Box 100 | 7400 Prospect Street
Pemberton BC V0N 2L0
P: 604.894.6135 | F: 604.894.6136
Email: admin@pemberton.ca
Website: www.pemberton.ca

DEVELOPMENT-GENERAL INFORMATION

Application:

- ☐ OCP Bylaw Amendment &/or Zoning Bylaw Amendment **(Form OR13)**
- ☐ Development Permit **(Form MDP13)**
- ☐ Major or Minor Development Permit **(Form Minor DP)**
- ☑ Development Variance Permit **(Form DVP13)**
- ☐ Temporary Use Permit **(Form MDP13)**
- ☐ Subdivision, Bare Land Strata Approval & Strata Title Conversion **(Form Sub 13)**

All Applications **Please include Application Requirements Form (Checklist)**

SITE

Civic Address: 7661 Cerulean Drive

Legal Description:
PID: 030-665-442 Lot: 22
District Lot(DL): 211 Plan: EPP88381

OWNER(S)

Owner Name(s): Stephen & Sandi Britt

Home:
Work:
Mailing Address: [redacted]
Cell: [redacted]
Email: [redacted]

OWNER(S) AGENT IF APPLICABLE

Agent's Name:

Work:
Fax:
Mailing Address:
Cell:
Email:

☐ *If applicable* Please include Owner's Authorization

X
Owner Signature *Date*

X
Authorized Agent Signature *Date*

COMMENTS:

Application No	BP-1997	Fee:	[redacted]

APPLICATION REQUIREMENTS FOR A DEVELOPMENT VARIANCE PERMIT

1. Pre-Application Meeting

It is strongly recommended that prior to submitting an application for a Development Variance Permit, an applicant should meet with Village of Pemberton Development Services Department to review the application requirements. The intent of the pre-application will be to confirm specific submission requirements for each proposal.

It is important to have the Village identify the information required for the application since any applications deemed incomplete by the Development Services Department will not be accepted and subsequently returned to the applicant.

2. Submission Checklist

- ☒ Complete Application Form *(Form DVP13)*
- ☒ Application Fee *(in accordance with Development Procedures Bylaw No. 725, 2012)*
- ☒ Certificate of State of Title or of Indefeasible Title *(dated no more than thirty (30) days prior to submission of the application must accompany the application as a proof of ownership)*
- ☐ Copy of Charges on Title *(i.e. covenants, rights of way, statutory building schemes, etc)*
- ☐ Owners Agent Authorization *(if applicable)*

3. Property Information

Legal Description:
7661 Cerulean Drive Pemberton, B.C. V0N2L3

PID#: 030-665-442

Civic Address: Lot 22 Sunstone, Pemberton B.C. V0N2L1

Bylaw Requesting Variance: Bylaw No. 823, 2018 section 7.21

Specific Section of Abovementioned Bylaw Requesting Variance: 7.21 Retaining Walls

4. Project Summary Information Checklist *(provide in written format)*

- ☒ Description of Proposed Development and Variance
- ☒ Rationale in Support of the Proposed Variance
- ☒ Supporting Surveys and Site/Architectural/Servicing Plans that may assist in describing the proposed variance

**All plans shall be prepared at metric scale and dimensions*

APPLICATION FORM FOR A DEVELOPMENT VARIANCE PERMIT (DVP13)

I/We hereby make application under the provisions of Part 26 of the *Local Government Act* and the Village's Development Procedure Bylaw No. 725, 2012 for a Development Variance Permit for lands legally described as:

Lot: 22, Plan: EPP88381, District Lot: 211, LLD.

THIS APPLICATION IS MADE WITH MY FULL KNOWLEDGE AND CONSENT

[redacted] February 24, 2021

Registered owner's signature Date

Where the applicant is NOT the REGISTERED OWNER, the application must be signed by the REGISTERED OWNERS designated AGENT and proof thereof must be registered in the office of the Village of Pemberton.

FOR OFFICE USE ONLY:

Application/File No.: DVP#128

Application Fee received $[redacted] Receipt No.: [redacted]

Date received: 2/24/2021

[redacted]

Signature of Official

**All plans shall be prepared at metric scale and dimensions*

Date: February 24, 2021

To: Village of Pemberton, B.C./Board of Variance
For: Development Variance Permit application

From: Stephen & Sandi Britt
Address: 7661 Cerulean Drive, Pemberton, B.C. V0N 2L3

We are seeking a relaxation of the current retaining wall Zoning Bylaw No. 823, 2018 Section 7.21 a) retaining wall height maximum of 1.2 metres. We have designed our plans to build our house up on the highest access point of the property (road level) and this requires one of our retaining walls to exceed the 1.2 meters height by only 3.3 meters and two other retaining walls will exceed by only 0.8.

1. We would like to have a flat driveway and access to the entrance of the garage and carport.
2. We would like to take advantage of the best views of Mount Currie from our lot.
3. We would like to be the furthest off of the lower road for noise/traffic reasons.
4. We would like to have as much of a yard as possible in front of our house to be able to have a lawn and garden.

SFA Geotechnical Inc. has designed our retaining walls keeping in mind the natural surroundings and properties, the rock walls will be comparable to the walls that the developer has installed on the roadways. (See pictures) As well as guaranteeing the property is appropriately engineered for the type soil in the area.

We plan to landscape on the landings of the walls so it will esthetically pleasing and blend well with the natural beauty of the environment in this development.

When we purchased the property we were not informed of this bylaw by the developer or realtor. We had always planned to build our home off of the roadway for the above reasons. We have neighboring properties that have gone beyond the bylaw of 1.2 metres by far larger quantities and we feel we are presenting a rock wall design that is within a reasonable amount to exceed the 1.2 metres by only 3.3 metres. We feel any further delays and changes to our plans will cause additional costs and undue hardship.

Thank you for your time and consideration in this matter.

Stephen & Sandi Britt


BC
BALMORAL

THE ATTACHED IS TO CERTIFY THAT ON MARCH 5, 2019, THE STATE OF THE TITLE TO THE LANDS DESCRIBED THEREIN IS AS STATED AND IS SUBJECT TO THE NOTATIONS APPEARING THEREIN. THIS CERTIFICATE IS TO BE READ SUBJECT TO THE PROVISIONS OF SECTION 23(1) OF THE LAND TITLE ACT AS AMENDED AND THE LAND ACT SECTIONS 47, AND 52-57 (SEE R.S.B.C. 1979, CHAPTER 214).

"SHOLTO SHAW"

SHOLTO SHAW, for RACE & COMPANY,

[redacted]

TITLE SEARCH PRINT
File Reference: 59974dnp
Declared Value $319000

2019-03-05, 10:34:25
Requestor: Nadine Carey

CURRENT INFORMATION ONLY - NO CANCELLED INFORMATION SHOWN

Land Title District	KAMLOOPS
Land Title Office	KAMLOOPS
Title Number	CA7302645
From Title Number	CA7260249
Application Received	2019-01-18
Application Entered	2019-01-23

Registered Owner in Fee Simple
Registered Owner/Mailing Address: SANDRA WALLACE BRITT, SALES MANAGER
STEPHEN BRADLEY BRITT, CARPENTER
[redacted]

Taxation Authority
North Shore - Squamish Valley Assessment Area
Pemberton, Village of
Pemberton Valley Dyking District

Description of Land
Parcel Identifier: 030-665-442
Legal Description:
LOT 22 DISTRICT LOT 211 LILLOOET DISTRICT PLAN EPP88381

Legal Notations
HERETO IS ANNEXED RESTRICTIVE COVENANT CA1132532 OVER LOT 1 PLAN EPP1353

THIS TITLE MAY BE AFFECTED BY A PERMIT UNDER PART 26 OF THE LOCAL GOVERNMENT ACT, SEE CA4415324

THIS TITLE MAY BE AFFECTED BY A PERMIT UNDER PART 26 OF THE LOCAL GOVERNMENT ACT, SEE CA4415329

HERETO IS ANNEXED EASEMENT CA6987764 OVER PART OF LOTS B EPP74427

HERETO IS ANNEXED RESTRICTIVE COVENANT LB319180 OVER LOT 1 PLAN EPP1353

TITLE SEARCH PRINT
File Reference: 59974dnp
Declared Value $319000

2019-03-05, 10:34:25
Requestor: Nadine Carey

Charges, Liens and Interests

Nature:	COVENANT
Registration Number:	CA6503577
Registration Date and Time:	2017-12-11 18:40
Registered Owner:	VILLAGE OF PEMBERTON
Remarks:	INTER ALIA

Nature:	RESTRICTIVE COVENANT
Registration Number:	CA6503578
Registration Date and Time:	2017-12-11 18:40
Remarks:	INTER ALIA APPURTENANT TO PCL A (DD W34182F PL A21) DL 211 LD

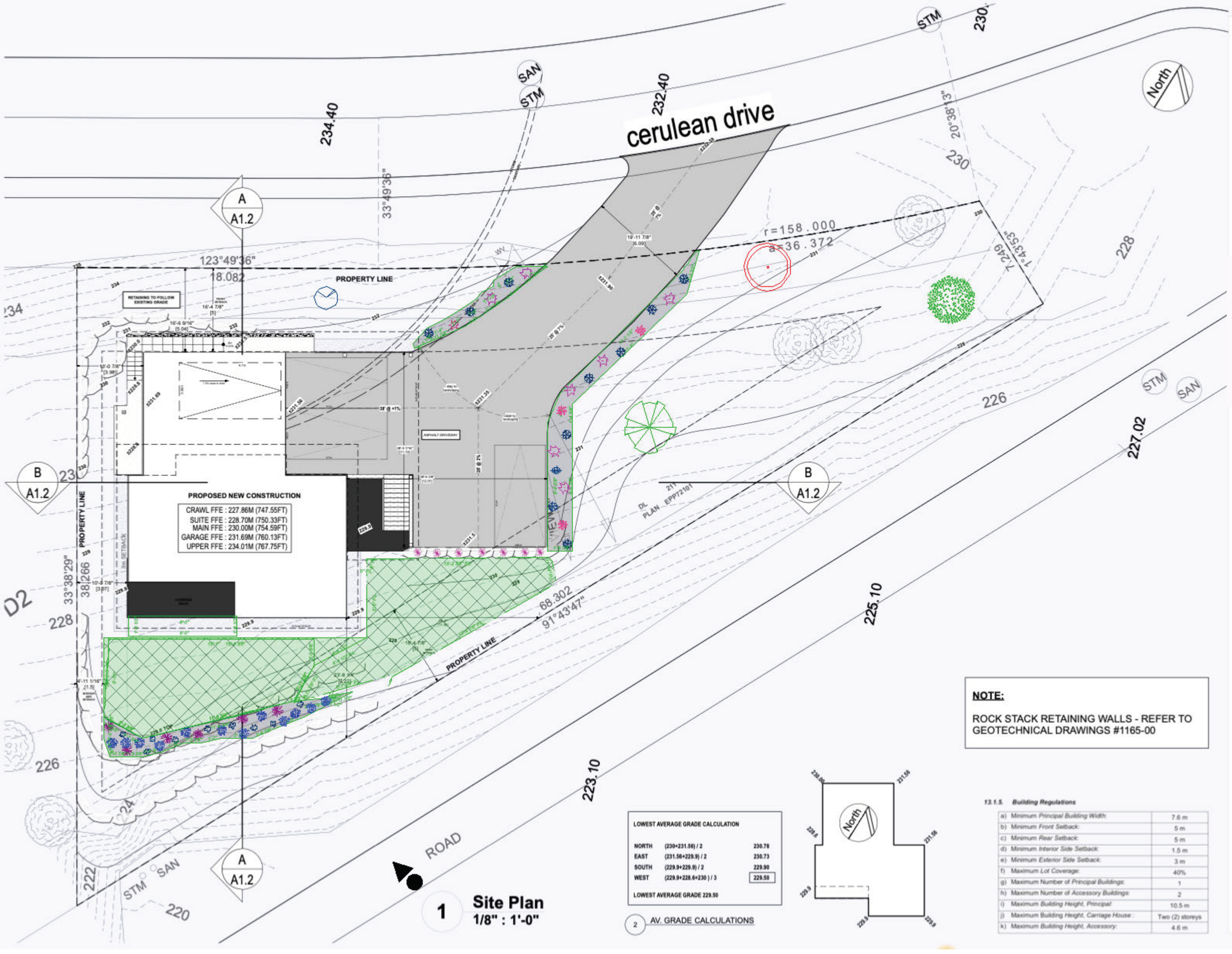
Nature:	EASEMENT
Registration Number:	CA6503589
Registration Date and Time:	2017-12-11 18:40
Remarks:	INTER ALIA APPURTENANT TO LOT 8 EPP72101

Nature:	STATUTORY BUILDING SCHEME
Registration Number:	CA7273860
Registration Date and Time:	2018-12-31 10:16
Remarks:	INTER ALIA

Duplicate Indefeasible Title NONE OUTSTANDING

Transfers NONE

Pending Applications NONE



1 **Site Plan**
1/8" : 1'-0"

LOWEST AVERAGE GRADE CALCULATION		
NORTH	(230+231.56) / 2	230.78
EAST	(231.56+229.9) / 2	230.73
SOUTH	(229.9+229.9) / 2	229.90
WEST	(229.9+228.6+230) / 3	229.50
LOWEST AVERAGE GRADE 229.50		

2 AV. GRADE CALCULATIONS

NOTE:

ROCK STACK RETAINING WALLS - REFER TO GEOTECHNICAL DRAWINGS #1165-00

13.1.5. Building Regulations

a) Minimum *Principal Building Width*:	7.6 m
b) Minimum *Front Setback*:	5 m
c) Minimum *Rear Setback*:	5 m
d) Minimum *Interior Side Setback*:	1.5 m
e) Minimum *Exterior Side Setback*:	3 m
f) Maximum *Lot Coverage*:	40%
g) Maximum Number of *Principal Buildings*:	1
h) Maximum Number of *Accessory Buildings*:	2
i) Maximum *Building Height, Principal*:	10.5 m
j) Maximum *Building Height, Carriage House* :	Two (2) storeys
k) Maximum *Building Height, Accessory*:	4.6 m

Issued For:	Date:
REVIEW	09.MAR.2020
GEOTECHNICAL REVIEW	14.MAR.2020
STRUCTURAL REVIEW	30.MAR.2020
PROGRESS SET	08.JUNE.2020
GEO REVIEW	19.JUNE.2020
CLIENT REVIEW	07.JULY.2020
STRUCTURAL REVIEW	02.SEPT.2020
ENERGY REVIEW	28.SEPT.2020
DESIGN REVIEW	15.OCT.2020

No:	Revision:	Date:
1		

PLANT LEGEND

Trees

Common name	Latin Name	Symbol	Quantity
Blue Spruce	Picea Pungens.		1
Japanse Maple	Acer Palmatum		1
Autumn Blaze Maple	Acer X Freemanii		1

Plants

Bloodgrass	Cenchrus Setaceus		14
Golden Sedum	Sedum Adolphi		11
Blue Juniper	Juniperus Squamata		7
Karl Foerster	Calamagrofis Acutiflora.		11
Wild Thyme	Thymus Sepyllum		9
Black Eyed Susan	Rudbeckia Hirta		8

Title: SITE PLAN

Project: **Britt Residence**
7661 CERULEAN DRIVE, PEMBERTON BC

Drawn By: ME ROY, TT
Scale: AS SHOWN

Sheet No:

A-1.1

A-1.1 SITE PLAN

Prepared for:
Sandra & Stephen Britt
[redacted]

ROCK STACK RETAINING WALL DESIGN DRAWINGS
Proposed New Home
Lot D1, Sunstone Subdivision, Pemberton, BC

[redacted]

Nov. 3/20

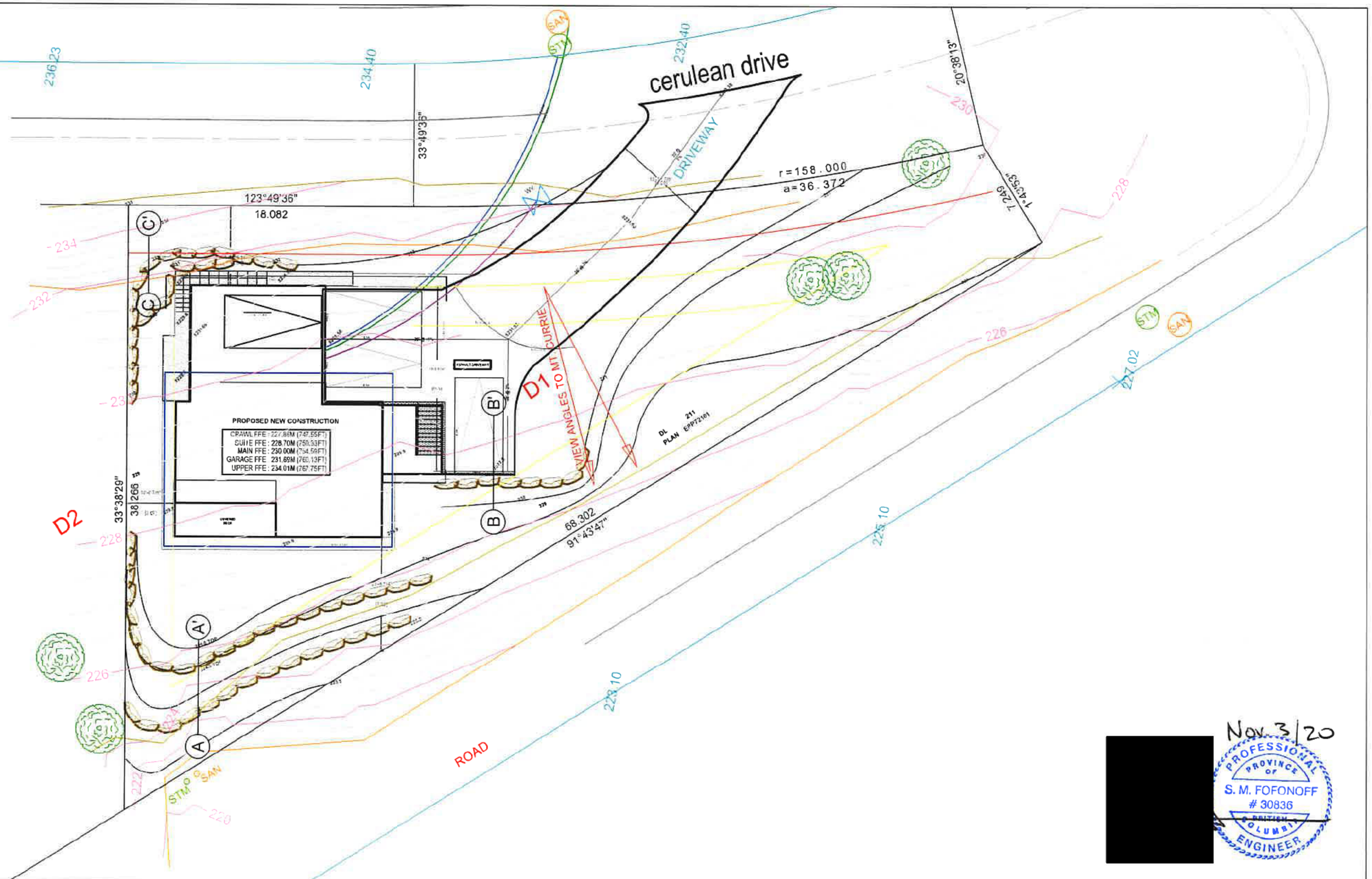
PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
S. M. FOFONOFF
30836

SFA GEOTECHNICAL ENGINEERING

SFA GEOTECHNICAL INC
#1 - 38920 Queens Way
[redacted]

Dwg No: 1165-00

Date: November 3, 2020



Site plan prepared by Architect M.E. Roy,
Dated September 28, 2020

[redacted]

Nov. 3/20

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PROVINCE OF BRITISH COLUMBIA
S. M. FOFONOFF
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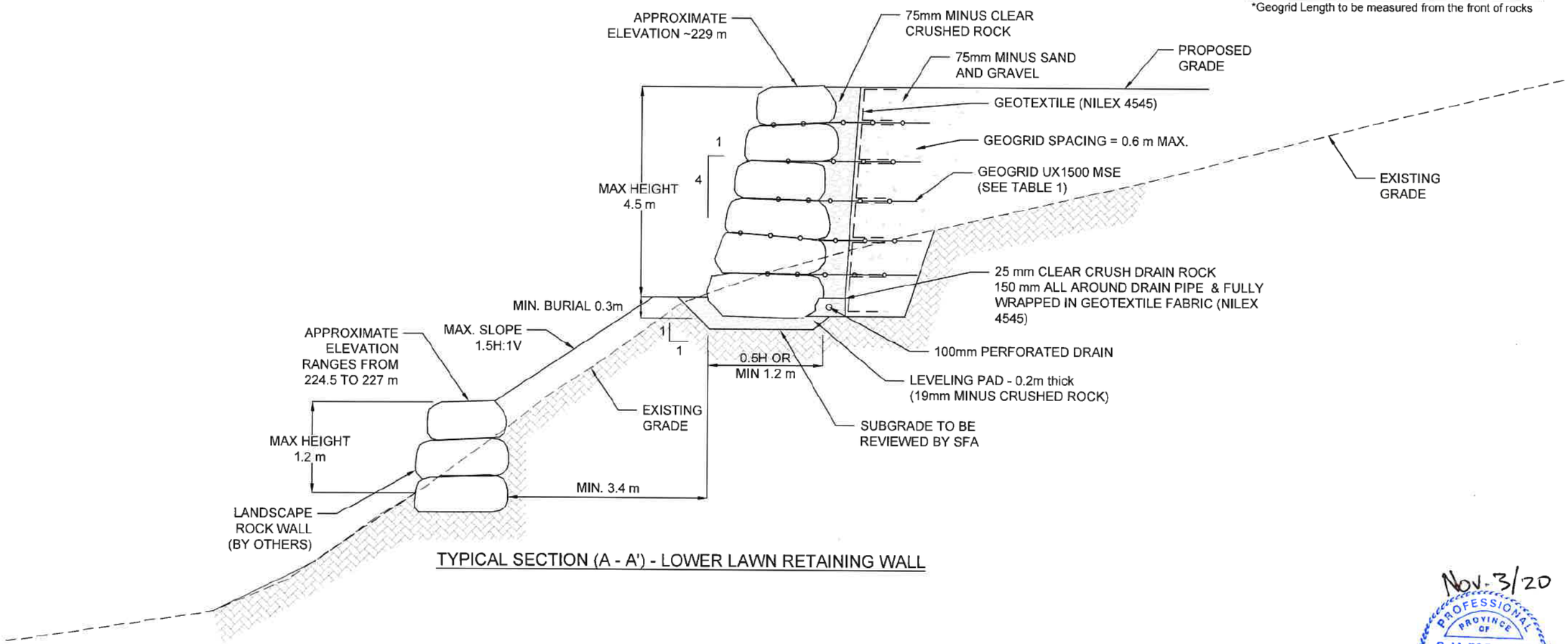
SFA GEOTECHNICAL ENGINEERING	SFA GEOTECHNICAL INC #1 - 38920 Queens Way Squamish, BC V8B 0K8 604 898 1093	PROPOSED NEW HOME *Lot D1, Sunstone, Pemberton, BC* **RETAINING WALLS** **PLAN VIEW**	DRAWN BY: WG REVIEWED BY: SF DATE: October 9, 2020 SCALE: NTS	REVISION NO.: A — DESCRIPTION: ISSUED FOR PERMIT — DATE: NOV. 3, 2020	JOB NO: 1165 DRAWING NO: 1165-01

TABLE 1		
Wall Height (m)	**Geogrid Type**	**Geogrid Length* (m)**
GREATER THAN 2.5 m	UX1500	5.75
LESS THAN 2.5 m	UX1500	3.5
UNDER 1.2 m	NO GRID	

*Geogrid Length to be measured from the front of rocks



TYPICAL SECTION (A - A') - LOWER LAWN RETAINING WALL

Nov. 3/20

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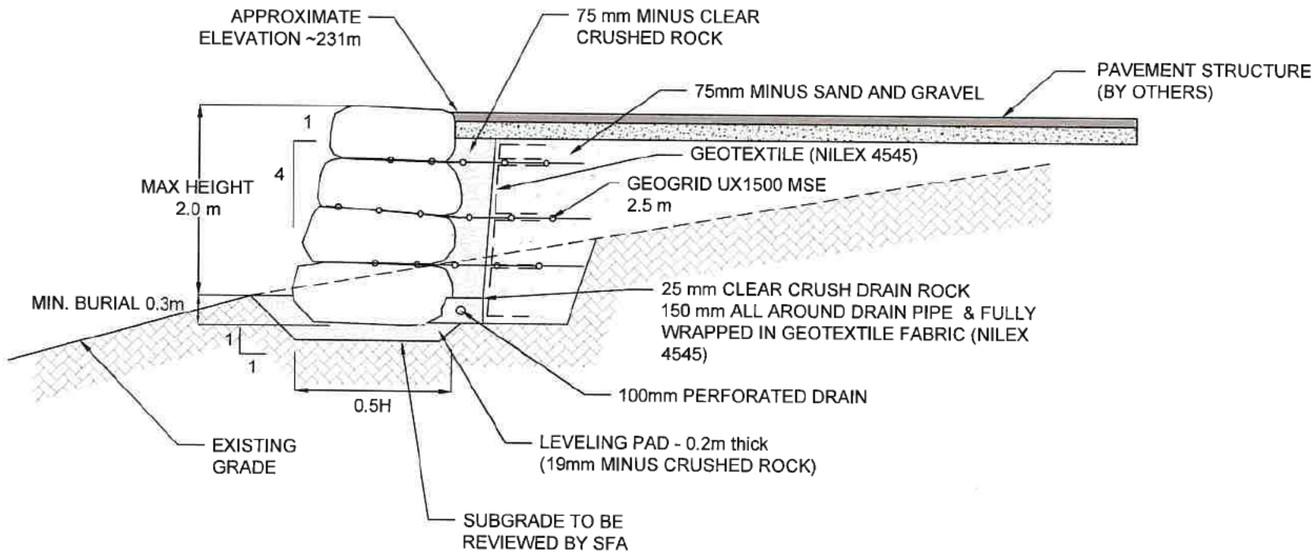
SFA GEOTECHNICAL ENGINEERING	**SFA GEOTECHNICAL INC** #1 - 38920 Queens Way Squamish, BC V8B 0K8 604 898 1093	PROPOSED NEW HOME *Lot D1, Sunstone, Pemberton, BC* **LAWN RETAINING WALL** **TYPICAL SECTION**	DRAWN BY: WG REVIEWED BY: SF DATE: October 9, 2020 SCALE: NTS	REVISION NO.: A — DESCRIPTION: ISSUED FOR PERMIT — DATE: NOV. 3, 2020	JOB NO: 1165 DRAWING NO: 1165-02



TYPICAL SECTION (B - B') - DRIVEWAY RETAINING WALL

Nov. 3/20

[redacted]

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SFA GEOTECHNICAL ENGINEERING

SFA GEOTECHNICAL INC
#1 - 38920 Queens Way
Squamish, BC V8B 0K8
604 898 1093

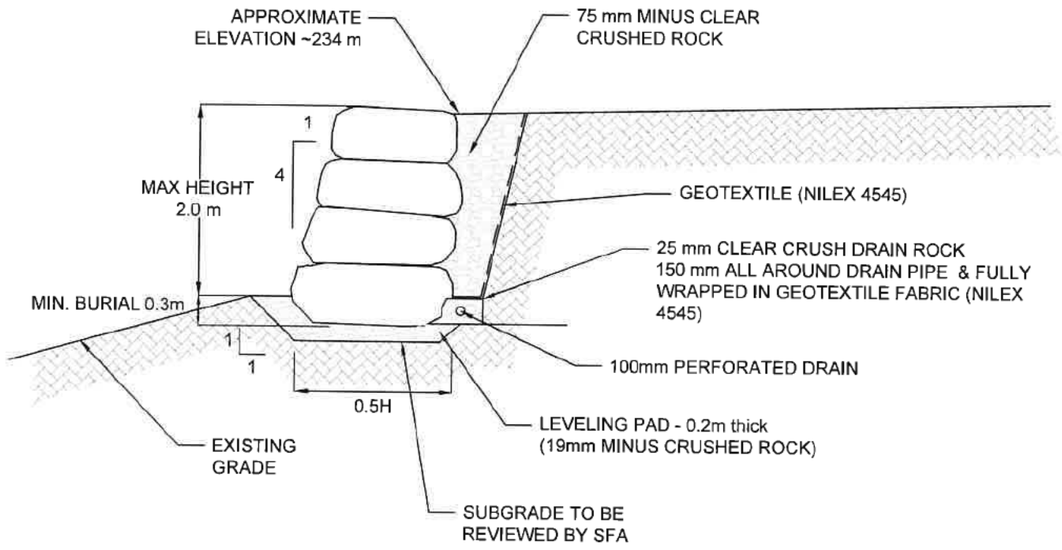
PROPOSED NEW HOME
Lot D1, Sunstone, Pemberton, BC
DRIVEWAY RETAINING WALL
TYPICAL SECTION

DRAWN BY:	WG
REVIEWED BY:	SF
DATE:	October 9, 2020
SCALE:	NTS

REVISION NO.:	DESCRIPTION	DATE
A	ISSUED FOR PERMIT	NOV. 3, 2020

JOB NO: 1165

DRAWING NO: 1165-03



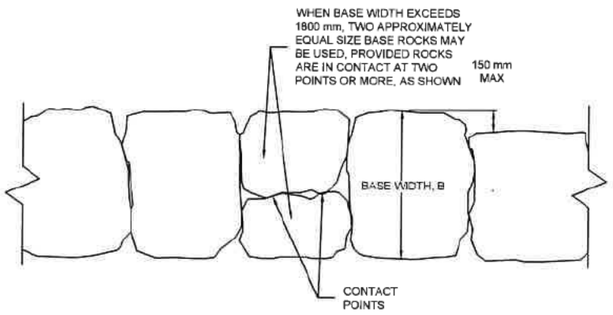
TYPICAL SECTION (C - C') - WEST CORNER DRY STACK RETAINING WALL

[redacted]

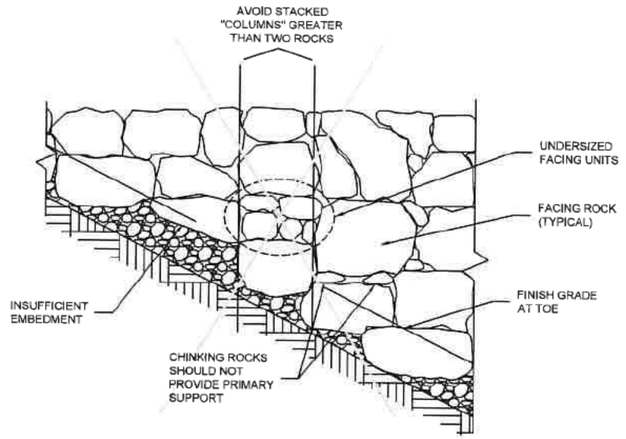
NOV. 3/20

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
S. M. FOFONOFF
30836

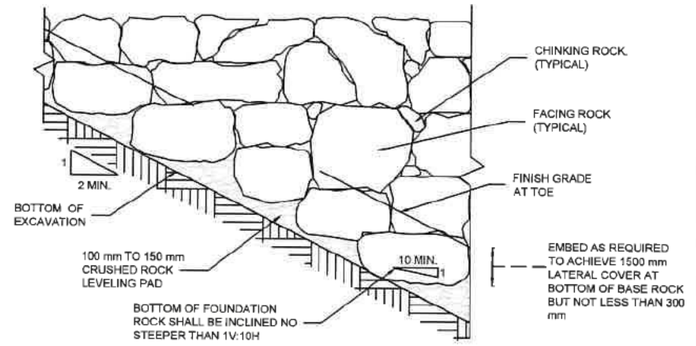
SFA GEOTECHNICAL ENGINEERING	**SFA GEOTECHNICAL INC** #1 - 38920 Queens Way Squamish, BC V8B 0K8 604 898 1093	PROPOSED NEW HOME *Lot D1, Sunstone, Pemberton, BC* **DRY STACK RETAINING WALL** **TYPICAL SECTION**	DRAWN BY: WG REVIEWED BY: SF DATE: October 9, 2020 SCALE: NTS	REVISION NO.: / DESCRIPTION / DATE A / ISSUED FOR PERMIT / NOV. 3, 2020	JOB NO: 1165 DRAWING NO: 1165-04



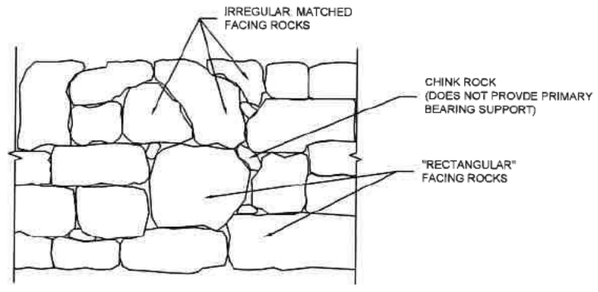
BASE ROCK TOLERANCES



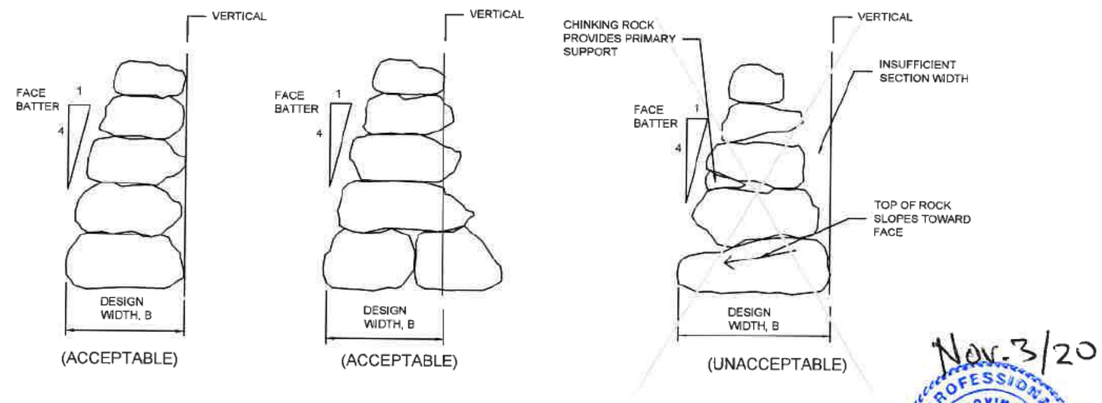
ACCEPTABLE ROCK PLACEMENT



UNACCEPTABLE ROCK PLACEMENT



RECTANGULAR & IRREGULAR FACING ROCKS



STACKING REQUIREMENTS

Nov. 3/20

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
S. M. FOFONOFF
30836

[redacted]

SFA GEOTECHNICAL ENGINEERING

SFA GEOTECHNICAL INC
#1 - 38920 Queens Way
Squamish, BC V8B 0K8
604 898 1093

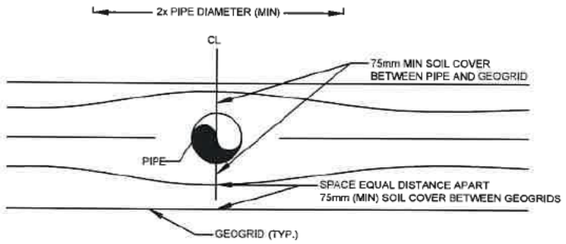
PROPOSED NEW HOME
Lot D1, Sunstone, Pemberton, BC
RETAINING WALLS
TYPICAL DETAILS (1/2)

DRAWN BY:	WG
REVIEWED BY:	SF
DATE:	October 9, 2020
SCALE:	NTS

REVISION NO.:	DESCRIPTION	DATE
A	ISSUED FOR PERMIT	NOV. 3, 2020

JOB NO: 1165

DRAWING NO: 1165-05



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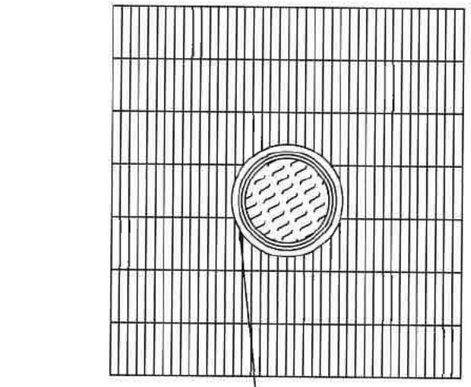
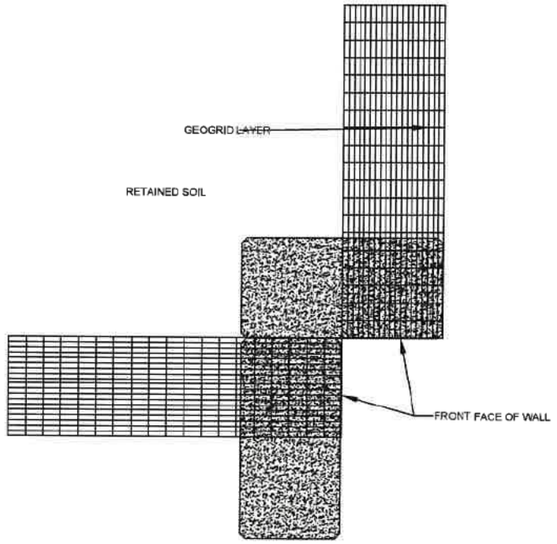
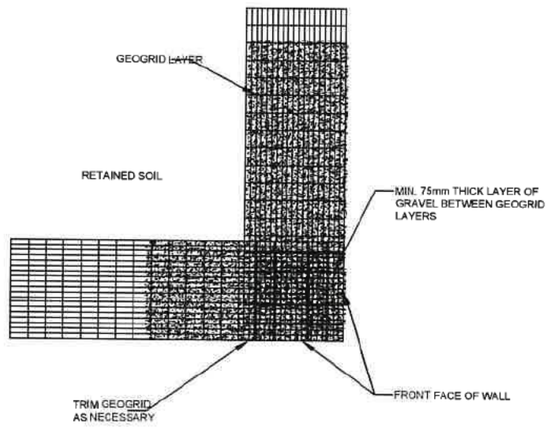


REINFORCEMENT AT VERTICAL INCLUSIONS



REINFORCMENT AT OUTWARDS CORNERS



REINFORCMENT AT INWARDS CORNERS

Nov. 3/20

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
S. M. FOFONOFF
30836

[redacted]

SFA GEOTECHNICAL ENGINEERING	**SFA GEOTECHNICAL INC** #1 - 38920 Queens Way Squamish, BC V8B 0K8 604 898 1093	PROPOSED NEW HOME *Lot D1, Sunstone, Pemberton, BC* **RETAINING WALLS** **TYPICAL DETAILS (2/2)**	DRAWN BY: WG REVIEWED BY: SF DATE: October 9, 2020 SCALE: NTS	REVISION NO.: A DESCRIPTION: ISSUED FOR PERMIT DATE: NOV. 3, 2020	JOB NO: 1165 DRAWING NO: 1165-06

PART 1 - GENERAL

1.1 In these Notes, the Engineer is SFA Geotechnical.

1.2 These notes must be read in conjunction with 1165–01 to 1165-06.

1.3 The work described and shown involves the supply and installation of the proposed Rock Stack Retaining Walls using natural rocks as facing units.

1.4 The Contractor shall confirm the locations and conditions of all man-made structures which could be affected or damaged by the work. Structures which may be affected or damaged by the work must be reported to the Engineer in advance of the work to take place. The Engineer may change the design or approve of modifications to installation techniques proposed by the Contractor to preclude damage or conflict with existing structures.

PART 2 - MATERIALS

2.1 Base & Facing Rocks

- Rocks used for wall construction shall be hard, angular, and durable, and resistant to physical, climatic and chemical decomposition.
- Rocks shall be roughly rectangular, tabular or cubical in shape, and shall be intact without any open fractures, foliation or other plane weakness.
- Rounded rocks or cobbles shall not be used.

2.2 Cap Rocks

- Cap Rocks shall weigh at least 90 kg (200 lb) so that they will be not movable by hand.

2.3 Chinking (Filled) Rocks

- Chinking Rocks shall be used to fill rock gaps that exceed 150 mm to prevent backfill materials falling out through large gaps.
- Chinking Rocks shall consist of spalls from the parent (facing) rocks.
- Chinking Rocks shall not be movable by hand.

2.4 Backfill Soils

- Backfill Soils shall consist of 75 mm minus pit run sand and gravel containing less then 5% fines or materials otherwise approved by SFA may be used.
- The Contractor shall provide samples and/or sieve analysis results of the Backfill soils to the Engineer upon request.

2.5 Geogrid

- The retaining walls have been designed on the basis of Tensar Grid UX1500 with a long-term design strength of 41.8 kN/m for a 120 year design life. Geogrid coverage shall be 100%.
- Alternative geogrid may require redesign of the wall by the Engineer and may not be substituted without written authorization from the Engineer.

2.6 Levelling Pad

- Levelling pad shall consist of at least 300 mm of 19 mm clear crushed gravel.

2.7 Foundation Subgrade

- Foundation subgrade shall consist of native sand and gravel soils approved by the Engineer.
- Any grade reinstatement of the subgrade shall be completed using Leveling Pad or Backfill materials.

PART 3 - EXECUTION

3.1 Foundation Excavation

- Foundation excavation must be sufficiently wide to permit placement of the specified leveling pad.
- The foundation excavation should extend deep enough to provide the required leveling pad thickness and required burial depth.
- Any unsuitable soils encountered at the foundation locations must be sub-excavated and replaced with the leveling pad or backfill materials once the unsuitable soil removal is approved by the Engineer.

3.2 Base Rock Placement

- Base rocks must be placed on subgrade and leveling pad approved by the Engineer.
- All rocks (both base & facing rocks) should be placed with the longest rock dimension perpendicular to the wall alignment, the second largest dimension parallel to the wall alignment, and the smallest dimension should be its vertical dimension.
- If base rock widths exceed 1.8 m (6.0 ft) it is acceptable to use two equally sized rocks with a total width of at least B, provided the rocks are bearing against each other in at least two locations.
- Adjacent base rocks to the paired base rocks must be a single rock with a minimum width of B.
- The overall use of base rocks with a width less than B should be minimized.

3.3 Facing Rock Placement

- Each facing rock should bear on at least two other rocks (staggered placement with no vertical columns of rock or continuous vertical joints through the retaining wall).
- Each rock should have at least three bearing points - two at the front and one at the back.
- The front-most bearing point for each facing rock should be within 150 mm (6") of the average face of the wall.
- The rear of the rocks should be aligned along on imaginary vertical plane unless otherwise noted in the Drawings.
- If facing rocks are larger than the minimum width of B, they can extend beyond the imaginary plane provided that they do not interfere with the drainage.
- Rocks with shapes that create voids with a linear dimension greater than 300 mm shall be placed elsewhere to obtain a better fit.
- If gaps larger than 150 mm cannot be avoided, they should be chinked (filled) with smaller rocks.
- Chinking rocks shall not be movable by hand and can be grouted in place if necessary. Chinking rocks shall not provide primary support for overlying rocks.

3.4 Backfill Placement & Compaction

- Backfill materials should be placed beyond each course of the base or facing rocks once they are installed and secured in place.
- Each backfill lift shall not exceed the top of each base or facing course.
- Backfill shall be compacted to 95% of the maximum density as determined by ASTM 1557 (Modified Proctor). The moisture content of the backfill material prior to and during compaction shall be uniformly distributed throughout each lift and shall be with 2% of the optimum moisture content.
- Backfill shall be placed and compacted in lifts not to exceed 300 mm or the height of the facing rocks, whichever is smaller.
- Only lightweight hand-operated equipment shall be allowed within 1.5 m of the facing rocks.

3.5 Geogrid Placement

- Geogrid shall be oriented with the highest strength axis (machine direction) perpendicular to the wall alignment.
- Geogrid shall be placed at the elevations and to the extent shown in the Drawings or as directed by the Engineer.
- Geogrid shall be laid horizontally in the direction perpendicular to the face of the retaining wall.
- Geogrid shall be pulled taut, free of wrinkles and anchored at the end of each layer prior to backfill placement on geogrid.
- Geogrid shall be continuous throughout their embedment lengths (Coverage Ratio 100%)
- Spliced connections between shorter pieces of geogrid are not permitted.
- Backfill materials shall be placed, spread and compacted in such a manner that minimizes the development of slack in geogrid.
- Tracked construction equipment shall not be operated directly on geogrid. A minimum fill thickness of 150 mm is required prior to operation of tracked vehicles over geogrid. Tracked vehicles should not turn on the geogrid to prevent tracks from displacing the fill and geogrid.

3.6 Cap Rock Placement

- Cap rocks that do not meet the requirements described in 2.2 should be grouted in place to prevent accidental dislodging.

PART 4 - CONSTRUCTION INSPECTION

The Contractor shall notify SFA Geotechnical Inc. a minimum 48 hours in advance of the commencement of the following aspects of the work:

- Site Stripping & Foundation Excavation
- Base Rock Placement
- Drain Pipe & Backfill Placement/Compaction behind Base Rocks
- Facing Rock Placement
- Geogrid Placement

Nov. 3/20

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
S. M. FOFONOFF
30836

[redacted]

SFA GEOTECHNICAL ENGINEERING	SFA GEOTECHNICAL INC #1 - 38920 Queens Way Squamish, BC V8B 0K8 604 898 1093	PROPOSED NEW HOME *Lot D1, Sunstone, Pemberton, BC* **RETAINING WALLS** **NOTES**	DRAWN BY: WG REVIEWED BY: SF DATE: October 9, 2020 SCALE: NTS

REVISION NO.	DESCRIPTION	DATE
A	ISSUED FOR PERMIT	NOV. 3, 2020

JOB NO: 1165

DRAWING NO: 1165-07

205 – 38026 2nd Ave.
[redacted]

Sandra & Stephen Britt
[redacted]

January 29, 2019
File: 1165

Attention: Sandra & Stephen Britt

Re: Geotechnical Recommendations – Proposed New Home – Lot D1, Sunstone Subdivision, Pemberton, BC

1.0 INTRODUCTION

We understand that it is proposed to construct a new home on Lot D1 of The Sunstone Subdivision development in Pemberton, BC. SFA Geotechnical Inc. has been asked to provide geotechnical recommendations for the project.

Design drawings are not yet available. The home is expected to be two levels of wood framed construction over concrete foundations and concrete foundation walls with a pool and hot tub proposed in front of the house. Based on expected building grades some stripping, excavation and filling will likely be required.

This report presents the findings of our review of the site conditions and our experience in the area. This report was prepared exclusively for our client, for their use, and for the use of others on their design team, and for the use of the Village of Pemberton in the permitting process, however it remains the property of SFA.

2.0 SITE DESCRIPTION

The lot slopes down to the southwest from approximately 233 m to 224 m geodetic. The site is undeveloped and treed. The site is bounded by roadways to the north, south and east and by a residential lot to the west.

3.0 SOIL CONDITIONS & GROUNDWATER

In general, the geology of the region consists of quaternary bedrock overlain by glacial deposits. With reference to the Geological Survey of Canada map 5324 the surficial geology is described as glaciofluvial veneer comprised of well to poorly sorted, commonly stratified sand and gravel.

We expect the groundwater to be well below the proposed foundation depths. Some perched groundwater may be encountered within the glacial soils over the less permeable layers within the deposit.

4.0 RECOMMENDATIONS

4.1 Site Stripping

Site stripping beneath the building includes removal of any organics, topsoil, variable fill materials, and

any other material considered to compromise the design recommendations stated herein to expose the underlying glacial till or bedrock. We recommend that all foundations be lowered, if necessary, so that they are supported on glacial till or bedrock where encountered.

SFA should be contacted to review stripped subgrade prior to placement of formwork.

4.2 Engineered Fill

Engineered fill will be located beneath grade supported slabs. In the context of this report any "engineered fill" is defined as clean sand to sand and gravel fill, containing less than 8% fines, compacted in 300 mm loose lifts to a minimum standard of 100% of its Standard Proctor Maximum Dry Density (ASTM D698) while at a moisture content that is within 2% of its optimum for compaction.

All fill materials should be placed and compacted under the review of SFA.

4.2 Foundations

4.2.1 Spread Foundations

It is expected that foundations will be supported on the native subgrade soils of glacial till. Following the recommended site preparation, the subgrade soils are considered suitable to support conventional spread foundations at a serviceability limit state (SLS) bearing pressure of up to 150 kPa and a factored ultimate limit state (ULS) of 300 kPa.

If bedrock is encountered at foundation level SFA should be asked to review and make further recommendations.

4.2.2 Settlement of Foundations

Post construction settlements are estimated to be less than 25 mm with differential settlements of less than 1 in 300.

4.2.3 Seismic Design of Foundations

The seismic site response classification for this site is "Site Class C" in accordance with Table 4.1.8.4.A of the 2012 BCBC.

The underlying soils are not considered susceptible to liquefaction.

4.2.4 Frost Protection

All foundations should be located a minimum of 0.6 m below site grades for frost protection.

All foundation subgrades must be reviewed by SFA prior to foundation construction.

4.3 Concrete Slabs on Grade

All grade supported concrete slabs, should be underlain by a minimum of 150 mm of 19 mm clear crushed gravel, to help prevent moisture from accumulating below the slab, placed over compacted "engineered fill" as described in this report. The gravel should be lightly tamped in place. We recommend that a poly moisture barrier be placed overlying the gravel beneath the grade supported slabs to help reduce moisture

within the concrete.

4.4 Foundation Drainage

We recommend that the building design include a conventional perimeter drainage system to help intercept and control runoff and surficial drainage and to ensure that groundwater does not accumulate below the floor slabs or adjacent foundation walls. The under slab fill should have a hydraulic connection to the perimeter drain to help ensure water does not build up below the slab or adjacent to foundation walls. This can be achieved with weep holes or by placing gravel below foundations.

4.5 Earth Pressures on Buried Walls

We recommend that buried walls be designed for static and seismic earth pressures. We recommend that the wall be designed for a static pressure distribution of 5.4H (kPa) triangular, where H is the height of the restrained soil in metres. Dynamic loading induced by the design earthquake should be added to the static loads and should be taken as 1.4H (kPa) inverted triangular. The preceding loading recommendations assume that the backfill is a clean, free draining sand and gravel, the backfill is level behind the wall, and the wall is frictionless.

Our calculations assume that a back-of-wall drainage system will be installed to prevent the build up of any water pressure behind the walls. All earth pressures provided herein are unfactored soil parameters and are assumed to be unfactored loads.

5.0 FIELD REVIEWS

As is normally required for municipal Letters of Assurance, SFA Geotechnical Inc. will carry out sufficient field reviews during construction to ensure that the geotechnical design recommendations contained within this report have been adequately communicated to the design team and to the contractors implementing the design. These field reviews are not carried out for the benefit of the contractors and therefore do not in any way effect the contractors' obligations to perform under the terms of his/her contract.

It is the contractors' responsibility to advise SFA Geotechnical Inc. (a minimum of 24 hours in advance) that a field review is required. Geotechnical field reviews are normally required at the time of the following:

1. Site Stripping	Review of excavation and stripped subgrade
2. Subgrade	Review of foundation subgrade
3. Backfill / Frost Depth	Review of adequacy of backfill and frost protection
4. Slab-on-grade	Review of subgrade preparation for any grade supported concrete slabs

It is critical that these reviews are carried out to ensure that our intentions have been adequately communicated. It is also critical that contractors working on the site view this document in advance of any work being carried out so that they are familiar with the sensitive aspects of the project. It is the responsibility of the developer to notify SFA Geotechnical Inc. when conditions or situations not outlined within this document are encountered.

6.0 CLOSURE

This report is prepared solely for use by our client and their design team for this project as described to the general standards of similar work for similar projects in this area and no other warranty of any kind is expressed or implied. SFA Geotechnical Inc. accepts no responsibility for any other use of this report.

We are pleased to assist you with this project and we trust this information is helpful and sufficient for your purposes at this time. Please do not hesitate to call the undersigned if you require clarification or additional details.

For:
SFA Geotechnical Inc.

[redacted]

Will Gerrard, P.Geo.
Geoscientist

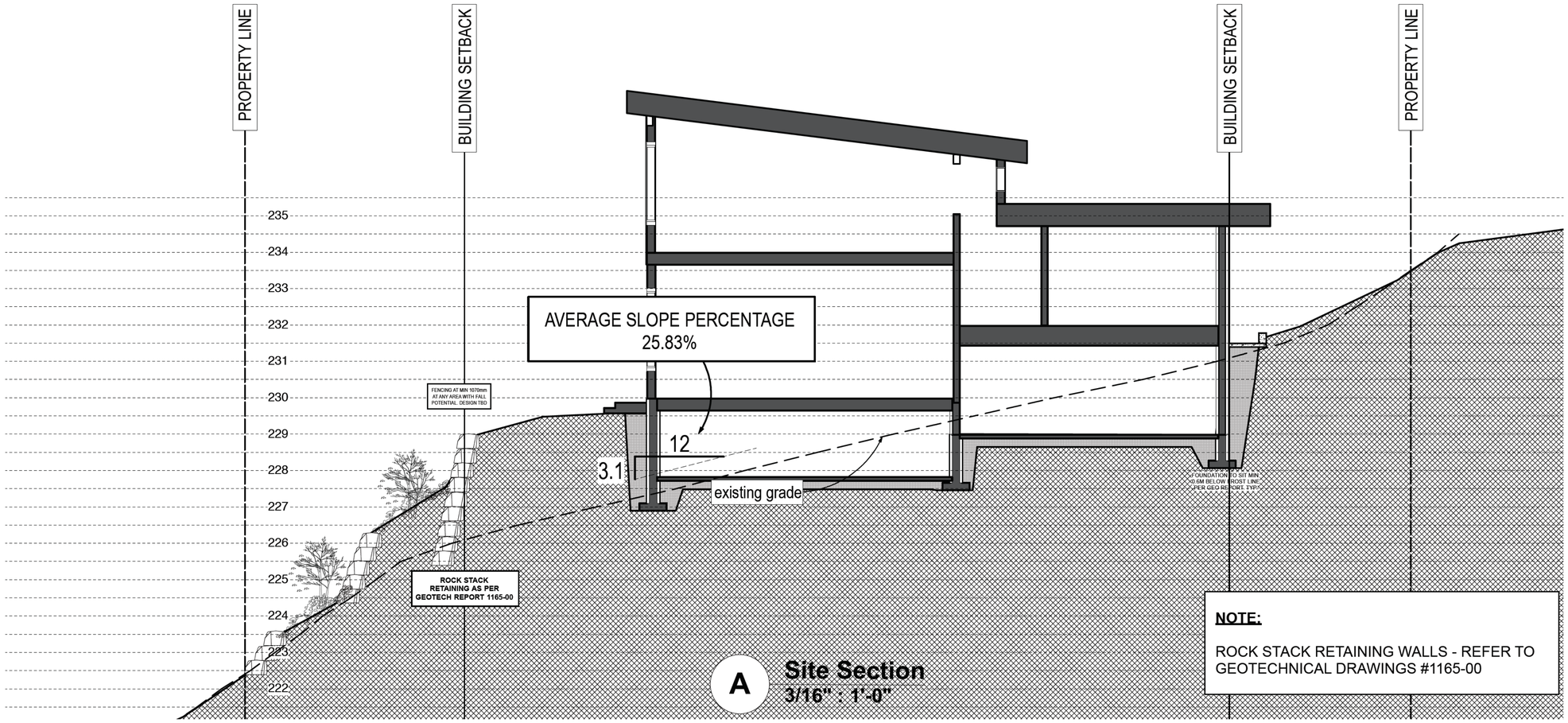
Reviewed by:

[redacted]

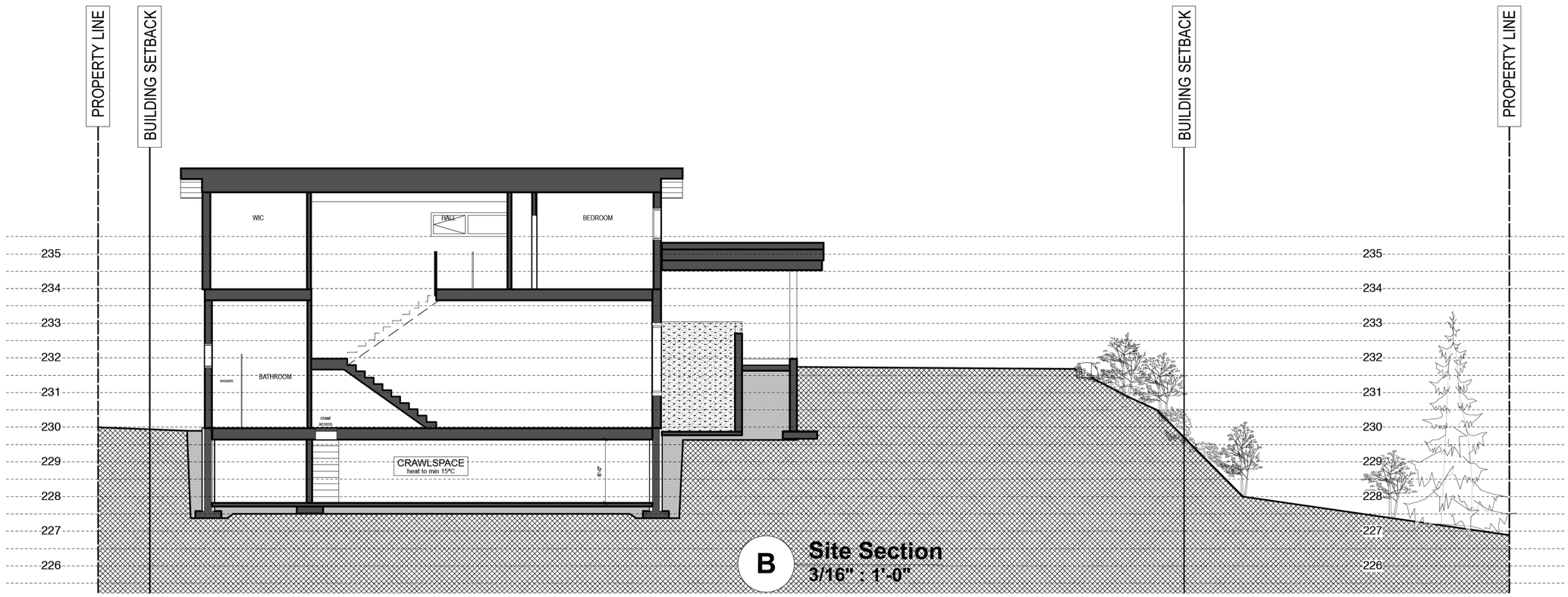
PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
S. M. FOFONOFF
30836

Jan 29, 2019

Steven Fofonoff, M.Eng., P.Eng.
Principal



A **Site Section**
3/16" : 1'-0"



B **Site Section**
3/16" : 1'-0"

Issued For:	Date:
REVIEW	09.MAR.2020
GEOTECHNICAL REVIEW	14.MAR.2020
PROGRESS SET	08 JUNE.2020
GEO REVIEW	19 JUNE.2020
CLIENT REVIEW	07.JULY.2020
STRUCTURAL REVIEW	02.SEPT.2020
ENERGY REVIEW	28.SEPT.2020
DESIGN REVIEW	15.OCT.2020
BUILDING PERMIT	05.NOV.2020
VoP REQUEST	26.MAR.2021

No:	Revision:	Date:
1		

Title
SITE SECTIONS

Project
Britt Residence
7661 CERULEAN DRIVE, PEMBERTON BC

Drawn By: ME ROY, TT
Scale: AS SHOWN

Sheet No:
A-1.2

A-1.2 SITE SECTIONS