic pressure against the foundation walls.

The lateral earth pressure and seismic considerations for this project can be provided upon request if required for structural design purposes.

7. SUMMARY

We consider the proposed basement main floor elevation (MFE) of 4.31 m (CGVD28) safe with respect to coastal flooding and tsunami inundation, provided construction is undertaken under the supervision of a geotechnical professional and in accordance with the current BC Building Code.

Based on the above, we consider that the land may be used safely for the use intended (as described in this report) in accordance with Section 56 of the Community Charter, and Section 219 of the Land Title Act. We anticipate that this report will accompany a covenant registered on title as construction is proposed within 15 m of the ENB.

The completed EGBC Flood Assurance Statement is attached in accordance with the relevant Practice Guidelines.

We trust the preceding is suitable for your purposes at present. If you require anything further at this time or have any questions with respect to the above, please contact us.

Sincerely,

Ryzuk Geotechnical

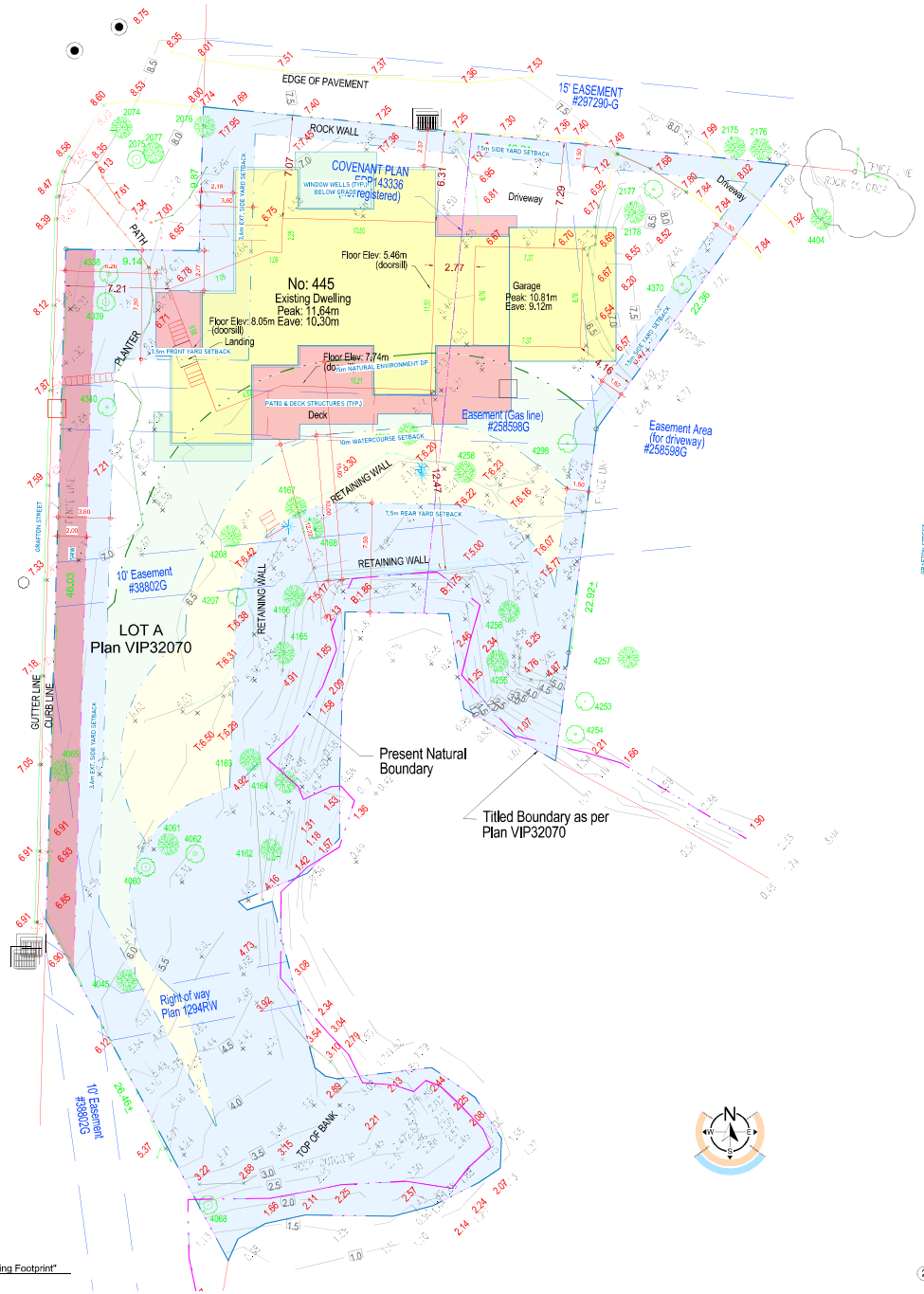
Jordan Gybels, P.Eng.
Intermediate Geotechnical Engineer

Reviewed by:
Scott Currie, P.Eng.
Senior Geotechnical Engineer

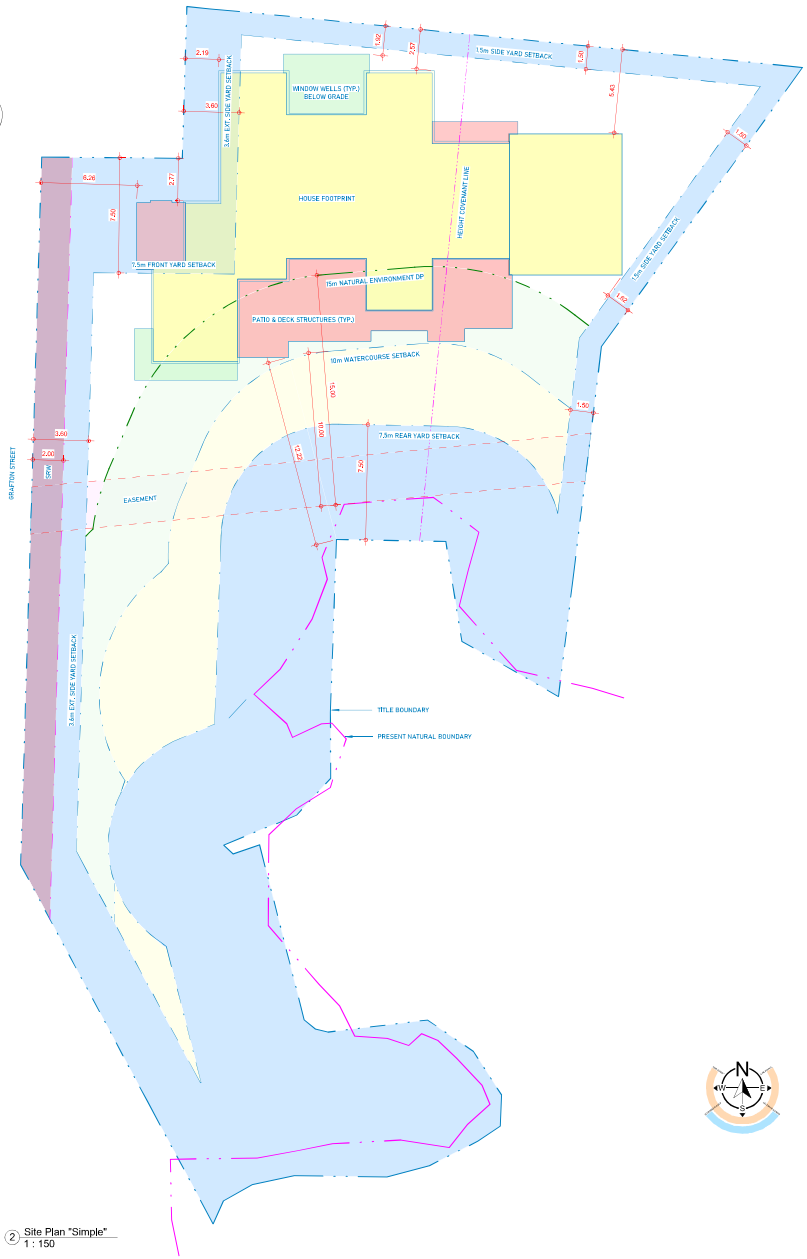
Permit to Practice Number: 1002996

Attachment(s):

- Sheet No A0.2
- Site Photos
- Flood Assurance Statement



1 Site Plan "Building Footprint"
1 : 150



2 Site Plan "Simple"
1 : 150

GRAFTON

MAC RENO-DESIGN-BUILD

PROJECT REQUIREMENTS:

1. It is the sole responsibility of the General Contractor or Owner Builder to verify all dimensions, elevations, and structural design prior to the commencement of any Work. The General Contractor or Owner Builder shall notify the designer of any errors or irregularities identified within the drawings prior to moving forward with the construction of the Project. Commencement of construction represents acceptance of the drawings, existing site conditions, and means structural designs have been verified and are acceptable for construction.
2. All designs, drawings, and specifications prepared by the designer (Latitude 48 Design Ltd.) and used in the Project will remain the property of the designer regardless of whether the Work was completed or not, and shall not be used or duplicated in any other Work or Project.
3. All Work must comply with the latest version of the BC Building Code, local municipal bylaws, and provincial environmental regulations. All Work shall be completed in accordance with Occupational Health and Safety regulations.
4. All changes or deviations are the responsibility of the Owner Builder or General Contractor and must be forwarded to the Designer and applicable consultants for review.
5. The General Contractor or Owner Builder will work with an AScT certified surveyor and a Q.E.P. (as required) to confirm dimensions, siting, environmental considerations, and placement of the proposed structure prior to commencing any Work. Latitude 48 Design Ltd. is not responsible for any encroachments in regards to environmentally sensitive areas, easements, right of ways, heights, setbacks, or placement of any structures.

25Dec12	Issue for DVP

Project:

445 Grafton Street

Sheet Title:

Site Plans

Project No.

25001

Sheet No. ©2025

A0.2

RYZUK GEOTECHNICAL

Site Photos

Photo 1: Showing the West Half of the Property – Looking North

Photo 2: Showing the East Half of the Property – Looking North

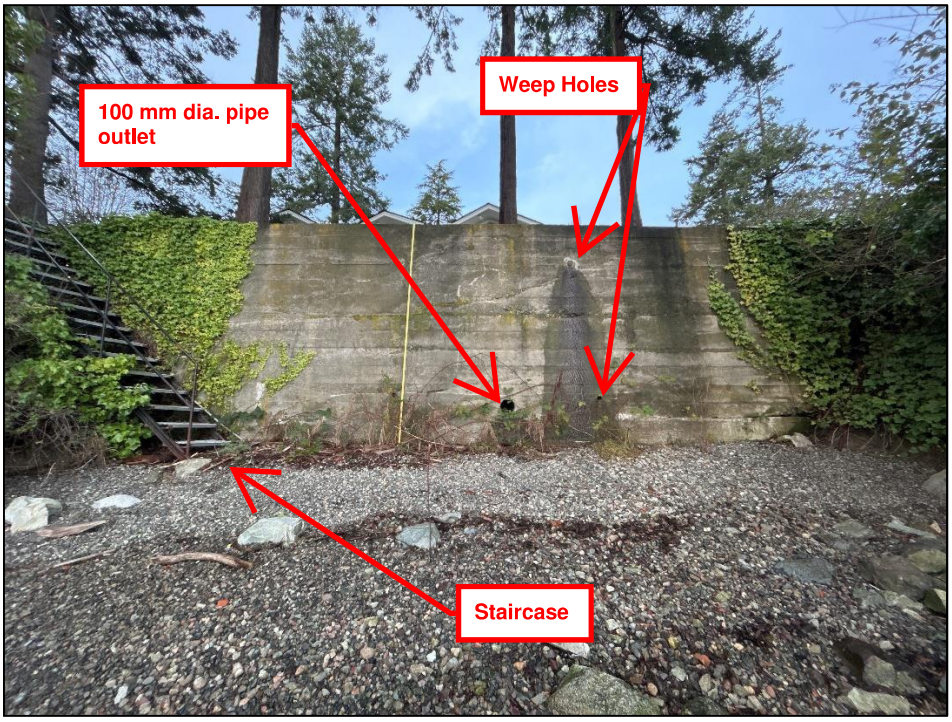


Photo 3: Showing Existing Sea Wall – Looking North

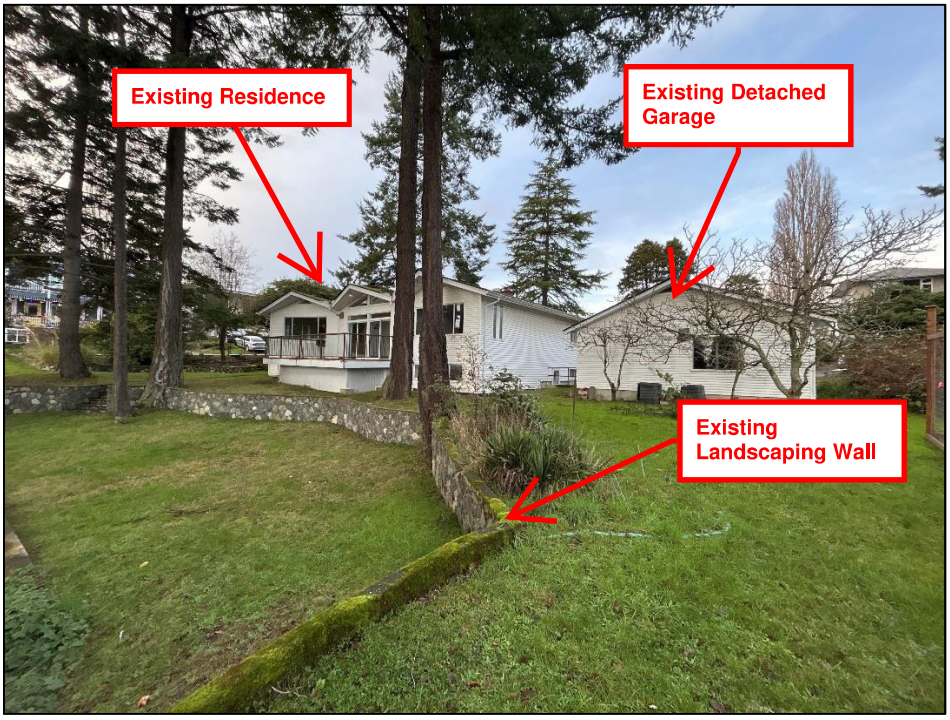


Photo 4: Showing Existing Residence and Detached Garage – Looking Northwest

FLOOD ASSURANCE STATEMENT

Note: This statement is to be read and completed in conjunction with the current Engineers and Geoscientists BC *Professional Practice Guidelines – Legislated Flood Assessments in a Changing Climate in BC* ("the guidelines") and is to be provided for flood assessments for the purposes of the *Land Title Act*, Community Charter, or the *Local Government Act*. Defined terms are capitalized; see the Defined Terms section of the guidelines for definitions.

To: The Approving Authority

Date: January 20, 2026

Township of Esquimalt

1229 Esquimalt Road, Victoria, BC V9A 3P1

Jurisdiction and address

With reference to (CHECK ONE):

- ☐ *Land Title Act* (Section 86) – Subdivision Approval
- ☑ *Local Government Act* (Part 14, Division 7) – Development Permit
- ☑ Community Charter (Section 56) – Building Permit
- ☐ *Local Government Act* (Section 524) – Flood Plain Bylaw Variance
- ☐ *Local Government Act* (Section 524) – Flood Plain Bylaw Exemption

For the following property ("the Property"):

445 Grafton Street, Esquimalt, BC

Legal description and civic address of the Property

The undersigned hereby gives assurance that he/she is a Qualified Professional and is a Professional Engineer or Professional Geoscientist who fulfils the education, training, and experience requirements as outlined in the guidelines.

I have signed, sealed, and dated, and thereby certified, the attached Flood Assessment Report on the Property in accordance with the guidelines. That report and this statement must be read in conjunction with each other. In preparing that Flood Assessment Report I have:

[CHECK TO THE LEFT OF APPLICABLE ITEMS]

☐ 1. Consulted with representatives of the following government organizations:

☑ 2. Collected and reviewed appropriate background information

☑ 3. Reviewed the Proposed Development on the Property

☐ 4. Investigated the presence of Covenants on the Property, and reported any relevant information

☐ 5. Conducted field work on and, if required, beyond the Property

☐ 6. Reported on the results of the field work on and, if required, beyond the Property

☑ 7. Considered any changed conditions on and, if required, beyond the Property

8. For a Flood Hazard analysis I have:

- ☑ 8.1 Reviewed and characterized, if appropriate, Flood Hazard that may affect the Property
- ☑ 8.2 Estimated the Flood Hazard on the Property
- ☑ 8.3 Considered (if appropriate) the effects of climate change and land use change
- ☐ 8.4 Relied on a previous Flood Hazard Assessment (FHA) by others
- ☑ 8.5 Identified any potential hazards that are not addressed by the Flood Assessment Report

9. For a Flood Risk analysis I have:

- ☑ 9.1 Estimated the Flood Risk on the Property
- ☑ 9.2 Identified existing and anticipated future Elements at Risk on and, if required, beyond the Property
- ☑ 9.3 Estimated the Consequences to those Elements at Risk

10. In order to mitigate the estimated Flood Hazard for the Property, the following approach is taken:
- ☐ 10.1 A standard-based approach
- ☐ 10.2 A Risk-based approach
- ☑ 10.3 The approach outlined in the guidelines, Appendix F: Flood Assessment Considerations for Development Approvals
- ☑ 10.4 No mitigation is required because the completed flood assessment determined that the site is not subject to a Flood Hazard

11. Where the Approving Authority has adopted a specific level of Flood Hazard or Flood Risk tolerance, I have:
- ☐ 11.1 Made a finding on the level of Flood Hazard or Flood Risk on the Property
- ☐ 11.2 Compared the level of Flood Hazard or Flood Risk tolerance adopted by the Approving Authority with my findings
- ☐ 11.3 Made recommendations to reduce the Flood Hazard or Flood Risk on the Property

12. Where the Approving Authority has not adopted a level of Flood Hazard or Flood Risk tolerance, I have:
- ☑ 12.1 Described the method of Flood Hazard analysis or Flood Risk analysis used
- ☑ 12.2 Referred to an appropriate and identified provincial or national guideline for level of Flood Hazard or Flood Risk
- ☐ 12.3 Made a finding on the level of Flood Hazard of Flood Risk tolerance on the Property
- ☑ 12.4 Compared the guidelines with the findings of my flood assessment
- ☑ 12.5 Made recommendations to reduce the Flood Hazard or Flood Risk

☐ 13. Considered the potential for transfer of Flood Risk and the potential impacts to adjacent properties

☑ 14. Reported on the requirements for implementation of the mitigation recommendations, including the need for subsequent professional certifications and future inspections.

Based on my comparison between:

[CHECK ONE]

☐ The findings from the flood assessment and the adopted level of Flood Hazard or Flood Risk tolerance (item 11.2 above)

☑ The findings from the flood assessment and the appropriate and identified provincial or national guideline for level of Flood Hazard or Flood Risk tolerance (item 12.4 above)

I hereby give my assurance that, based on the conditions contained in the attached Flood Assessment Report:

[CHECK ONE]

☐ For subdivision approval, as required by the *Land Title Act* (Section 86), "that the land may be used safely for the use intended":

[CHECK ONE]

- ☐ With one or more recommended registered Covenants.
- ☐ Without any registered Covenant.

☑ For a development permit, as required by the *Local Government Act* (Part 14, Division 7), my Flood Assessment Report will "assist the local government in determining what conditions or requirements it will impose under subsection (2) of this section [Section 491 (4)]".

☑ For a building permit, as required by the Community Charter (Section 56), "the land may be used safely for the use intended":

[CHECK ONE]

- ☑ With one or more recommended registered Covenants.
- ☐ Without any registered Covenant.

☐ For flood plain bylaw variance, as required by the *Flood Hazard Area Land Use Management Guidelines* and the *Amendment Section 3.5 and 3.6* associated with the *Local Government Act* (Section 524), "the development may occur safely".

☐ For flood plain bylaw exemption, as required by the *Local Government Act* (Section 524), "the land may be used safely for the use intended".

I certify that I am a Qualified Professional as defined below.

January 20, 2026

Date

Ryzuk Geotechnical

Prepared by

Jordan Gybels, P.Eng.

Name (print)

Signature

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Reviewed by

Scott Currie, P.Eng.

Name (print)

Signature

(Affix PROFESSIONAL SEAL here)

If the Qualified Professional is a member of a firm, complete the following:

I am a member of the firm Ryzuk Geotechnical Ltd.
and I sign this letter on behalf of the firm. (Name of firm)