

DATE: July 8, 2019

FILE: 3060-20/DP 7C 19
3090-20/DV 4C 19

TO: Chair and Directors
Electoral Areas Services Committee

Supported by James Warren Acting
Chief Administrative Officer

FROM: Russell Dyson
Chief Administrative Officer

J. Warren

**RE: Commercial and Industrial Development Permit and Development Variance Permit
2330 Macaulay Road (DKMM Holdings Ltd.)
Lot D, Block 29, Comox District, Plan EPP81926, PID 030-440-793**

Purpose

To consider a Development Variance Permit (DVP) to allow for retaining walls over 2 metres in height within the required side and rear yard setback areas with a chain link fence on top and to increase the amount of fascia signage, and to consider a Development Permit (DP) under the Commercial and Industrial (form and character) guidelines, all related to the development of three new commercial and light industrial buildings.

Recommendations from the Chief Administrative Officer:

1. THAT the board approve Development Variance Permit DV 4C 19 (DKMM Holdings Ltd.) on the property described as Lot D, Block 29, Comox District, Plan EPP81926, PID 030-440-793 (2330 Macaulay Road) to allow for retaining walls up to 4.5 metres in height within the required side and rear yard setback areas, a 1.8 metre tall chain link fence on top of the retaining walls, and an increase of the maximum number of fascia signs on one building from 1 to 2 and the total area of fascia signage from 6 to 7.2 square metres on that building;

AND FINALLY THAT the Corporate Legislative Officer be authorized to execute the permit.

2. THAT the board approve the Development Permit DP 7C 19 (DKMM Holdings Ltd.) on the property described as Lot D, Block 29, Comox District, Plan EPP81926, PID 030-440-793 (2330 Macaulay Road) for the development of three new light industrial/commercial buildings with a work/storage yard;

AND FINALLY THAT the Corporate Legislative Officer be authorized to execute the permit.

Executive Summary

- The applicants are seeking to construct three light industrial/commercial buildings with a storage yard in the rear on an undeveloped lot in the Saratoga area.
- Development of light industrial/commercial properties requires consistency with the guidelines of the Development Permit Area (DPA) (commercial and industrial form and character), including specific items regarding rainwater management, character and landscaping.

- The applicants are also seeking three variances: (1) to allow retaining walls up to 4.5 metres in height to be located within the regulated rear and side yard setback areas, (2) to allow the regulated fence height to be measured from the top of the retaining walls rather than from natural grade level, and (3) to allow 35 square metres of fascia signage over the three buildings, including one building with 2 signs.
- The Area C Advisory Planning Commission (APC) reviewed the proposal and recommended the fascia signage be limited to approximately 8 square metres.
- Staff recommends issuance of the permits but limiting the retaining wall height variance to 4.5 metres in height and accepting the APC recommendation on the fascia signage and adherence to the site plan and drawings, landscape plan, drainage plan and the Comox Valley Regional District ‘DarkSky’ policy as conditions (Appendices A and B).

Prepared by:

J. MacLean

Jodi MacLean, MCIP, RPP
Rural Planner

Concurrence:

T. Trieu

Ton Trieu, MCIP, RPP
Manager of Planning Services

Concurrence:

S. Smith

Scott Smith, MCIP, RPP
General Manager of
Planning and Development
Services Branch

Stakeholder Distribution (Upon Agenda Publication)

Applicant	✓
Qualified Professionals	✓

Background/Current Situation

The subject property is a 0.413 hectare lot, approximately 34 metres wide and 117 metres deep, located along Macaulay Road in the Saratoga Miracle Beach settlement node (Figures 1 and 2). The property, which slopes down approximately 9 metres from Macaulay Road to the rear property line, is currently cleared and undeveloped. According to the application, the property owners intend to terrace the land to develop three commercial and light industrial buildings and a storage yard for shipping containers. The proposed development requires the issuance of a DVP and a DP in order to proceed.

Development Variance Permit

The subject property is zoned Saratoga – Commercial Industrial (S-CI) which allows for “light industrial”, “boat building, repairs, service and sales”, “offices”, amongst other principal uses, as well as “warehousing” and “outdoor storage” as accessory uses. This zone limits fascia signage to one 6 square metre sign per building. The applicants are requesting a development variance permit to allow for 35 square metres of fascia signage: two 3.6 square metre signs on the front building and one 28 square metre sign on the rear building (Figure 3).

The signs are intended to be composed of adhesive vinyl lettering placed directly onto the corrugated metal siding. The signs are intended to identify the name of the business operating from the property. The large sign on the rear building is intended to be visible from the Island Highway. However, it may become obstructed as the other lots in that currently undeveloped subdivision are constructed. This rear building signage would help accentuate an otherwise large blank wall. The southern-side signage on the front building is intended to be visible from the northern-bound lane of Macaulay Road and direct the public to visit the office building. The northern-side signage would face an unconstructed (but cleared) road right-of-way and the south-bound traffic of Macaulay

Road. It would assist in filling an otherwise blank wall but it (and the wall) would have little visibility due to its orientation.

The applicants are also seeking a variance to the Zoning Bylaw’s requirement that retaining walls over 2 metres in height adhere to the setback requirements for structures. The terracing of the property will require a significant amount of retaining walls, including along the rear (i.e.: proposed to have a zero metre setback) and northern side (ie: proposed to have a 3 metre setback). Placing the rear retaining walls at the zero metre setback would allow for the rear area of the building envelope to be used for a shipping container storage yard and the setback area for an underground rainwater infiltration facility. The side yard retaining walls at a 3 metre setback allows for the middle buildings to have a drive aisle around the entire building and allow for a larger storage area in the rear. The applicants state that the retaining walls would be comprised of lock-block units and that at its highest it would be 4.5 metres measured from existing ground to top of wall, though the height of each section will determined by an engineer.

The applicants are also seeking a variance to the Zoning Bylaw’s regulation that the maximum height of all fences shall not exceed 2.0 metres as measured from the average natural grade level. The applicants would like to add a 1.8 metre tall chain link fence along the perimeter, including on top of the retaining walls. Because the retaining walls will be substantially altering the ground level, some stretches of the fence will be exceeding height limit if it is measured from the natural level. At its highest, the retaining wall would be 4.5 metres with a 1.8 metre fence on top. The fence provides a safety and security feature to inhibit accidents and trespass. The northern line of landscaping (shrubs) being located in front of the fence will partially obscure the view of the fencing.

Table 1: Variance Summary

Zoning Bylaw No. 2781	Variance	Zoning	Proposed
Section 915(3)(iv)	Fascia signage (area)	6 square metres per building	28 square metres on rear building
	Fascia signage (No. of signs)	1 per building	1 building with 2 signs totaling 7.2 square metres
Section 403(3)	Permitted structures within the setback area	Retaining walls less than 2.0 square metres in height	Retaining walls
Section 309(5)	Fence height	2 metres above natural grade level	1.8 metre tall fence above retaining walls

Development Permit

Section 85 of the Official Community Plan (OCP), Bylaw No. 337 being the “Rural Comox Valley Official Community Plan Bylaw No. 337, 2014”, contains guidelines that establish objectives for the form and character of commercial and light industrial development. This DPA is intended to minimize potential for conflict with established residential properties, to ensure that development is attractive and coordinated with respect to form and character of the neighbourhood and that adequate buffers are provided.

Rainwater Management

The DP guideline concerning rainwater management specific to this DP area states:

- “(a) It is recognized that the clearing, grading and servicing of sites alters their natural hydrology patterns. In recognition of this fact, it shall be required that each development shall prepare a rainwater management plan that strives to protect water quality, and to maintain post-*

- development peak flows to those of pre-development flow patterns and volumes over the entire water season. This rainwater plan shall be prepared by a professional engineer and should make use of such devices as permeable surface treatments, wet or dry detention ponds, constructed wetlands or other devices as deemed suitable and consistent with best management practices. Rainwater runoff from storage areas shall be controlled to prevent contamination of watercourses.*
- (b) *The discharge of rainwater runoff from storage areas shall be accomplished with appropriate structures and flow control mechanisms to prevent contamination of receiving water bodies.”*

More generally, applicable to all development, Sections 4 and 6 the OCP, concerning Natural Environment, directs that applicants should provide on-site drainage reports prepared by qualified professionals to ensure pre-development or natural hydrologic regime is maintained or restored by development.

The applicant provided a Drainage Plan prepared by Percy Williams, EIT, and Chris Durupt, P.Eng., of McElhanney Consulting Services Ltd., dated June 26, 2019. As most of the property is intended to be paved or covered by buildings and structures, the drainage plan proposes to direct the drainage to an infiltration facility at the rear (bottom) of the property. The infiltration facility would be 4.5 m wide by 30 m long rock trench, approximately 1 metre underground, which is calculated to be sufficient to accommodate a 5-year rainfall event.

Form and Character

The guidelines direct that all buildings and structures be architecturally coordinated and give consideration to the relationship between buildings and open areas, circulation systems, visual impact and design compatibility with the surrounding development. The applicant intends to regrade the land into terraces connected by a paved driveway along the southern end and with lock-block retaining walls around the edges of the terraces. The front building is proposed to be a two-storey building with only the top floor visible at the highest terrace. The middle building would be centered on the middle terrace with a drive aisle wrapped around the building. The rear building with retaining walls on two sides would be located on the bottom terrace. All three buildings would have corrugated metal exterior surfacing coloured galvalume with dark red metal roofs and red trims. Proposed fascia signage in the form of adhesive lettering would help break up blank walls.

The buildings are situated in a developing commercial-industrial area. A light industrial workshop building with grey corrugated metal exterior was constructed in 2018 to the rear of the subject property, fronting the Island Highway. The proposed buildings will be visible to the Island Highway until the remainder of the commercial-light industrial subdivision is developed.

Landscaping

The DP guideline concerning landscaping requires a landscape treatment along the entire frontage of the building site abutting onto existing or future public roads. In support of the application, the applicants submitted a landscape plan prepared by Lindsay Clement, MBCSLA, CSLA, of Bloom Landscape Architecture. Along Macaulay Road, the plan includes a group of seven trees (Douglas fir and Western hemlock) and 19 tall Oregon grape shrubs surrounded by tall grasses with some ornamental grasses (Nodding onion and Woolly sunflower) mixed in. A single line of shrubs (Viburnum and Lily of the Valley) is proposed along the northern border with the unopened right of way. A chain link fence is proposed to be located behind the irrigated landscaping. The remainder of the property's surfacing would be paved or gravelled.

Policy Analysis

Sections 488(1) and 490 of the *Local Government Act* (RSBC, 2015, c. 1) (LGA) allow a local government to designate DPAs and establish guidelines within the OCP for numerous purposes,

including the establishment of objectives for the form and character of commercial and industrial development. Section 491(7) specifies that a DP relating to commercial form and character may include requirements respecting the character of the development, including landscaping, and the siting, form, exterior design and finish of buildings and other structures. Pursuant to Bylaw No. 337, development on commercial and industrial lots requires a DP for form and character control.

Section 498 of the LGA authorizes a local government to consider issuance of a DVP that varies the provision of a bylaw, provided that the use or density of the land is not being varied, the land is not designated floodplain, or the development is not part of a phased development agreement.

Options

Regarding the proposed DVP, the board may:

1. Approve the issuance of the DVP, as recommended with the fascia signage limited to 7.2 square metres, with one building with two signs, retaining wall heights limited to 4.5 metres, and fences up to 1.8 metres above retaining walls.
2. Approve the issuance of the DVP, as proposed.
3. Deny issuance of the DVP.

Regarding the proposed DP:

1. Approve the issuance of the DP, as presented.
2. Deny issuance of the DP as presented. The board could deny the application only if the board is of the opinion that the proposal is not consistent with DPA guidelines.

Based on the discussion in the staff report, planning staff recommends options 1.

Financial Factors

As the property is within the Comox Valley Water Local Service Area, a development cost charge will be collected upon issuance of the building permit.

In order to ensure that the landscape plan is implemented, a landscape security deposit is required. The landscape architect provided a cost estimate of \$31,185 (without taxes) to implement the landscape plan. Therefore, the required landscape security deposit is \$38,981.25 (125 per cent of the cost estimate); this deposit is a condition of the execution of the DP.

Legal Factors

The report and recommendations contained herein are in compliance with the LGA and Comox Valley Regional District (CVRD) bylaws. DPs are permitted in certain circumstances under Sections 488, 489 and 491(7) of the LGA. DVPs are permitted in certain circumstances under Section 498 of the LGA.

Regional Growth Strategy Implications

The Regional Growth Strategy, Bylaw No. 120, being the “Comox Valley Regional District Regional Growth Strategy Bylaw No. 120, 2010”, designates the subject property within Settlement Nodes. Settlement Nodes shall accommodate growth through a balance of new development, intensification and improvements to public infrastructure (MG Policy 1B-1). The growth management framework is to direct 90 per cent of growth to Core Settlement Areas such as this Settlement Node. Therefore, the proposed commercial and industrial project is consistent with this growth management framework.

Specific uses within the Settlement Nodes are to be identified in a Local Area Plan (MG Policy 1B-2). Currently, the Saratoga Miracle Beach Local Area Plan is in draft form, and in

this draft plan, the subject property is designated as Employment Lands. This designation is intended to provide for a range of expanded highway commercial and light industrial uses. The subject property is part of the gateway to the Saratoga Miracle Beach community, and as such, the highway corridor should be preserved by aesthetically pleasing commercial uses.

Intergovernmental Factors

There are no intergovernmental factors.

Interdepartmental Involvement

The DP and DVP applications were referred to relevant internal departments and their input is integrated into this report.

Citizen/Public Relations

The Area C Advisory Planning Commission (APC) reviewed this application at their meeting on April 18, 2019. The APC recommended approval of the permits but with the fascia signage limited to the two signs proposed on the front building, being approximately 8 square metres.

Notice of the requested variances was mailed to adjacent property owners within 100 metres of the subject property at least 10 days prior to the EASC meeting. The notice informs these property owners/tenants as to the purpose of the permit, the land that is the subject of the permit and that further information of the proposed permit is available at the CVRD office. It also provides the date and time of the EASC meeting where the permit will be considered. Consultation with these property owners/tenants is through their written comments received prior to the EASC meeting or their attendance at the EASC meeting.

Attachments: Appendix A – “Development Variance Permit DV 4C 19”
Appendix B – “Development Permit DP 7C 19”

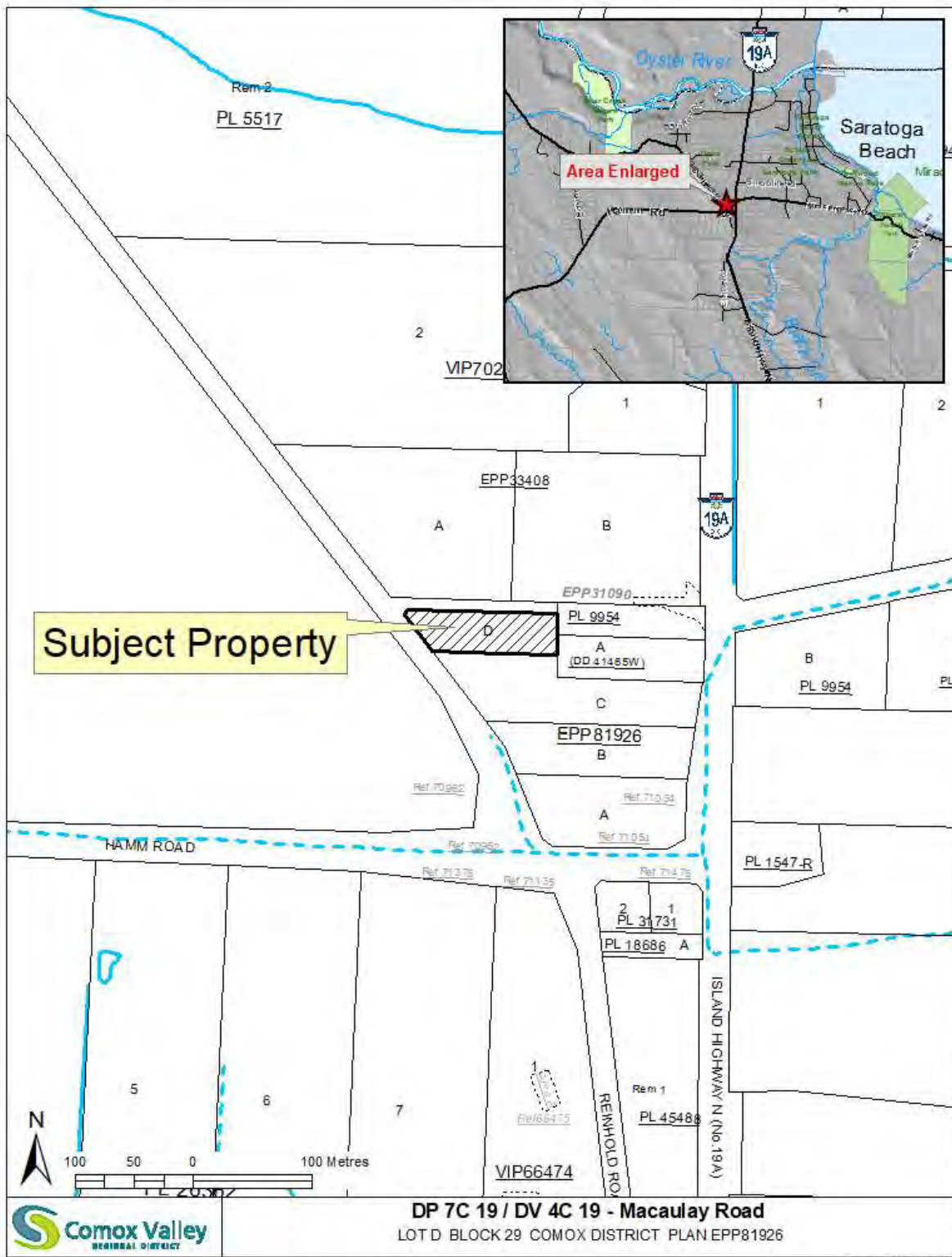


Figure 1: Subject Property



Figure 2: Air Photo (2018)



Figure 3: Proposed Building Elevations and Site Plan, as submitted by the applicants

DV 4C 19

TO: DKMM Holdings Ltd.

1. This Development Variance Permit (DV 4C 19) is issued subject to compliance with all of the bylaws of the Comox Valley Regional District applicable thereto, except as specifically varied or supplemented by this permit.
2. This Development Variance Permit applies to and only to those lands within the Comox Valley Regional District described below:
Legal Description: Lot D, Block 29, Comox District, Plan EPP81926
Parcel Identifier (PID): 030-440-793 Folio: 771 04124.040
Civic Address: 2330 Macaulay Road
3. The land described herein shall be developed strictly in accordance with the following terms and provisions of this permit:
 - i. THAT the development shall be carried out according to the plans and specifications attached hereto which form a part of this permit as the attached Schedule A.
4. This Development Variance Permit (DV 4C 19) shall lapse if construction is not substantially commenced within two (2) years of the Comox Valley Regional District Board's resolution regarding issuance of the Development Variance Permit (see below). Lapsed permits cannot be renewed; therefore application for a new development permit must be made, and permit granted by the Comox Valley Regional District Board, in order to proceed.
5. This Development Variance Permit is *not* a Building Permit.

CERTIFIED as the **DEVELOPMENT VARIANCE PERMIT** issued by resolution of the board of the Comox Valley Regional District on _____.

James Warren
Corporate Legislative Officer

Certified on _____

Attachments: Schedule A – “Resolution”

Schedule A

File: DV 4C 19

Applicant: DKMM Holdings Ltd.
Legal Description: Lot D, Block 29, Comox District, Plan EPP81926,
PID 030-440-793

Specifications:

THAT WHEREAS pursuant to Section 309(5) of Bylaw No. 2781, being the “Comox Valley Zoning Bylaw, 2005,” fences shall not exceed 2.0 metres in height as measured from the average natural grade level;

AND WHEREAS pursuant to Section 403(3) of Bylaw No. 2781, being the “Comox Valley Zoning Bylaw, 2005,” retaining walls less than 2.0 metres(6.6 feet) in height may be sited on any portion of a lot;

AND WHEREAS pursuant to Section 915(3)(iv) of Bylaw No. 2781, being the “Comox Valley Zoning Bylaw, 2005,” one fascia sign shall be allowed on each building and the maximum area of fascia signs shall be 6 square metres;

AND WHEREAS the applicant, DKMM Holdings Ltd., wishes to locate retaining walls over 2.0 metres in height on any portion of the lot and increase the maximum area of fascia signs;

THEREFORE BY A RESOLUTION of the board of the Comox Valley Regional District on _____, the provisions of Bylaw No. 2781, being the “Comox Valley Zoning Bylaw, 2005,” as they apply to the above-noted property are to be varied as follows:

309(5) *“The maximum height of all fences shall not exceed 2.0 metres as measured from the natural grade level or from a retaining wall on which it is sited.”*

403(3) *“Where permitted under this bylaw, boat ramps, docks, flagpoles, fish hatcheries and enhancement facilities, freestanding lighting poles, pools, retaining walls 4.5 metres in height or less, signs, shoreline protection devices, utility poles, warning devices, wharves and wires may be sited on any portion of a lot.”*

915(3)(iv) *“One fascia sign shall be allowed on each building, except the building located closest to the front parcel line which may have up to two fascia signs totalling 7.2 square metres. For all other buildings, the maximum area of a fascia sign shall be 6 square metres on each building. Fascia signs may be illuminated.”*

I HEREBY CERTIFY this copy to be a true
and correct copy of Schedule A being the
terms and conditions of Development
Variance Permit File DV 4C 19.

James Warren
Corporate Legislative Officer

Certified on _____

Draft

DP 7C 19

TO: DKMM Holdings Ltd.

1. This Development Permit (DP 7C 19) is issued subject to compliance with all of the bylaws of the Comox Valley Regional District applicable thereto, except as specifically varied or supplemented by this permit for the **building of three light industrial/commercial buildings and related works.**

2. This Development Permit applies to, and only to, those lands within the Comox Valley Regional District described below:

Legal Description: Lot D, Block 29, Comox District, Plan EPP81926

Parcel Identifier (PID): 030-440-793 **Folio:** 771 04124.040

Civic Address: 2330 Macaulay Road

3. The land described herein (Schedule A) shall be developed strictly in accordance with the following terms and conditions and provisions of this permit:

Construction and Development Activities:

- i. THAT the proposed light industrial/commercial buildings are constructed and externally finished in accordance to the submitted site plan and drawings hereto attached as Schedule B;
- ii. THAT all development is in accordance with the Development Drainage Report prepared by Percy Williams, E.I.T., and Chris Durupt, P.Eng., of McElhanney Consulting Services Ltd., hereto attached as Schedule C, and subsequent amendments by a qualified professional;

Landscaping:

- iii. THAT the proposed landscaping for the property is completed and maintained in accordance to the submitted Landscape Master Plan by Lindsay Clement, MBCSLA, CSLA, of Bloom Landscape Architecture and listed plantings hereto attached as Schedule D;
- iv. THAT the applicants provide a Landscape Performance Bond subject to the requirements of Bylaw No. 328 being the “Comox Valley Regional District Planning Procedures and Fees Bylaw No. 328, 2014”, in the form of an Irrevocable Letter of Credit or a Security Bond in the amount of \$38,981.25. Once the works are completed to the satisfaction of the Comox Valley Regional District, 25 per cent of the value of the performance bond shall be held back for a period of 12 months to ensure against failure of the works. When all landscaping conditions of the permit are met, the remainder of the bond will be returned to the payee;
- v. THAT the applicants are required to maintain all landscaping as part of regular yard maintenance to keep the property in a neat and tidy appearance and the irrigation system shall be kept in working order;

Signage and Lighting:

- vi. THAT all buildings, structures, signage or landscaping be non-illuminated or softly lit in compliance with current zoning and/or zoning provisions and be consistent with the Comox Valley Regional District’s ‘DarkSky’ policies hereto attached as Schedule E;
 - vii. THAT no signs nor any external building surfaces shall be equipped with flashing, oscillating or moving lights or beacons.
4. This Development Permit (DP 7C 19) shall lapse if construction is not substantially commenced within two (2) years of the Comox Valley Regional District board’s resolution regarding issuance of the development permit (see below). Lapsed permits cannot be renewed; however, a new application for a second development permit can be applied for in order to complete the remainder of the work.
 5. This Development Permit is *not* a Building Permit.

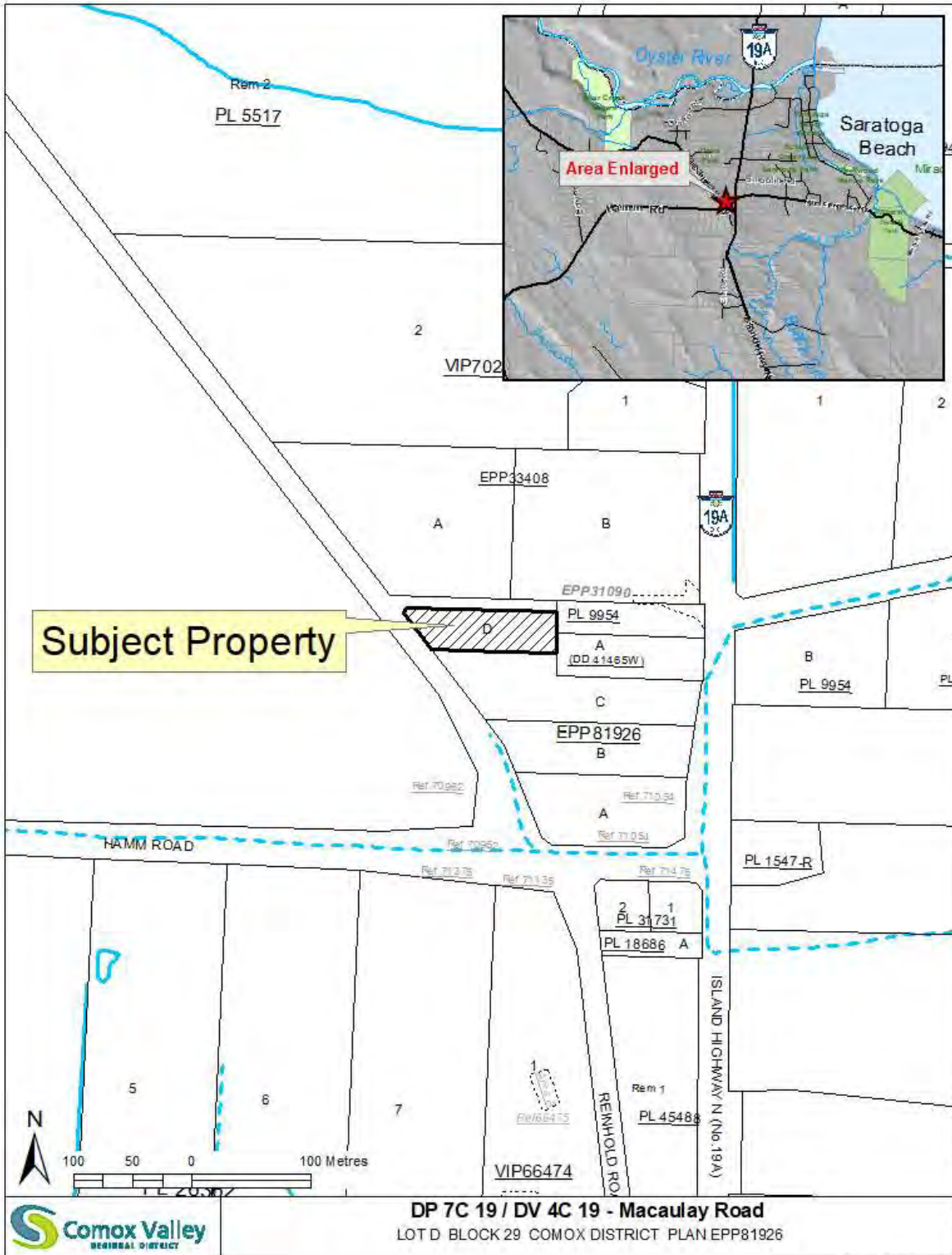
CERTIFIED as the **DEVELOPMENT PERMIT** issued by resolution of the board of the Comox Valley Regional District on _____.

James Warren
Corporate Legislative Officer

Certified on _____

- Attachments:
- Schedule A – “Subject Property Map”
 - Schedule B – “Site plan and drawings by Phillipa Atwood Architect”
 - Schedule C – “Drainage Plan by McElhanney Consulting Services”
 - Schedule D – “Landscape Site Plan by Bloom Landscape Architecture”
 - Schedule E – “Comox Valley Regional District DarkSky Policy”

Schedule A
Subject Property



This drawing is and remains the exclusive property of Philippa Atwood, Architect ABC, and cannot be reproduced or copied in any form or by any means (graphic, electronic or mechanical, including photocopying) without the written consent of Philippa Atwood, Architect ABC. Any license, express or implied, to use this document for any purpose whatsoever is restricted to the terms of the written agreement between Philippa Atwood, Architect ABC and DKIM Holdings.

REVISIONS			
NO.	DATE	DESCRIPTION	BY
01	30 Mar. 2019	Preliminary issued for review	gw
02	17 Apr. 2019	70% BP Drawings for review	gw
03	29 Apr. 2019	CAD & PDF issued to consultants	gw
04	27 May 2019	90% BP Drawings for review	gw
05	27 May 2019	Issued for co-ordination	gw
06	04 June 2019	Issued for building permit	gw
07	25 June 2019	Relocate septic field & add stormwater infiltration gallery location	gw

1. STANDARDS:

- 1.01 THE CONSTRUCTION DEPICTED BY THESE DRAWINGS CONFORMS TO THE REQUIREMENTS OF PART INE, BRITISH COLUMBIA BUILDING CODE, 2018. ANY REFERENCES IN THESE NOTES OR ELSEWHERE ON THE DRAWINGS TO THE BC BUILDING CODE OR BCCBC ARE INTENDED TO REFER TO THAT EDITION OF THE BRITISH COLUMBIA BUILDING CODE.
- 1.02 ALL MATERIALS AND CONSTRUCTION PROCEDURES SHALL CONFORM TO THOSE OUTLINED BY THE BRITISH COLUMBIA BUILDING CODE. IN ADDITION, APPLY OR INSTALL ALL MATERIALS AND EQUIPMENT STRICTLY ACCORDING TO THEIR MANUFACTURERS' INSTRUCTIONS AND SPECIFICATIONS.
- 1.03 ALL WORK SHALL BE DONE BY QUALIFIED TRADES PEOPLE ACCORDING TO ACCEPTED TRADE PRACTICE USING ONLY NEW MATERIALS, AND SHALL BE COMPLETED IN A TIMELY MANNER IN ORDER TO CO-ORDINATE WITH AND ACCOMMODATE OTHER TRADES.
- 1.04 THE CONTRACTOR SHALL REVIEW AND VERIFY ALL DIMENSIONS, INFORMATION, AND SPECIFICATIONS SHOWN ON THE DRAWINGS PRIOR TO COMMENCING CONSTRUCTION. REPORT ERRORS, OMISSIONS, AND DISCREPANCIES TO THE ARCHITECT PRIOR TO COMMENCING ANY WORK.
- 1.05 THESE DRAWINGS SHOW THE DESIGN INTENT OF THE COMPLETED BUILDING. THEY DO NOT NECESSARILY INDICATE TEMPORARY STRUCTURES SUCH AS CONCRETE FORM-WORK, TEMPORARY BRACING, SEQUENCE OF CONSTRUCTION, ASSEMBLY PROCEDURES, ETC.
- 1.06 DO NOT SCALE DRAWINGS. WRITTEN DIMENSIONS SHALL TAKE PRECEDENCE.
- 1.07 HORIZONTAL DIMENSIONS ARE TAKEN AT THE FACE OF SHEATHING OR CONCRETE ON EXTERIOR WALLS AND AT THE FACE OR CENTRE-LINE OF STUDS AS INDICATED ON INTERIOR WALLS. VERTICAL DIMENSIONS ARE TAKEN AT TOP OF CONCRETE SLAB, SUB-FLOORING, OR WALL AS INDICATED.
- 1.08 ROOM SIZES, IF INDICATED ON THE PLANS, ARE NOMINAL ONLY. MEASURE ACTUAL SITE CONDITIONS BEFORE ORDERING MATERIALS OR EQUIPMENT THAT ARE DEPENDENT ON EXACT SIZES.
- 1.09 LOCATIONS OF ANY FIXTURES, OUTLETS, ELECTRICAL EQUIPMENT, AND MECHANICAL EQUIPMENT SHOWN ARE APPROXIMATE ONLY. ITEMS DEPICTING OBJECTS SUCH AS TOILETS OR EXHAUST FANS ARE SYMBOLIC ONLY, AND BEAR NO DIRECT RELATIONSHIP TO THE ACTUAL OBJECT. CONSULT THE APPROPRIATE ENGINEERING DRAWINGS, SHOP DRAWINGS, OR PRODUCT DATA SHEETS FOR INFORMATION REGARDING THOSE ITEMS.
- 1.10 IN INSTANCES WHERE THESE NOTES CONFLICT WITH ENGINEERING DRAWINGS AND SPECIFICATIONS, THE ENGINEERING INFORMATION SHALL TAKE PRECEDENCE. REPORT DISCREPANCIES TO THE ARCHITECT PRIOR TO PROCEEDING WITH RELATED WORK.
- 1.11 THE CONTRACTOR SHALL PROVIDE ADEQUATE TEMPORARY SUPPORT OF ALL BUILDING COMPONENTS DURING CONSTRUCTION AND SHALL NOT ALLOW MATERIAL STORAGE OR CONSTRUCTION PROCEDURES TO EXCEED THE DESIGN LOADS OF THE COMPONENTS SUPPORTING THEM.
- 1.12 THE CONTRACTOR SHALL TAKE CARE TO STORE AND PROTECT ALL MATERIALS IN A SAFE LOCATION AND IN A MANNER THAT WILL NOT CAUSE DETRIORATION OF THEIR ESSENTIAL PROPERTIES. STRICTLY FOLLOW MANUFACTURERS' AND SUPPLIERS' RECOMMENDATIONS FOR CARE DURING STORAGE.
- 1.13 THE CONTRACTOR AND SUB-CONTRACTORS SHALL TAKE CARE TO PROTECT PUBLIC AND WORKER SAFETY DURING CONSTRUCTION AS OUTLINED IN THE BC BUILDING CODE, PART 8, AND BY ANY OTHER REGULATORY BODY, SUCH AS WORKSAFE BC, HAVING JURISDICTION.
- 1.14 ALL WORK SHALL BE CARRIED OUT IN A MANNER WHICH PREVENTS DIRECT OR INDIRECT DAMAGE TO ADJACENT PROPERTY, SUBSOIL, WATER COURSES, VEGETATION, AND NEW CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPARATION OF ANY DAMAGE CAUSED.
- 1.15 THE CONTRACTOR SHALL MAINTAIN THE SITE IN A SAFE AND ORDERLY STATE DURING CONSTRUCTION, REMOVING WASTE ON A REGULAR BASIS AND DISPOSING OF IT IN A SAFE, ENVIRONMENTALLY ACCEPTABLE MANNER. THERE SHALL BE NO BURNING OR BURYING OF WASTE CONSTRUCTION MATERIAL ON THE SITE.
- 1.16 THE CONTRACTOR SHALL CALL FOR ALL INSPECTIONS REQUIRED BY THE AUTHORITIES HAVING JURISDICTION, CONSULTING ENGINEERS, AND THE ARCHITECT. FAILURE TO COMPLY MAY REQUIRE THE DAMAGING OR DESTRUCTION OF COMPLETED WORK WHERE REQUIRED TO FACILITATE INSPECTION OF UNDERLYING CONDITIONS.
- 1.17 THE OWNER, ENGINEERING CONSULTANTS, AND ARCHITECT SHALL AT ALL TIMES HAVE ACCESS TO THE WORK FOR PURPOSES OF INSPECTION TO REVIEW THE COMPLIANCE AND QUALITY OF THE WORK.

1. STANDARDS, CONT'D:

- 1.18 THE OWNER, ENGINEERING CONSULTANTS, AND ARCHITECT RESERVE THE RIGHT TO REJECT ANY ITEM THAT DOES NOT CONFORM TO AN ACCEPTABLE STANDARD OF QUALITY, UTILITY, OR PERFORMANCE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RECTIFYING ANY SUCH REJECTED ITEMS TO THE SATISFACTION OF THE OWNER AND/OR CONSULTANTS.
- 1.19 THE CONTRACTOR SHALL BE RESPONSIBLE FOR ASSURING THAT STRUCTURAL MEMBERS AND INSTALLATIONS MEET THE REQUIREMENTS OF THE BC BUILDING CODE AND PURSUANT REGULATIONS. STRUCTURAL SPECIFICATIONS PROVIDED BY A BC REGISTERED PROFESSIONAL STRUCTURAL ENGINEER SHALL TAKE PRECEDENCE OVER STRUCTURAL INFORMATION, IF ANY, PROVIDED ON THESE DRAWINGS.
- 1.20 UPON COMPLETION OF THE WORK REMOVE ALL SURPLUS PRODUCTS, TOOLS, CONSTRUCTION EQUIPMENT, AND WASTE FROM THE BUILDING AND SITE. THOROUGHLY CLEAN THE ENTIRE BUILDING READY FOR OCCUPANCY AND HAND OVER TO THE OWNER. SIMILARLY, LEAVE THE SITE IN CLEAN, ORDERLY CONDITION READY FOR USE.

2. SITE WORK:

- 2.01 THE CONTRACTOR SHALL BE RESPONSIBLE FOR ASCERTAINING THE LOCATIONS OF UNDERGROUND SERVICES PRIOR TO COMMENCING CONSTRUCTION AND FOR THE REPAIR OF ANY ACCIDENTAL OR INTENTIONAL DAMAGE CAUSED THEREBY BY CONSTRUCTION PRACTICES AND PROCEDURES.
- 2.02 ALL ORGANIC MATTER SHALL BE STRIPPED FROM THE LOCATION OF PROPOSED EXTERIOR CONCRETE SLABS AND WALKWAYS, ETC. FILL BASES FOR CONCRETE SLABS WITH CLEAN GRANULAR MATERIAL FREE OF ORGANIC MATTER IN MAXIMUM 7' LIFTS COMPACTED BY VIBRATION TO DENSITY SPECIFIED BY STRUCTURAL ENGINEER.
- 2.03 EXCAVATIONS SHALL BE KEPT FREE OF STANDING WATER.
- 2.04 THE BOTTOM OF EXCAVATIONS SHALL BE KEPT FREE FROM FREEZING THROUGHOUT THE ENTIRE CONSTRUCTION PERIOD.
- 2.05 IF HAZARDOUS MATERIALS ARE ENCOUNTERED DURING SITE PREPARATION, THE CONTRACTOR SHALL TAKE APPROPRIATE ACTION TO MITIGATE ANY HAZARDS AND DISPOSE OF THE CONTAMINATED MATERIALS IN A MANNER PRESCRIBED AND APPROVED BY THE BC ENVIRONMENTAL DEPARTMENT'S ENVIRONMENTAL MANAGEMENT ACT AND HAZARDOUS WASTE REGULATION.
- 2.06 SLOPE FINISHED GRADES DOWN AWAY FROM BUILDINGS AT A MINIMUM 1% SLOPE TO HELP DRAIN SURFACE WATER AWAY FROM BUILDINGS.

3. CONCRETE AND FOUNDATIONS:

- 3.01 REFER TO THE STRUCTURAL ENGINEER'S DRAWINGS AND SPECIFICATIONS FOR DETAILS AND SPECIFICATIONS OF CONCRETE WALLS, MASONRY WALLS AND CONCRETE SLABS.
- 3.02 FOOTINGS SHALL EXTEND TO SUITABLE UNDISTURBED OR ADEQUATELY COMPACTED SOIL. EXTERIOR FOOTINGS SHALL EXTEND BELOW THE FROST PENETRATION DEPTH.
- 3.03 INSTALL CONTINUOUS 3/8" WIDE MASTIC JOINT FILERS AT INTERSECTIONS OF CONCRETE SLABS WITH CONCRETE WALLS.
- 3.04 PROVIDE CRACK CONTROL JOINTS IN SLABS AS REQUIRED. WHERE POSSIBLE, LOCATE JOINTS BENEATH STUD WALLS.

4. CARPENTRY:

- 4.01 IN LOCATIONS WHERE STRUCTURAL WOOD IS EMPLOYED, REFER TO THE STRUCTURAL ENGINEER'S DRAWINGS AND SPECIFICATIONS FOR INFORMATION.
- 4.02 STORE MATERIALS IN A DRY ENVIRONMENT. NO MATERIALS HAVING A MOISTURE CONTENT EXCEEDING 19% SHALL BE COVERED WITH FINISHES, MEMBRANES OR CLADDING.
- 4.03 PROTECT ALL LUMBER IN CONTACT WITH CONCRETE BY INSTALLING A 45 LB. FELT LAYER, A FOAM SILL GASKET, OR OTHER APPROVED METHOD. PROTECTIVE LAYERS SHALL BE CONTINUOUS ALONG ALL POINTS OF CONTACT. SILL PLATES SHALL BE PRESSURE TREATED LUMBER.
- 4.04 ANCHOR SILL PLATES TO FOUNDATION WITH 5/8"x8" GALVANIZED STEEL ANCHOR BOLTS AT A MAXIMUM SPACING OF 6'-0".
- 4.05 PRESSURE TREATED COMPONENTS SHALL BE TREATED WITH A WATER BORNE PRESERVATIVE. TOUCH UP SAW CUTS IN PRESSURE TREATED LUMBER WITH A COMPATIBLE PRESERVATIVE.

4. CARPENTRY, CONT'D:

- 4.06 FOR UNTREATED AND CHROMATED COPPER ARSENATE (CCA) TREATED LUMBER HOT DIPPED GALVANIZED STEEL FASTENERS MAY BE USED. AMMONIACAL COPPER QUATERNARY (ACQ) TREATED LUMBER REQUIRES THE USE OF STAINLESS STEEL FASTENERS ONLY.
- 4.07 INSTALL BACKING, BLOCKING AND SUPPORTS AS REQUIRED FOR DRYWALL, PLUMBING FIXTURES, HANDRAILS, ELECTRIC FIXTURES, ETC. BACKING AND BLOCKING LOCATIONS AND SIZES NOT NECESSARILY INDICATED ON DRAWINGS - CHECK REQUIREMENTS WITH MANUFACTURERS OR SUPPLIERS OF MATERIALS AND EQUIPMENT. PROVIDE STRUCTURAL ENGINEERING CERTIFICATION WHERE REQUIRED (eg. GUARD RAILS, GRAB BARS, ETC.)
- 4.08 CONFIRM DIMENSION REQUIREMENTS FOR NON-ON WINDOW UNITS AND PRE-HUNG DOOR UNITS PRIOR TO FRAMING ROUGH OPENINGS.
- 4.09 FRAMING MATERIALS, METHODS, AND PROCEDURES SHALL CONFORM TO SUBSECTION 9.23, "WOOD-FRAME CONSTRUCTION" OF THE BC BUILDING CODE, 2018.

5. FLASHINGS AND SEALANTS:

- 5.01 SHEET METAL FLASHING SHALL BE PREFINISHED 0.33 mm THICK GALVANIZED STEEL OR 0.48 mm THICK ALUMINUM.
- 5.02 FLASHING SHALL BE OF A MATERIAL COMPATIBLE WITH ADJACENT MATERIALS OR SHALL BE TREATED SO AS TO PREVENT ADVERSE REACTIONS WITH ADJACENT MATERIALS.
- 5.03 INSTALL SHEET METAL FLASHING TO PROTECT FROM MOISTURE PENETRATION ALL EXTERIOR HORIZONTAL OR OBlique CHANGES OF PLANE OR MATERIAL.
- 5.04 INSTALL SHEET METAL FLASHING WITH END DAMS OVER ALL OTHERWISE UNPROTECTED OPENINGS TO THE EXTERIOR. SUCH FLASHING SHALL EXTEND A MINIMUM OF 1" BEYOND THE EDGE OF THE JAMB ROUGH OPENING.
- 5.05 SEAL AROUND ALL WINDOW AND DOOR OPENINGS TO THE EXTERIOR WITH A PAINTABLE, NON-HARDENING CAULKING MATERIAL. FOLLOW WINDOW AND DOOR MANUFACTURER'S RECOMMENDATIONS WHERE APPROPRIATE.
- 5.06 FLASH AND COUNTERFLASH ALL VENTS, FLUES, AND OTHER ROOF PENETRATIONS IN ACCORDANCE WITH ROOFING CONTRACTORS' ASSOCIATION OF BRITISH COLUMBIA STANDARDS.
- 5.07 FLASHINGS SHALL HAVE A MINIMUM 20% SLOPE DOWN AWAY FROM THE BUILDING. (OR, WHERE THE FLASHING TERMINATES ON A SLOPED ROOF, MATCH SLOPE)
- 5.08 FLASHINGS SHALL HAVE A FORMED DRIP EDGE (NOT REQUIRED WHERE FLASHING TERMINATES ON A SLOPED ROOF)
- 5.09 ALL SEALANTS, MEMBRANES, COATINGS, ETC. SHALL BE INSTALLED IN ACCORDANCE WITH THEIR MANUFACTURERS' RECOMMENDATIONS FOR:
 - INSTALLATION METHODS AND PROCEDURES;
 - CURING TIMES FOR SEALANTS, COATINGS, ETC.;
 - ENVIRONMENTAL CONDITIONS DURING INSTALLATION;
 - PREPARATION OF SUBSTRATE SURFACES;
 - COMPATIBILITY WITH ADJACENT MATERIALS;
 - WORKPLACE AND PUBLIC SAFETY PRECAUTIONS DURING INSTALLATION;
 - DISPOSAL OF PACKAGING AND EXCESS MATERIALS.

- 5.10 SEALANTS:
 - POLYURETHANE SEALANTS ARE RECOMMENDED FOR ALL EXTERIOR APPLICATIONS.
 - POLYURETHANE OR SILICONE SEALANTS ARE RECOMMENDED FOR INTERIOR WINDOW AND DOOR APPLICATIONS AND OTHER INTERIOR JOINTS.
 - BACKER RODS SHALL BE CLOSED CELL FOAM OVERSIZED BY THIRTY TO FIFTY PERCENT.

6. INSULATION AND VENTILATION:

- 6.01 INSTALL A 6 MIL POLYETHYLENE VAPOUR BARRIER ON THE WARM SIDE OF BATT AND LOOSE FILL INSULATION. LAP POLYETHYLENE JOINTS A MINIMUM OF 4" AND SEAL TIGHTLY WITH COMPATIBLE TAPE. SEAL TIGHTLY AROUND WALL AND CEILING PENETRATIONS WITH COMPATIBLE TAPE.
- 6.02 VENTILATION OF INTERIOR SPACES SHALL CONFORM TO THE REQUIREMENTS OUTLINED BY PART 6 OF THE BC BUILDING CODE, 2018.
- 6.03 FILL VOIDS AT LINTELS AND ANY OTHER SIMILAR LOCATIONS WITH INSULATION MATERIAL.
- 6.04 INSTALL VAPOUR PERMEABLE MEMBRANE OVER ALL EXTERIOR SHEATHING. INSTALL LAYERS STARTING AT THE LOWEST POINT AND LAP SUCCESSIVE LAYERS OVER LOWER LAYERS SHINGLE STYLE. LAP JOINTS A MINIMUM OF 4" AND SEAL WITH COMPATIBLE TAPE.

6. INSULATION AND VENTILATION, CONT'D:

- 6.05 INSTALL A 6 MIL POLYETHYLENE MOISTURE BARRIER BELOW ALL INTERIOR CONCRETE SLABS OR SKIM COATS. LAP JOINTS A MINIMUM OF 4" AND SEAL WITH COMPATIBLE TAPE.
- 6.06 MINIMUM INSULATION VALUES SHALL CONFORM TO THE FOLLOWING CHART:

INSULATION VALUES - ZONE 5

HEATING DEGREE DAYS: 3,100 (VALUE FOR COURTENAY, BC.)
VALUES ASSUME NO HEAT RECOVERY VENTILATOR IS INSTALLED.

CEILING:
RSI 8.80 (R 50) BATT OR LOOSE FILL INSULATION.
EFFECTIVE VALUE REQUIRED: RSI 8.87 (R 49.26).
EFFECTIVE INSULATION VALUE PROVIDED: RSI 8.70 (R 49.40).

EXTERIOR STUD WALLS:
RSI 3.70 (R 21) BATT INSULATION.
EFFECTIVE VALUE REQUIRED: RSI 3.08 (R 17.5).
EFFECTIVE INSULATION VALUE PROVIDED: RSI 3.09 (R 17.53).

FOUNDATION WALLS:
3.5" RIGID PERIMETER INSULATION @ RSI 0.88 (R 5) PER INCH.
EFFECTIVE VALUE REQUIRED: RSI 2.98 (R 16.53).
EFFECTIVE INSULATION PROVIDED: RSI 3.08 (R 17.5).
PORTION OF WALL ABOVE GRADE TO A MAXIMUM OF 600 mm INCLUDED PER SENTENCE 9.36.2.8 (3) AND CLAUSE 9.36.2.8 (4) (b) (i).
ICF MANUFACTURER SHALL PROVIDE DOCUMENTATION CERTIFYING THE SYSTEM MEETS THE EFFECTIVE INSULATION VALUE REQUIRED ABOVE.

UNDERSIDE OF SLAB (REQUIRED IF IN-FLOOR HEATING IS INSTALLED):
3.0" RIGID PERIMETER INSULATION @ RSI 0.98 (R 5) PER INCH.
EFFECTIVE VALUE REQUIRED: RSI 2.32 (R 13.16).
EFFECTIVE INSULATION PROVIDED: RSI 2.64 (R 15.0).
NOTE: REQUIRED BENEATH THE ENTIRE SLAB PER BCCBC 9.36.2.8 (5) OR 1.2 M. 1.2 METERS BEYOND PERIMETER OF HEATED AREA WHERE FLOOR IS ONLY PARTIALLY HEATED PER BCCBC 9.36.2.8 (6).

WINDOWS AND EXTERIOR DOORS:
WINDOWS AND DOORS SHALL HAVE A MAXIMUM THERMAL TRANSMITTANCE VALUE OF U-1.80.
REQUIRED EFFECTIVE INSULATION VALUES ARE DERIVED FROM TABLES 9.36.2.6.A AND 9.36.2.8.A OF THE BC BUILDING CODE, 2018.

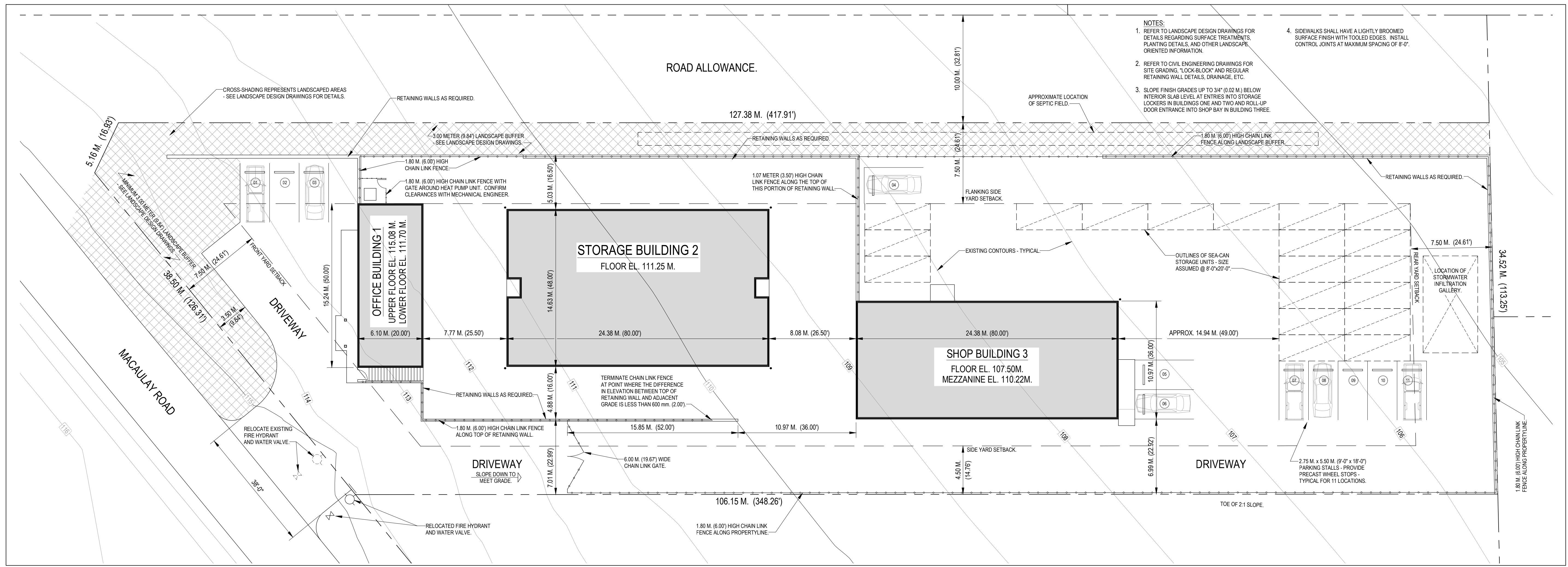
NOTE: EFFECTIVE INSULATION VALUES FOR CEILING AND STUD WALLS ARE DERIVED FROM OWENS-CORNING LTD. ON-LINE EFFECTIVE INSULATION CALCULATOR PROGRAM.

- 6.07 ATTIC SPACES SHALL BE VENTED TO THE EXTERIOR USING VENTS HAVING A MINIMUM FREE VENT AREA EQUALING AT LEAST 1/300th OF THE INSULATED CEILING AREA. SUCH VENTS SHALL BE LOCATED AT BOTH THE EAVES AND NEAR THE RIDGE WITH A MINIMUM OF AT LEAST 25% OF THE REQUIRED FREE VENT AREA LOCATED AT EACH POSITION.
- 6.08 EXHAUST VENT TERMINATIONS ON THE EXTERIOR OF THE BUILDING SHALL BE FITTED WITH PLASTIC OR PREFINISHED SHEET METAL HOUSINGS THAT ARE DESIGNED TO PREVENT THE INGRESS OF RAIN, SNOW, INSECTS, OR SMALL ANIMALS.

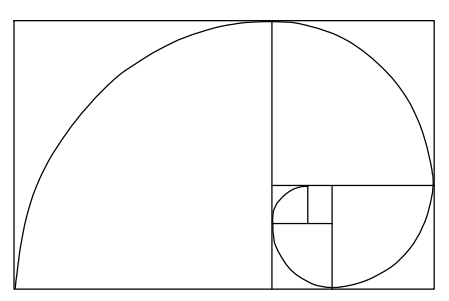
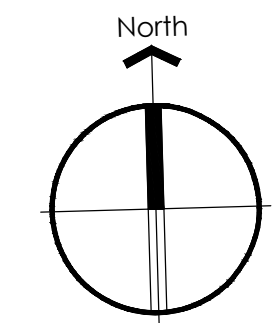
7. GUARDRAILS:

- 7.01 WHERE THE DIFFERENCE BETWEEN ANY WALKING SURFACE ACCESSIBLE BY PEOPLE AND AN ADJACENT SURFACE IS GREATER THAN 2" EITHER VERTICALLY OR AT A SLOPE MORE THAN 1 IN 2 WITHIN 4'-0" OF THE WALKING SURFACE, THE HIGHER SURFACE SHALL BE PROTECTED BY A GUARD RISING A MINIMUM OF 42" ABOVE THE WALKING SURFACE.
- 7.02 GUARDS FOR STAIRWAYS SHALL RISE A MINIMUM OF 36" VERTICALLY ABOVE A LINE DRAWN THROUGH THE LEADING EDGES OF THE TREAD NOSINGS.
- 7.03 GUARDS SHALL BE DESIGNED SO THAT THEY HAVE NO OPENINGS THAT WILL PERMIT THE PASSAGE OF A 4" DIAMETER SPHERE. WHERE APPROVED BY THE AUTHORITY HAVING JURISDICTION, THE OPENINGS MAY BE INCREASED TO NO OPENINGS THAT WILL ALLOW PASSAGE OF A 21" SPHERE.
- 7.04 GUARDS SHALL BE DESIGNED SO THAT THERE ARE NO CLIMBABLE ELEMENTS BETWEEN 5" AND 36" ABOVE THE ADJACENT WALKING SURFACE. WHERE APPROVED BY THE AUTHORITY HAVING JURISDICTION, A GUARD MAY CONSIST OF A TOP RAIL AND INTERMEDIATE HORIZONTAL RAILS HAVING A MAXIMUM 21" GAP BETWEEN THEM.

GENERAL NOTES
NO SCALE



SITE PLAN
1/16"=1'-0"



Philippa Atwood Architect
5 Little Bear Way Rayston BC
1 250-703-0433 c 250-218-0724
pippa@patwoodarchitect.ca

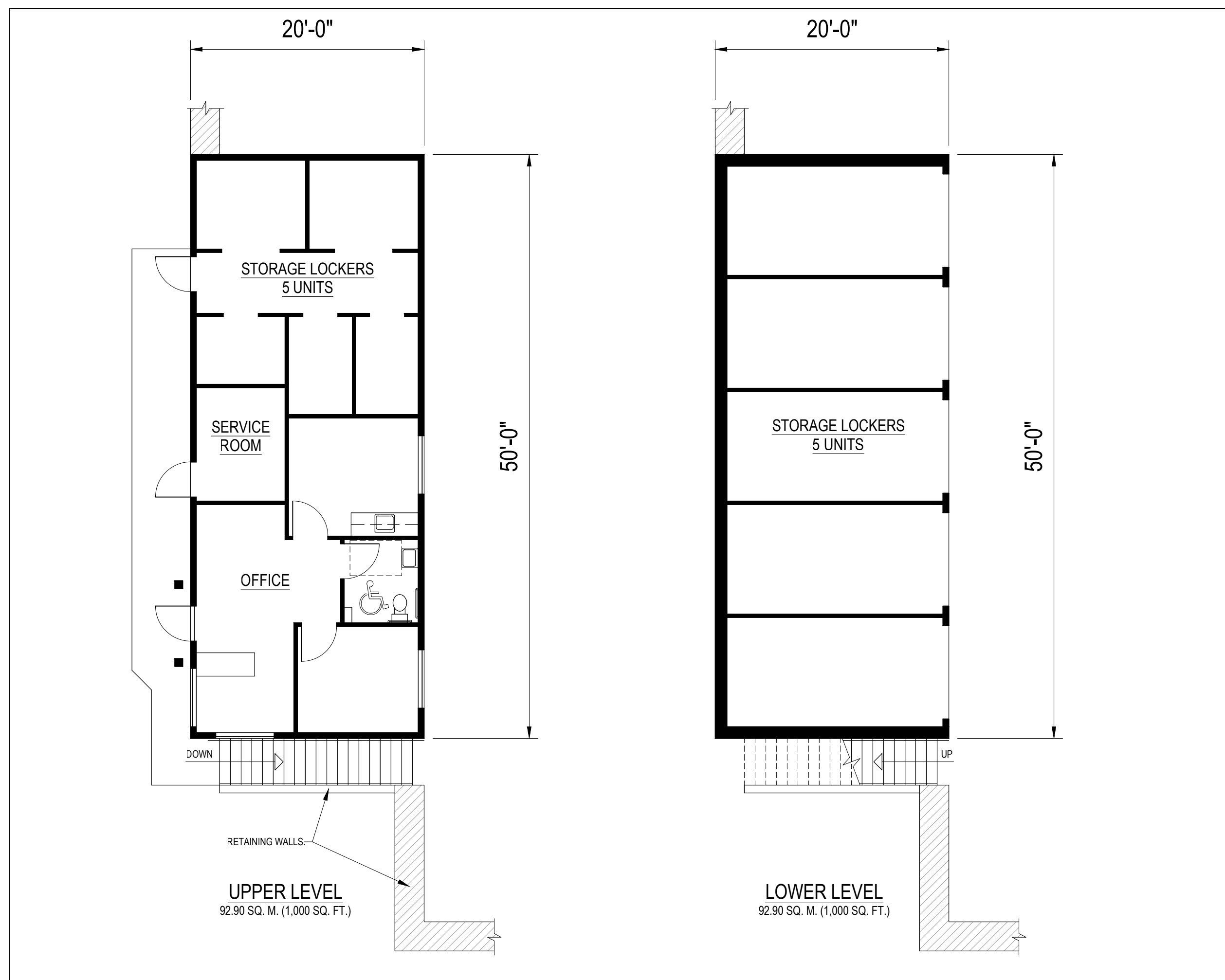
PROJECT: **SARATOGA STORAGE**
SELF-STORAGE LOCKER AND LIGHT INDUSTRIAL DEVELOPMENT
2330 MACAULAY ROAD
BLACK CREEK, BC

GENERAL NOTES, SITE PLAN.

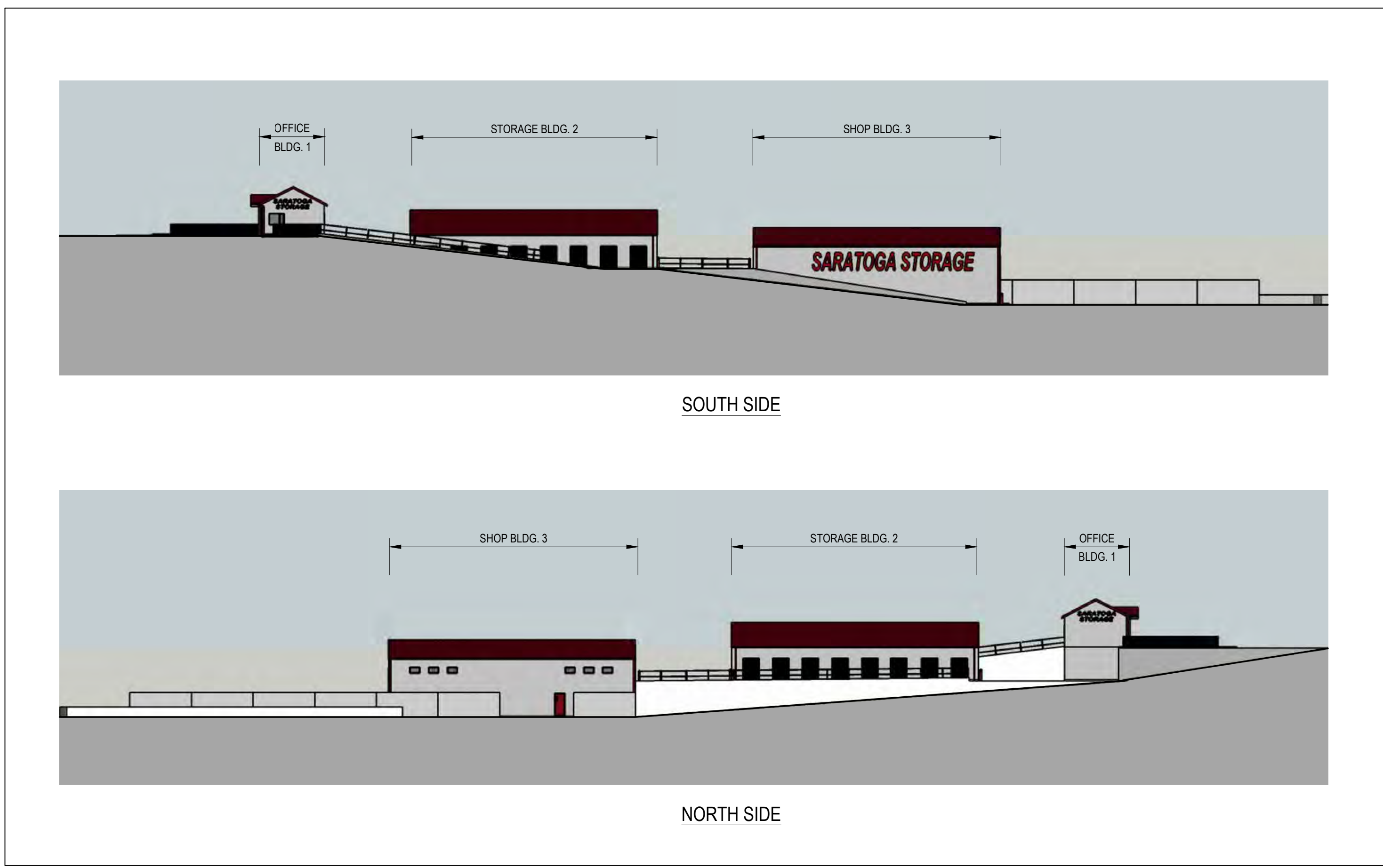
FILE:	1233 - Saratoga Storage - BP.dwg	SCALE:	1/16"=1'-0"
DRAWN BY:	GW	DATE:	24 MARCH, 2019
PROJECT NUMBER:	1233	DRAWING NUMBER:	A2 of 13

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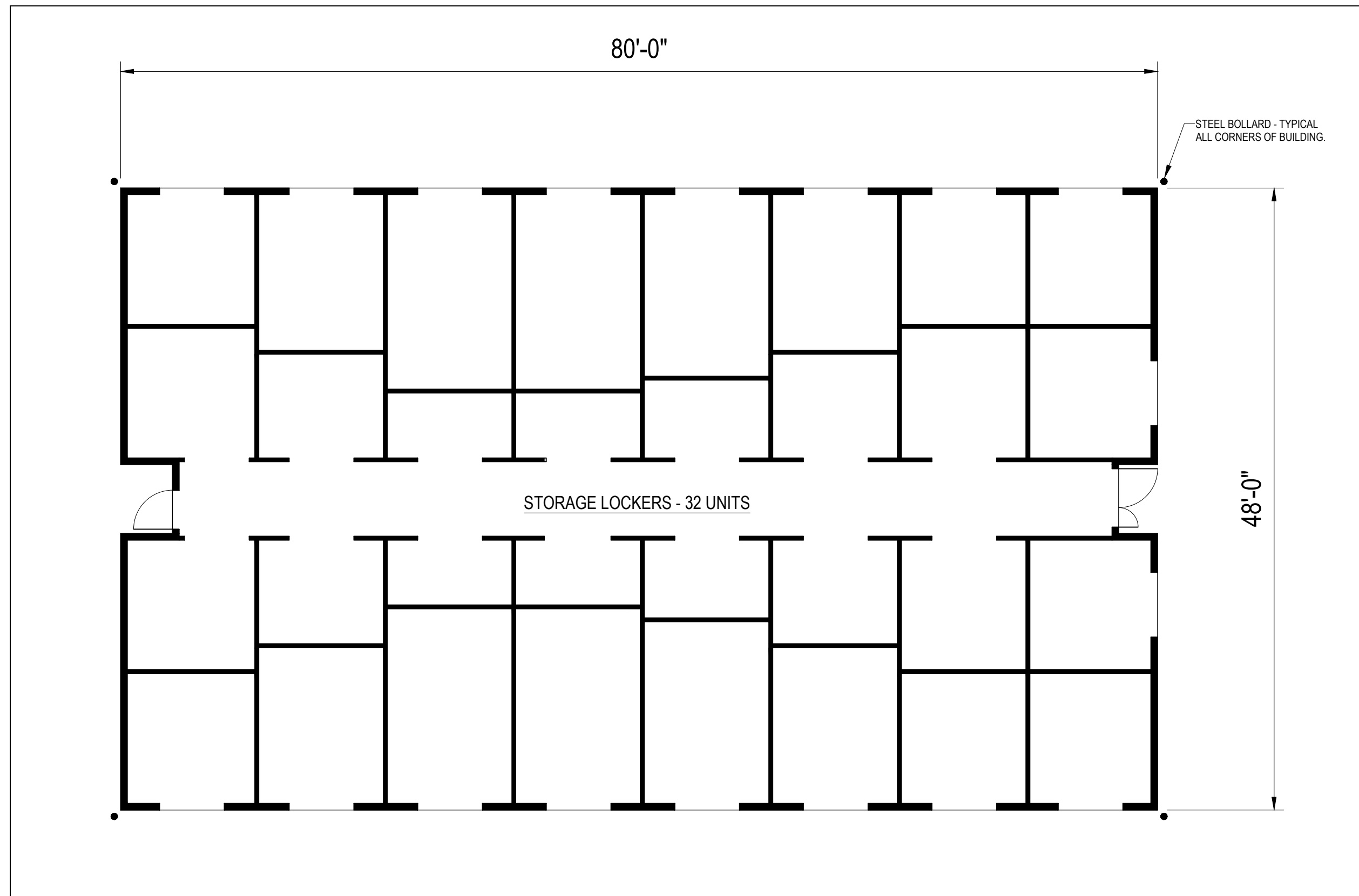
REVISIONS			
NO.	DATE	DESCRIPTION	BY
01	14 Mar., 2019	Issued for review	gw
02	20 Mar., 2019	PDF plotted for DP submission	gw



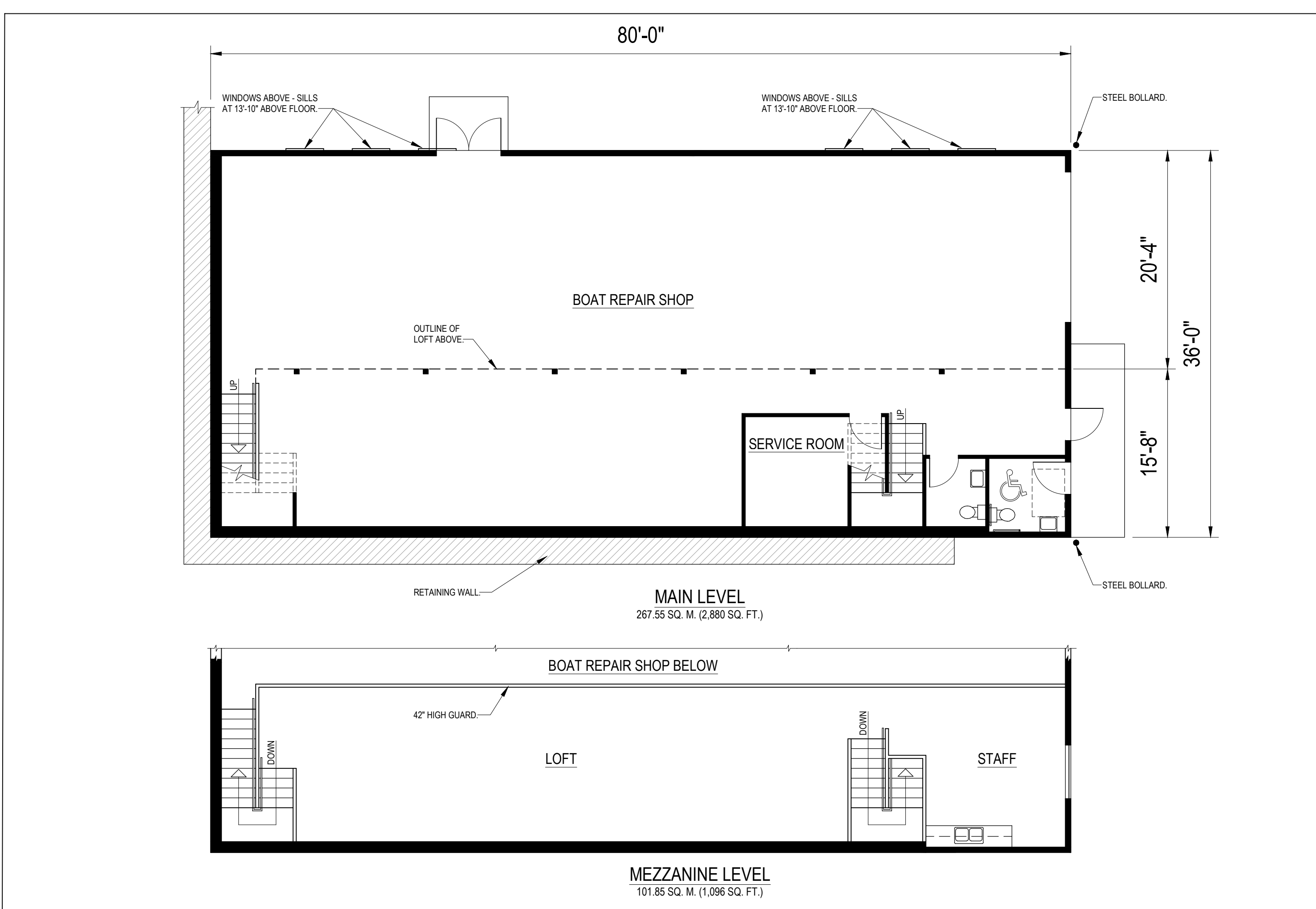
OFFICE BUILDING ONE
1/8"=1'-0"
185.80 SQ. M. (2,000 SQ. FT.) TOTAL



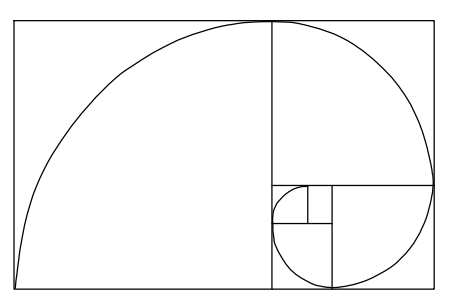
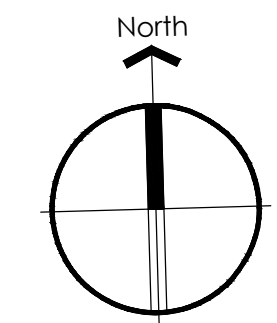
SITE PROFILE ELEVATIONS
1"=30'-0" (APPROX.)



STORAGE BUILDING TWO
1/8"=1'-0"
353.27 SQ. M. (3,803 SQ. FT.)



SHOP BUILDING THREE
1/8"=1'-0"



Phillipa Atwood Architect
5 Little Bear Way, Royston, BC
1-250-703-0433 c 250-218-0724
pippa@patwoodarchitect.ca

PROJECT: **SARATOGA STORAGE**
SELF-STORAGE LOCKER AND LIGHT INDUSTRIAL DEVELOPMENT
MACAULAY ROAD
BLACK CREEK, BC

DRAWING NAME: **OFFICE, STORAGE, AND SHOP BUILDING FLOOR PLANS. SITE ELEVATIONS.**

FILE:	1233 - Saratoga Storage.dwg	SCALE:	AS NOTED
DRAWN BY:	GW	DATE:	04 MARCH, 2019
PROJECT NUMBER:	1233	DRAWING NUMBER:	DP2 of 3

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REVISIONS

NO.	DATE	DESCRIPTION	BY
01	14 Mar., 2019	Issued for review	gw
02	20 Mar., 2019	PDF plotted for DP submission	gw



NORTHEAST VIEW



SOUTHEAST VIEW

EXTERIOR FINISHES

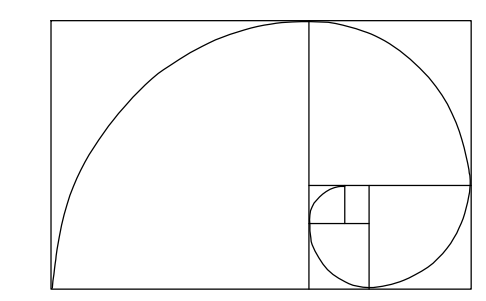
ROOF: _____	STANDING SEAM SHEET METAL _____	WESTFORM 'DARK RED'
WALLS: _____	7/8" CORRUGATED SHEET METAL _____	'GALVALUME'
SWING DOORS: _____	SHEET METAL _____	WESTFORM 'BRITE RED'
OVERHEAD DOORS: _____	METAL _____	RED
WINDOW FRAMES: _____	VINYL _____	RED
GUTTERS & DOWNSPOUTS: _____	SHEET METAL _____	WESTFORM 'BRITE RED'
FASCIAS & TRIM: _____	SHEET METAL _____	WESTFORM 'BRITE RED'
TIMBER FRAMING: _____	FIR _____	OLYMPIC SEMI-TRANSPARENT STAIN 'REDWOOD'
SIGNAGE: _____	PAINT ON WALL CLADDING _____	RED



NORTHWEST VIEW



SOUTHWEST VIEW



Phillipa Atwood Architect

5 Little Bear Way, Rayston, BC
 1 250-703-0433 c 250-218-0724
 pippa@patwoodarchitect.ca

PROJECT: **SARATOGA STORAGE**
 SELF-STORAGE LOCKER AND LIGHT INDUSTRIAL DEVELOPMENT
 MACAULAY ROAD
 BLACK CREEK, BC

DRAWING NAME: **EXTERIOR PERSPECTIVE VIEWS, EXTERIOR FINISHES.**

FILE: 1233 - Saratoga Storage.dwg	SCALE: NO SCALE
DRAWN BY: GW	DATE: 04 MARCH, 2019
PROJECT NUMBER: 1233	DRAWING NUMBER: DP3 of 3



**D R A I N A G E P L A N
R E V I S I O N 3**

LOT D PLAN EPP81926 (MACAULAY ROAD)	
Date:	June 26, 2019
Our Reference:	2211-47533-00

To: Comox Valley Regional District, Attn: Jodi MacLean
(on behalf of DKKM Holdings Inc.)

Prepared By: Percy Williams, EIT

Reviewed By: Chris Durupt, P.Eng.

1 INTRODUCTION

This revised Drainage Plan is meant to replace the three previously submitted drainage plans prepared by McElhanney dated March 18, May 30, and June 20, 2019. This revision incorporates comments received from the Comox Valley Regional District (CVRD) with respect to rainfall events greater the 5 year design rainfall event.

This Drainage Plan has been prepared on behalf of the owner of Lot D, Block 29, Comox District, Plan EPP81926 (Macaulay Road) in support of a development permit application for an Industrial/Commercial development. Employing the principles identified in the British Columbia Stormwater Planning Guidebook (BCSWPG), and the requirements of the CVRD's Bylaw 337, "Rural Comox Valley Official Community Plan, 2014", this Drainage Plan sets a baseline for pre- and post-development runoff, and outlines sediment and erosion control targets for the proposed development.

2 SITE DESCRIPTION

The property, at the legal description noted above, is located along Macaulay Road just north of Hamm Road. The property is zoned Commercial Industrial (S-CI), and is bound by road dedication to the north, Country Residential (CR-1) and Industrial Light (IL) to the east, Commercial Industrial (S-CI) to the south, and Macaulay Road to the west.

The 0.4122 ha parcel, which has been recently cleared, slopes steeply from the west to the north east. The property drains north east to the unnamed road right-of-way and the neighbouring properties. See **Figure 1 – Site Overview**, for an overview of the subject property (note the property has been cleared since the Figure 1 air photo was taken).

June 26, 2019

Comox Valley Regional District (on behalf of DKKM Holdings Inc.)

File 2211-47533-00-Drainage Plan for Lot D, Bl 29, CD, Pl EPP81926 (Macaulay Rd) Rev.3



Figure 1 – Site Overview

3 PROPOSED DEVELOPMENT

The owner of the property is proposing a storage facility that contains three buildings: a 93m² (1000ft²) office/storage building, a 357m² (3840ft²) storage building, and a 268m² (2880ft²) shop. The buildings will have asphalt aprons with an asphalt access between them. A gravel lot is planned for the remainder of the site. Non-permanent storage bins and vehicle storage is proposed for the gravel areas. The constructed site will also have extensive retaining walls around the perimeter to flatten the site and facilitate development. **Appendix A –Site Plan** prepared by Phillipa Atwood Architect provides an overview of the proposed development.

4 RUNOFF AND PERFORMANCE TARGETS

A hydraulic model was developed using SWMM software, enabling analysis of pre- and post-development site response to a variety of design rainfall events. Simulations were completed for the 24-hour SCS Type 1A distribution MAR (Mean Annual Rainfall), 2, 5, 10, 25 and 100 Year design rainfall events. Design rainfall events were derived from Environment Canada’s Comox A rain gauge (1021830). Model input parameters, based on pre-development site characteristics, are summarized in **Table 1** below. The results of the modeled pre-development site response are summarized in **Table 2**.

June 26, 2019

 Comox Valley Regional District (on behalf of DKKM Holdings Inc.)
 File 2211-47533-00-Drainage Plan for Lot D, Bl 29, CD, PI EPP81926 (Macaulay Rd) Rev.3
Table 1: Pre-Development Site-Specific Storm Water Management Parameters

Parameter	Pre-Development
Area (ha)	0.4122
Width (m)	40
Slope (%)	8.0
% Impervious	15
N Imperv	0.018
N Perv	0.20
Dstore Imperv mm	2
Dstore Perv mm	5
Zero % imperv	25
Curve number	66

Table 2: Pre-Development Runoff Quantities

24 Hour Rainfall Distribution	Total Precipitation	Pre-Development Runoff	
		Peak Rate (l/s)	Total Volume (m ³)
MAR	48mm	1.5	53
2-Year SCS	62mm	3.2	87
5-Year SCS	72mm	4.4	112
10-Year SCS	85mm	5.7	139
25-Year SCS	97mm	7.8	183
100-Year SCS	117mm	10.6	246

Per CVRD Bylaw No. 337, permanent design features for ground infiltration and retention of runoff from impervious surfaces should be designed to limit post-development peak runoff rates and total volumes to pre-development peak rates and total volumes outlined in **Table 2** above. Details of the permanent design features are outlined in **Section 5** below.

5 DESIGN ELEMENTS

The recommended Best Management Practices (BMPs) to be implemented for this project have been developed to reduce post-development peak runoff rates and total volumes and provide qualitative treatment of runoff. The following BMPs are proposed for the site:

- Place a minimum of 300mm of amended topsoil in all landscaped (pervious) areas.
- Where practical, direct unconcentrated runoff from impervious surfaces to landscaping and permeable areas.
- Concentrated site runoff to discharge to an infiltration facility with the below specifications.
- Where practical, use permeable hard surfaces such as gravel, pervious pavers, Core Gravel™ or Grass Crete® for driveway/ parking areas.

5.1 Infiltration Facility

Surface drainage from the site will be routed through a 4.5 m wide by 30 m long rock trench infiltration gallery.

The infiltration gallery has been modeled in SWMM software with a conservative hydraulic conductivity of 20 mm/hr, a total base area of 135 m², and a depth of 1 m. The gallery will consist of a 150 mm diameter perforated pipe bedded in drain rock (porosity approximately equal to 0.4). A longevity factor of 0.75 was used in this analysis to account for plugging of pore spaces and degradation over time. This equates to an effective storage capacity of 40.5 m³. To ensure long term efficacy, the gallery will be situated downstream of a grit separator.

Two orifices located in a control manhole will be used to maintain base flows and limit peak outflow up to the 5-year rainfall event; a 30 mm diameter orifice set at 0.150 m off the base elevation of the reservoir, and a 38 mm diameter orifice set at 0.7 m above the invert of the reservoir. The control manhole will also be fitted with a slotted cover to act as an overflow that will route runoff in excess of the 5-year rainfall event to the downstream conveyance system.

The infiltration gallery will be located at the east end of the site upstream of proposed retaining walls. The lock block retaining walls will require special design to maintain stability in a semi-saturated groundwater condition and allow the flow of groundwater from the infiltration gallery to pass through the wall. We have reviewed the requirements of the retaining wall design with the geotechnical engineer and confirm that design requirements can be met.

The detention facility shall be designed by a professional engineer to meet the requirements outlined herein.

June 26, 2019

 Comox Valley Regional District (on behalf of DKKM Holdings Inc.)
 File 2211-47533-00-Drainage Plan for Lot D, Bl 29, CD, PI EPP81926 (Macaulay Rd) Rev.3

6 QUALITY

Expected water quality pollutants for this site are silt, grit, minor hydrocarbons and Total Suspended Solids (TSS) from typical parking lot loading.

To protect against expected water quality pollutants, concentrated runoff should be routed through a grit sump, equipped with a hydrodynamic separator, upstream of the proposed detention facility. A properly sized hydrodynamic separator such as a Stormceptor™ or Barracuda™ can effectively remove the expected water quality pollutant loading. Groundwater recharge through infiltration will serve to further improve/polish this surface runoff.

7 POST-DEVELOPMENT RUNOFF

The post-developed site was modeled using SWMM software. Simulations were completed for the 24-hour SCS Type 1A distribution MAR (Mean Annual Rainfall), 2, 5, 10, 25 and 100 Year design rainfall events. Model input parameters derived are summarized in **Table 3**.

Table 3: Site-Specific Storm Water Management Parameters

Parameter	Pre-Development	Post-Development with Mitigation
Area (ha)	0.4122	0.4122
Width (m)	40	80
Slope (%)	8.0	4.0
% Impervious	15	80
N Imperv	0.018	0.018
N Perv	0.20	0.20
Dstore Imperv mm	2	2
Dstore Perv mm	5	30
Zero imperv	25	25
Curve number	66	88

Table 4 compares pre- and post-development simulated runoff for the site. The analysis shows that with the use of BMPs as proposed herein, runoff can be detained, infiltrated and released with peak rates and total volumes below pre-development rates up to the 5-year design rainfall event. For the 10, 25, and 100 design rainfall events, total runoff volume is decreased post development, however, peak rates are slightly increased over pre-development rates. We note that increase in post-development peak rates for runoff from the 10, 25, and 100 year design rainfall events is short lived; ranging from 20 minutes in the 10 year to 60 minutes in the 100 year event. This is further demonstrated in **Figures 2 through 7**.



June 26, 2019

Comox Valley Regional District (on behalf of DKKM Holdings Inc.)
 File 2211-47533-00-Drainage Plan for Lot D, Bl 29, CD, PI EPP81926 (Macaulay Rd) Rev.3

Table 4: Post-Development Runoff Quantities

24 Hour Distribution	Total Precipitation	Pre-Development Runoff		Post-Development Runoff With BMPs	
		Peak Rate (l/s)	Total Volume (m ³)	Peak Rate (l/s)	Total Volume (m ³)
MAR	48mm	1.5	53	1.5	39
2-Year SCS	62mm	3.2	87	3.0	72
5-Year SCS	72mm	4.4	112	3.6	94
10-Year SCS	85mm	5.7	139	8.4	116
25-Year SCS	97mm	7.8	183	10.6	156
100-Year SCS	117mm	10.6	246	13.5	215

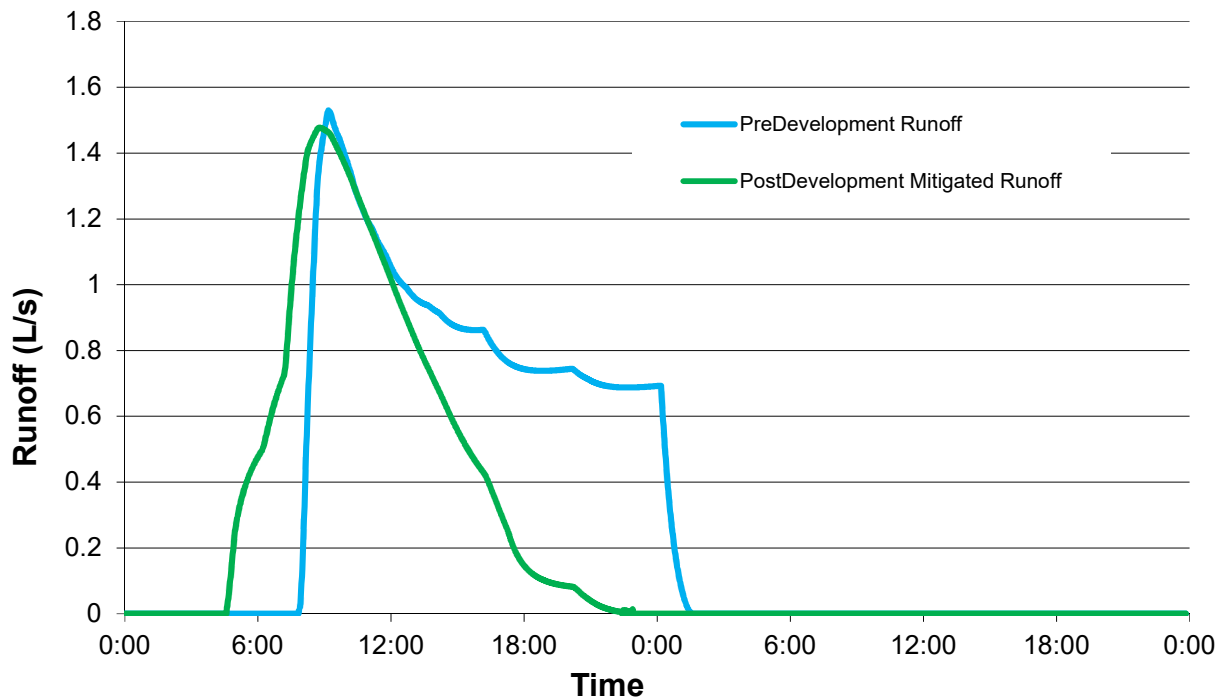


Figure 2 – BMP Performance: MAR SCS Event



June 26, 2019
 Comox Valley Regional District (on behalf of DKKM Holdings Inc.)
 File 2211-47533-00-Drainage Plan for Lot D, Bl 29, CD, Pl EPP81926 (Macaulay Rd) Rev.3

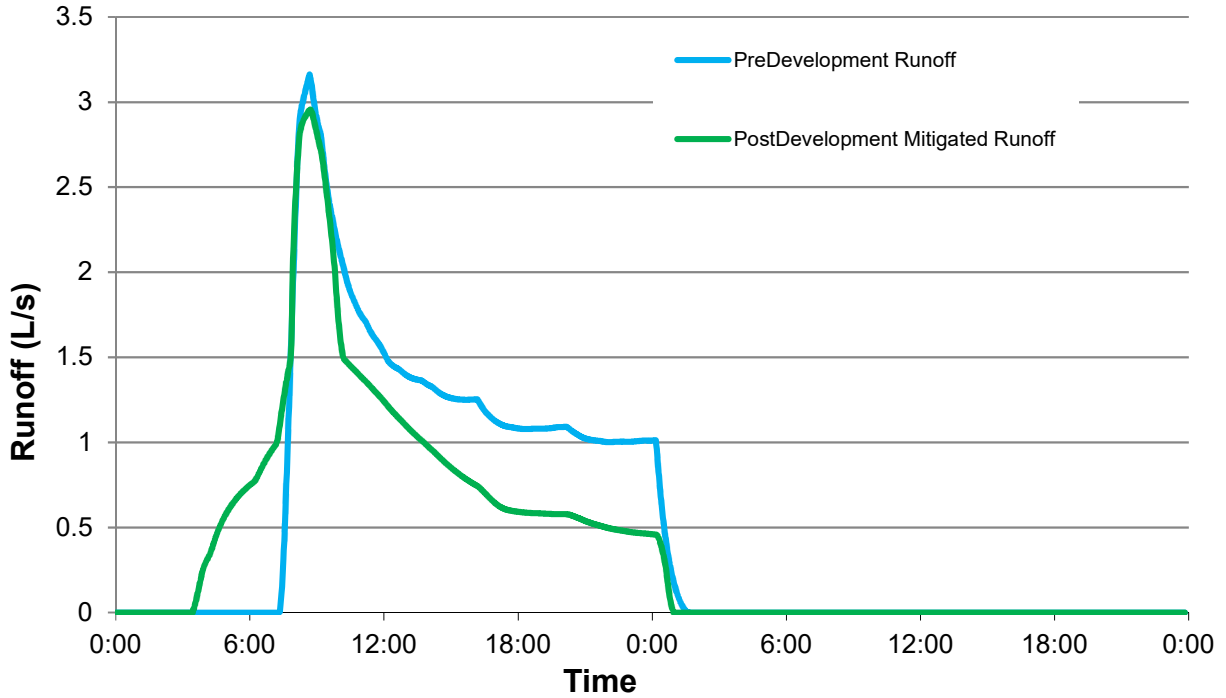


Figure 3 – BMP Performance: 2-Year SCS Event

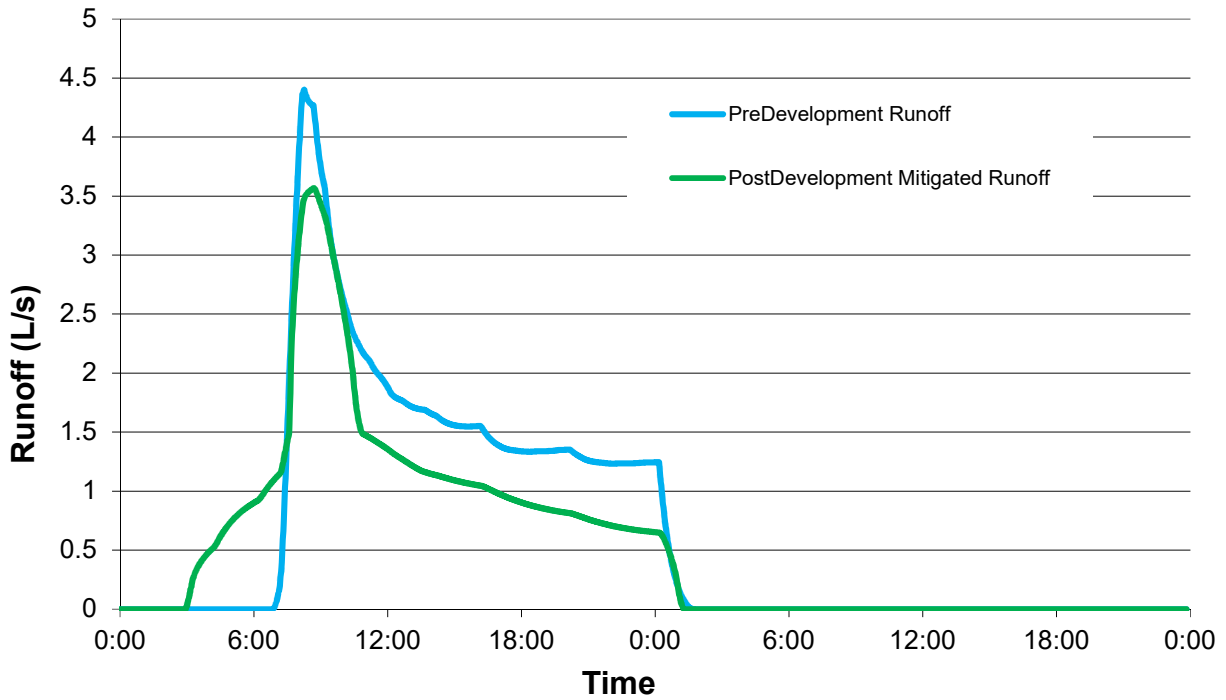


Figure 4 – BMP Performance: 5-Year SCS Event



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 Comox Valley Regional District (on behalf of DKKM Holdings Inc.)
 File 2211-47533-00-Drainage Plan for Lot D, Bl 29, Cd, Pl EPP81926 (Macaulay Rd) Rev.3

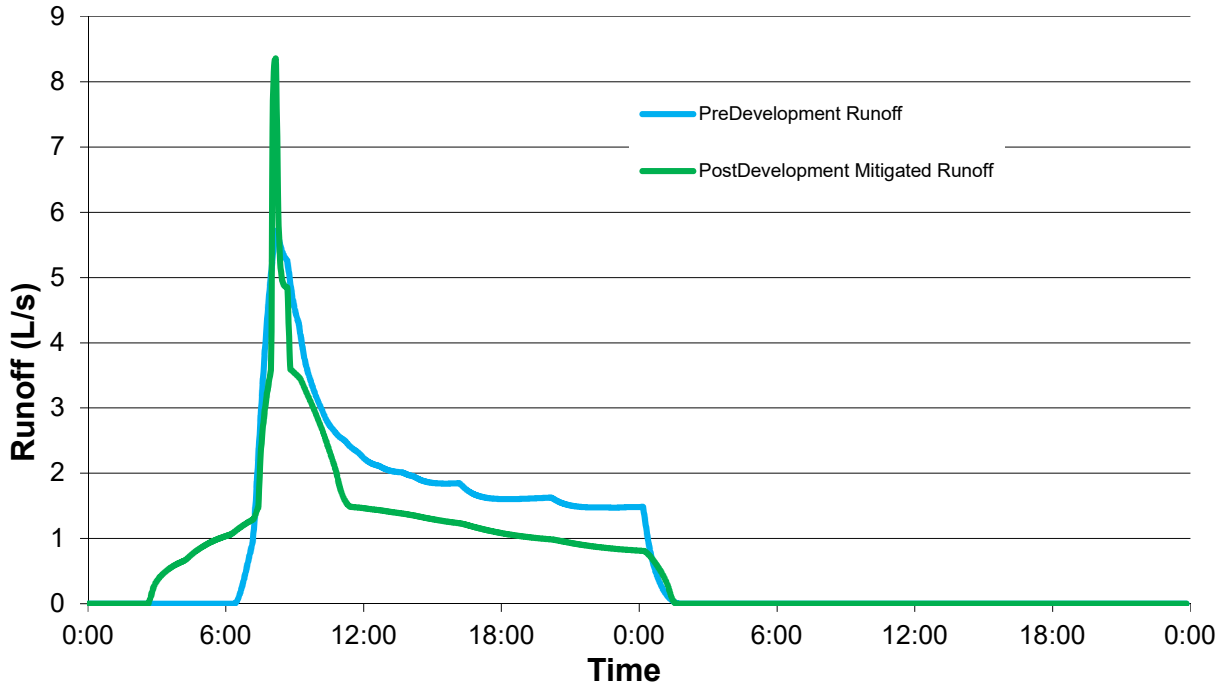


Figure 5 – BMP Performance: 10-Year SCS Event

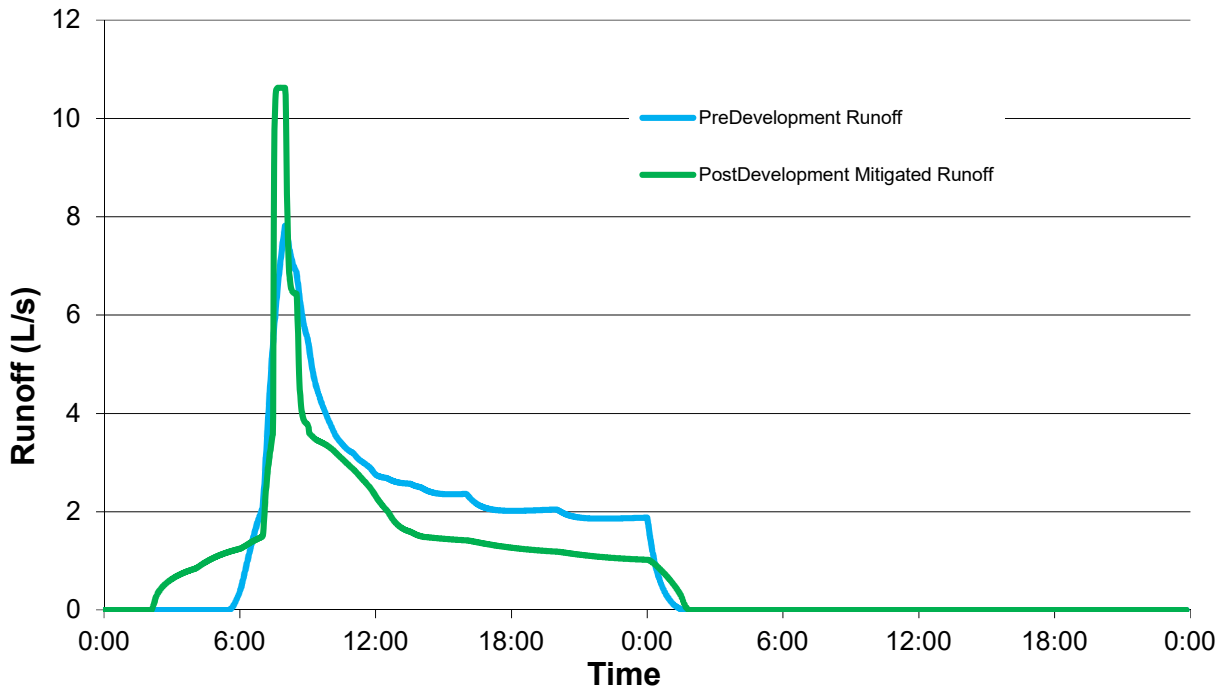


Figure 6 – BMP Performance: 25-Year SCS Event

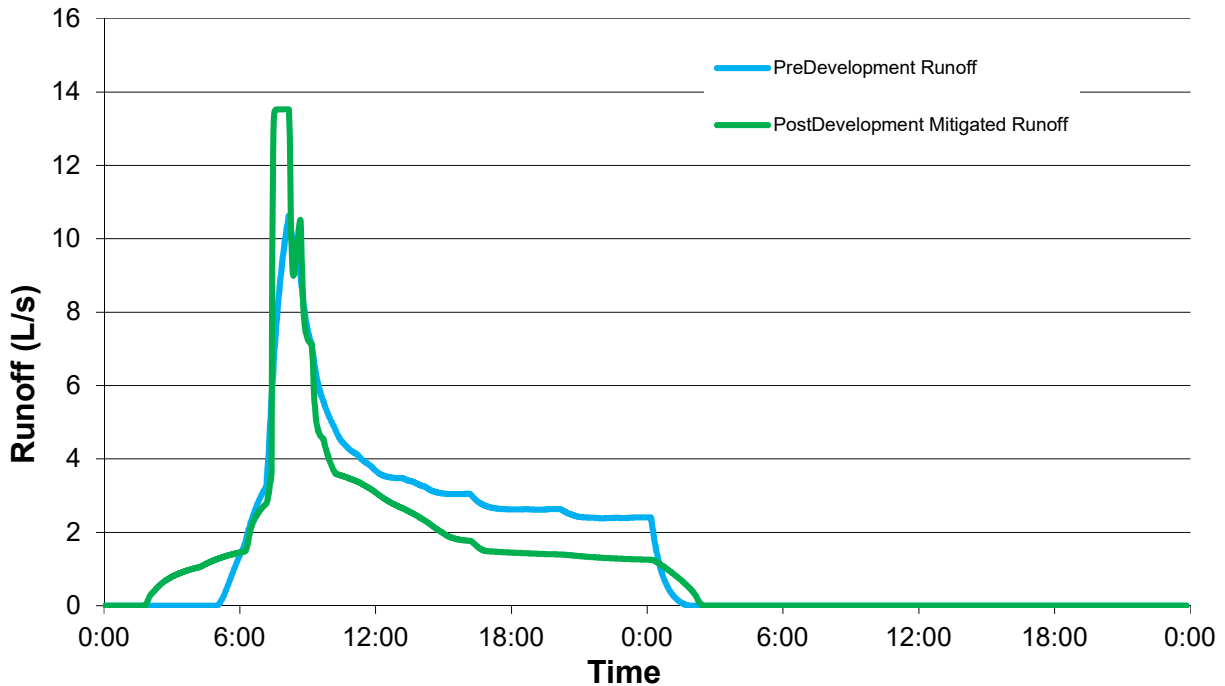


Figure 7 – BMP Performance: 100-Year SCS Event

8 MAINTENANCE

The infiltration system and the onsite storm conveyance system will require regular maintenance. All catchbasins, and the hydrodynamic separator should be checked twice annually for sediment/debris build-up and cleaned accordingly. Debris removed from the hydrodynamic separator may contain hydrocarbons and should be disposed of in accordance with Municipal, Provincial, and Federal laws. It is recommended to schedule this maintenance just before the rainy season (September) and just after the rainy season (April). Additionally, to avoid premature failure, all runoff should be directed away from the detention facility during construction to avoid being clogged with silt laden runoff.

9 CONVEYANCE

Outflow from the infiltration facility will be piped through the onsite retaining walls and daylight in the 3.0m landscape buffer at the north east corner of Lot D. Outflow will then surface flow towards the unnamed road right-of-way north of the property and continue downslope to the north east. This conveyance routing will maintain the existing drainage route.



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Site runoff in excess of the piped capacity will be directed overland to the north east where the overland flow will join the piped flow and continue overland to the north east, thereby maintaining the existing drainage routing. A downstream capacity analysis has not been completed at this time. The proposed development and associated drainage infrastructure have been designed to limit post-development volumes at or below pre-development volumes up to the 100 year design rainfall event, and to limit post-development peak rates at or below pre-development peak rates up to the 5 year design event.

10 SEDIMENT AND EROSION CONTROL

Prior to, or in conjunction with, any land clearing, grading or construction, erosion and sediment control measures should be implemented to ensure the works will be undertaken in such a manner that will preclude conveyance and discharge of fine silts and clay particles into the receiving environment. Construction should be scheduled for the drier summer months, which will reduce the chance of rain and erosion. As rain is always a possibility, a sediment and erosion control plan should be in place prior to construction.

As a minimum, erosion and sediment control measures should be implemented based on the requirements of the provincial document entitled "Develop with Care 2014: Environmental Guidelines for Urban and Rural Land Development in British Columbia", and in compliance with the WLAP's (former MoELP) "Environmental Best Management Practices for Urban and Rural Land Developments in British Columbia", June 2004.

During construction, a containment system should be employed. The containment system should utilize perimeter silt fencing and cut-off ditches with check dams, and should be installed per *Develop with Care 2014* Guidelines. In general, the following guidelines should be used:

- A containment system should be employed which will eliminate the conveyance and discharge of fine silts and clay particles into the receiving environment.
- Construction activity to be curtailed or postponed completely during periods of wetter weather.
- Stripping of existing organic topsoil should be undertaken during periods of dry weather only.
- No accumulations of sediment/mud should be tracked onto the municipal road.
- In the event of heavy precipitation, the contractor should ensure a cessation of all works on the site.



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11 CONCLUSION

Modeling shows that the proper installation and routine maintenance of the Best Management Practices described herein will provide sufficient storage and infiltration to limit post-development peak rates and total volumes to at or below pre-development peak rates and total volumes, for rainfall events up to and including the 5 year design rainfall event. Furthermore, modeling shows that post-development total volumes can be maintained below pre-development up to the 100 year design rainfall event.

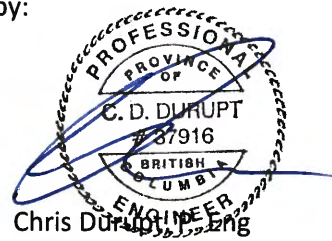
Yours truly,

MCELHANNEY LTD.

Percy Williams, EIT
Project Engineer

PW/njg

Reviewed by:



Chris Durupt, Eng
Project Engineer

2019/06/26

REVISION HISTORY

Date	Status	Revision	Author
June 26, 2019	Final	Revision 3	PW
June 20, 2019	Final	Revision 2	PW
May 30, 2019	Final	Revision 1	PW
March 18, 2019	Final	original	PW

LIMITATION

This report has been prepared for the exclusive use of DKKM Holdings Inc. The material in it reflects the best judgement of the Consultant in light of the information available to the Consultant at the time of preparation. As such, McElhanney, its employees, sub-consultants and agents will not be liable for any losses or other consequences resulting from the use or reliance on the report by any third party.



June 26, 2019

Comox Valley Regional District (on behalf of DKKM Holdings Inc.)
File 2211-47533-00-Drainage Plan for Lot D, Bl 29, CD, Pl EPP81926 (Macaulay Rd)

APPENDIX A

PROPOSED SITE PLAN

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REVISIONS

NO.	DATE	DESCRIPTION	BY
01	30 Mar., 2019	Preliminary issued for review	gw
02	17 Apr., 2019	70% BP Drawings for review	gw
03	29 Apr., 2019	CAD & PDF issued to consultants	gw
04	27 May, 2019	90% BP Drawings for review	gw
05	27 May, 2019	Issued for co-ordination	gw
06	04 June, 2019	Issued for building permit	gw
07	25 June, 2019	Relocate septic field & add stormwater infiltration gallery location	gw

8.01 ELECTRICAL INSTALLATIONS SHALL MEET THE REQUIREMENTS OF THE BRITISH COLUMBIA BUILDING CODE, 2018, THE SAFETY STANDARDS ACT ELECTRICAL SAFETY REGULATION AND ITS PURSUANT REGULATIONS, AS WELL AS ANY OTHER REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION. ENSURE THAT ALL INSTALLATIONS ARE IN PROPER WORKING ORDER AT THE COMPLETION OF CONSTRUCTION. REFER TO ELECTRICAL ENGINEERING DRAWINGS FOR DETAILS.

8.02 PLUMBING INSTALLATIONS SHALL CONFORM TO PART 7 OF THE BC BUILDING CODE, 2018 AS WELL AS ANY OTHER REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION. ENSURE THAT ALL INSTALLATIONS ARE IN PROPER WORKING ORDER AT THE COMPLETION OF CONSTRUCTION. REFER TO MECHANICAL ENGINEERING DRAWINGS FOR DETAILS.

8.03 PLUMBING FITTINGS AND FIXTURES SHALL CONFORM TO THE REQUIREMENTS FOR WATER EFFICIENCY AS DESCRIBED BY BOOK II, "PLUMBING SERVICES", OF THE BC BUILDING CODE, 2018. REFER TO MECHANICAL ENGINEERING DRAWINGS FOR DETAILS.

8.04 HEATING, VENTILATION, AND AIR CONDITIONING SYSTEMS SHALL CONFORM TO PART 6 OF THE BC BUILDING CODE, 2018 AS WELL AS ANY OTHER REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION. ENSURE THAT ALL INSTALLATIONS ARE IN PROPER WORKING ORDER AT THE COMPLETION OF CONSTRUCTION. REFER TO MECHANICAL ENGINEERING DRAWINGS FOR DETAILS.

8.05 FOR IN-FLOOR HEATING LOCATIONS AND DETAILS REFER TO MECHANICAL ENGINEERING DRAWINGS AND SYSTEM MANUFACTURER'S SPECIFICATIONS.

8.06 PAINTING AND THE PREPARATION OF SURFACES FOR PAINTING SHALL BE CARRIED OUT IN CONFORMANCE WITH MASTER PAINTER'S INSTITUTE STANDARDS.

8.07 MILLWORK SHALL BE CONSTRUCTED IN CONFORMANCE WITH ARCHITECTURAL WOODWORK MANUFACTURERS' ASSOCIATION OF CANADA STANDARDS.

8.08 TILE INSTALLATIONS SHALL BE IN CONFORMANCE WITH TERRAZZO, TILE, AND MARBLE ASSOCIATION OF CANADA STANDARDS.

8.09 CONSULT BUILDING OWNER REGARDING INTERIOR FLOOR, CEILING, AND WALL FINISHES, SPECIFICATIONS FOR ELECTRICAL AND PLUMBING FIXTURES, SPECIFICATIONS FOR APPLIANCES OR APPLIANCE ROUGH-INS, SPECIFICATIONS FOR WINDOWS AND DOORS, AND SPECIFICATIONS FOR PAINT AND OTHER MATERIAL COLOURS. SUCH SPECIFICATIONS SHALL COMPLY WITH THE BC BUILDING CODE, 2018, IN CASES WHERE THEY ARE SUBJECT TO BEING GOVERNED THEREBY.

8.10 IN ORDER TO RESIST THE DELETERIOUS EFFECTS OF CLIMATIC CONDITIONS, BUILDING ENVELOPE CONSTRUCTION SHALL BE IN GENERAL CONFORMANCE WITH THE CONCEPTS ADDRESSED IN THE CMHC PUBLICATION, "WOOD-FRAME ENVELOPES IN THE COASTAL CLIMATE OF BRITISH COLUMBIA, BEST PRACTICE GUIDE, BUILDING TECHNOLOGY".

8.11 ROOF MEMBRANES SHALL BE INSTALLED IN ACCORDANCE WITH ROOFING CONTRACTORS' ASSOCIATION OF BRITISH COLUMBIA STANDARDS.

8.12 GLAZING IN WASHROOMS SHALL BE TEMPERED OR LAMINATED SAFETY GLASS.

8.13 PROVIDE PORTABLE FIRE EXTINGUISHERS IN ACCORDANCE WITH SENTENCE 9.10.20.4 (1) OF THE BC BUILDING CODE, 2018.

8.14 WATER HEATER TANKS SHALL BE PROVIDED WITH SEISMIC RESTRAINT BRACING. CONSULT WATER HEATER MANUFACTURER AND/OR STRUCTURAL ENGINEER FOR APPROPRIATE DETAILS.

1. STANDARDS:

- 1.01 THE CONSTRUCTION DEPICTED BY THESE DRAWINGS CONFORMS TO THE REQUIREMENTS OF PART INE, BRITISH COLUMBIA BUILDING CODE, 2018. ANY REFERENCES IN THESE NOTES OR ELSEWHERE ON THE DRAWINGS TO THE BC BUILDING CODE OR BCCBC ARE INTENDED TO REFER TO THAT EDITION OF THE BRITISH COLUMBIA BUILDING CODE.
- 1.02 ALL MATERIALS AND CONSTRUCTION PROCEDURES SHALL CONFORM TO THOSE OUTLINED BY THE BRITISH COLUMBIA BUILDING CODE. IN ADDITION, APPLY OR INSTALL ALL MATERIALS AND EQUIPMENT STRICTLY ACCORDING TO THEIR MANUFACTURERS' INSTRUCTIONS AND SPECIFICATIONS.
- 1.03 ALL WORK SHALL BE DONE BY QUALIFIED TRADES PEOPLE ACCORDING TO ACCEPTED TRADE PRACTICE USING ONLY NEW MATERIALS, AND SHALL BE COMPLETED IN A TIMELY MANNER IN ORDER TO CO-ORDINATE WITH AND ACCOMMODATE OTHER TRADES.
- 1.04 THE CONTRACTOR SHALL REVIEW AND VERIFY ALL DIMENSIONS, INFORMATION, AND SPECIFICATIONS SHOWN ON THE DRAWINGS PRIOR TO COMMENCING CONSTRUCTION. REPORT ERRORS, OMISSIONS, AND DISCREPANCIES TO THE ARCHITECT PRIOR TO COMMENCING ANY WORK.
- 1.05 THESE DRAWINGS SHOW THE DESIGN INTENT OF THE COMPLETED BUILDING. THEY DO NOT NECESSARILY INDICATE TEMPORARY STRUCTURES SUCH AS CONCRETE FORM-WORK, TEMPORARY BRACING, SEQUENCE OF CONSTRUCTION, ASSEMBLY PROCEDURES, ETC.
- 1.06 DO NOT SCALE DRAWINGS. WRITTEN DIMENSIONS SHALL TAKE PRECEDENCE.
- 1.07 HORIZONTAL DIMENSIONS ARE TAKEN AT THE FACE OF SHEATHING OR CONCRETE ON EXTERIOR WALLS AND AT THE FACE OR CENTRE-LINE OF STUDS AS INDICATED ON INTERIOR WALLS. VERTICAL DIMENSIONS ARE TAKEN AT TOP OF CONCRETE SLAB, SUB-FLOORING, OR WALL AS INDICATED.
- 1.08 ROOM SIZES, IF INDICATED ON THE PLANS, ARE NOMINAL ONLY. MEASURE ACTUAL SITE CONDITIONS BEFORE ORDERING MATERIALS OR EQUIPMENT THAT ARE DEPENDENT ON EXACT SIZES.
- 1.09 LOCATIONS OF ANY FIXTURES, OUTLETS, ELECTRICAL EQUIPMENT, AND MECHANICAL EQUIPMENT SHOWN ARE APPROXIMATE ONLY. ITEMS DEPICTING OBJECTS SUCH AS TOILETS OR EXHAUST FANS ARE SYMBOLIC ONLY, AND BEAR NO DIRECT RELATIONSHIP TO THE ACTUAL OBJECT. CONSULT THE APPROPRIATE ENGINEERING DRAWINGS, SHOP DRAWINGS, OR PRODUCT DATA SHEETS FOR INFORMATION REGARDING THOSE ITEMS.
- 1.10 IN INSTANCES WHERE THESE NOTES CONFLICT WITH ENGINEERING DRAWINGS AND SPECIFICATIONS, THE ENGINEERING INFORMATION SHALL TAKE PRECEDENCE. REPORT DISCREPANCIES TO THE ARCHITECT PRIOR TO PROCEEDING WITH RELATED WORK.
- 1.11 THE CONTRACTOR SHALL PROVIDE ADEQUATE TEMPORARY SUPPORT OF ALL BUILDING COMPONENTS DURING CONSTRUCTION AND SHALL NOT ALLOW MATERIAL STORAGE OR CONSTRUCTION PROCEDURES TO EXCEED THE DESIGN LOADS OF THE COMPONENTS SUPPORTING THEM.
- 1.12 THE CONTRACTOR SHALL TAKE CARE TO STORE AND PROTECT ALL MATERIALS IN A SAFE LOCATION AND IN A MANNER THAT WILL NOT CAUSE DETRIORATION OF THEIR ESSENTIAL PROPERTIES. STRICTLY FOLLOW MANUFACTURERS' AND SUPPLIERS' RECOMMENDATIONS FOR CARE DURING STORAGE.
- 1.13 THE CONTRACTOR AND SUB-CONTRACTORS SHALL TAKE CARE TO PROTECT PUBLIC AND WORKER SAFETY DURING CONSTRUCTION AS OUTLINED IN THE BC BUILDING CODE, PART 8, AND BY ANY OTHER REGULATORY BODY, SUCH AS WORKSAFE BC, HAVING JURISDICTION.
- 1.14 ALL WORK SHALL BE CARRIED OUT IN A MANNER WHICH PREVENTS DIRECT OR INDIRECT DAMAGE TO ADJACENT PROPERTY, SUBSOIL, WATER COURSES, VEGETATION, AND NEW CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPARATION OF ANY DAMAGE CAUSED.
- 1.15 THE CONTRACTOR SHALL MAINTAIN THE SITE IN A SAFE AND ORDERLY STATE DURING CONSTRUCTION, REMOVING WASTE ON A REGULAR BASIS AND DISPOSING OF IT IN A SAFE, ENVIRONMENTALLY ACCEPTABLE MANNER. THERE SHALL BE NO BURNING OR BURYING OF WASTE CONSTRUCTION MATERIAL ON THE SITE.
- 1.16 THE CONTRACTOR SHALL CALL FOR ALL INSPECTIONS REQUIRED BY THE AUTHORITIES HAVING JURISDICTION, CONSULTING ENGINEERS, AND THE ARCHITECT. FAILURE TO COMPLY MAY REQUIRE THE DAMAGING OR DESTRUCTION OF COMPLETED WORK WHERE REQUIRED TO FACILITATE INSPECTION OF UNDERLYING CONDITIONS.
- 1.17 THE OWNER, ENGINEERING CONSULTANTS, AND ARCHITECT SHALL AT ALL TIMES HAVE ACCESS TO THE WORK FOR PURPOSES OF INSPECTION TO REVIEW THE COMPLIANCE AND QUALITY OF THE WORK.

1. STANDARDS, CONT'D:

- 1.18 THE OWNER, ENGINEERING CONSULTANTS, AND ARCHITECT RESERVE THE RIGHT TO REJECT ANY ITEM THAT DOES NOT CONFORM TO AN ACCEPTABLE STANDARD OF QUALITY, UTILITY, OR PERFORMANCE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RECTIFYING ANY SUCH REJECTED ITEMS TO THE SATISFACTION OF THE OWNER AND/OR CONSULTANTS.
- 1.19 THE CONTRACTOR SHALL BE RESPONSIBLE FOR ASSURING THAT STRUCTURAL MEMBERS AND INSTALLATIONS MEET THE REQUIREMENTS OF THE BC BUILDING CODE AND PURSUANT REGULATIONS. STRUCTURAL SPECIFICATIONS PROVIDED BY A BC REGISTERED PROFESSIONAL STRUCTURAL ENGINEER SHALL TAKE PRECEDENCE OVER STRUCTURAL INFORMATION, IF ANY, PROVIDED ON THESE DRAWINGS.
- 1.20 UPON COMPLETION OF THE WORK REMOVE ALL SURPLUS PRODUCTS, TOOLS, CONSTRUCTION EQUIPMENT, AND WASTE FROM THE BUILDING AND SITE. THOROUGHLY CLEAN THE ENTIRE BUILDING READY FOR OCCUPANCY AND HAND OVER TO THE OWNER. SIMILARLY, LEAVE THE SITE IN CLEAN, ORDERLY CONDITION READY FOR USE.

3. CONCRETE AND FOUNDATIONS:

- 3.01 REFER TO THE STRUCTURAL ENGINEER'S DRAWINGS AND SPECIFICATIONS FOR DETAILS AND SPECIFICATIONS OF CONCRETE WALLS, MASONRY WALLS AND CONCRETE SLABS.
- 3.02 FOOTINGS SHALL EXTEND TO SUITABLE UNDISTURBED OR ADEQUATELY COMPACTED SOIL. EXTERIOR FOOTINGS SHALL EXTEND BELOW THE FROST PENETRATION DEPTH.
- 3.03 INSTALL CONTINUOUS 3/8" WIDE MASTIC JOINT FILERS AT INTERSECTIONS OF CONCRETE SLABS WITH CONCRETE WALLS.
- 3.04 PROVIDE CRACK CONTROL JOINTS IN SLABS AS REQUIRED. WHERE POSSIBLE, LOCATE JOINTS BENEATH STUD WALLS.

4. CARPENTRY:

- 4.01 IN LOCATIONS WHERE STRUCTURAL WOOD IS EMPLOYED, REFER TO THE STRUCTURAL ENGINEER'S DRAWINGS AND SPECIFICATIONS FOR INFORMATION.
- 4.02 STORE MATERIALS IN A DRY ENVIRONMENT. NO MATERIALS HAVING A MOISTURE CONTENT EXCEEDING 19% SHALL BE COVERED WITH FINISHES, MEMBRANES OR CLADDING.
- 4.03 PROTECT ALL LUMBER IN CONTACT WITH CONCRETE BY INSTALLING A 45 LB. FELT LAYER, A FOAM SILL GASKET, OR OTHER APPROVED METHOD. PROTECTIVE LAYERS SHALL BE CONTINUOUS ALONG ALL POINTS OF CONTACT. SILL PLATES SHALL BE PRESSURE TREATED LUMBER.
- 4.04 ANCHOR SILL PLATES TO FOUNDATION WITH 5/8"x8" GALVANIZED STEEL ANCHOR BOLTS AT A MAXIMUM SPACING OF 6'-0".
- 4.05 PRESSURE TREATED COMPONENTS SHALL BE TREATED WITH A WATER BORNE PRESERVATIVE. TOUCH UP SAW CUTS IN PRESSURE TREATED LUMBER WITH A COMPATIBLE PRESERVATIVE.

4. CARPENTRY, CONT'D:

- 4.06 FOR UNTREATED AND CHROMATED COPPER ARSENATE (CCA) TREATED LUMBER HOT DIPPED GALVANIZED STEEL FASTENERS MAY BE USED. AMMONIACAL COPPER QUATERNARY (ACQ) TREATED LUMBER REQUIRES THE USE OF STAINLESS STEEL FASTENERS ONLY.
- 4.07 INSTALL BACKING, BLOCKING AND SUPPORTS AS REQUIRED FOR DRYWALL, PLUMBING FIXTURES, HANDRAILS, ELECTRIC FIXTURES, ETC. BACKING AND BLOCKING LOCATIONS AND SIZES NOT NECESSARILY INDICATED ON DRAWINGS - CHECK REQUIREMENTS WITH MANUFACTURERS OR SUPPLIERS OF MATERIALS AND EQUIPMENT. PROVIDE STRUCTURAL ENGINEERING CERTIFICATION WHERE REQUIRED (eg. GUARD RAILS, GRAB BARS, ETC.)
- 4.08 CONFIRM DIMENSION REQUIREMENTS FOR NON-ON WINDOW UNITS AND PRE-HUNG DOOR UNITS PRIOR TO FRAMING ROUGH OPENINGS.
- 4.09 FRAMING MATERIALS, METHODS, AND PROCEDURES SHALL CONFORM TO SUBSECTION 9.23, "WOOD-FRAME CONSTRUCTION", OF THE BC BUILDING CODE, 2018.

5. FLASHINGS AND SEALANTS:

- 5.01 SHEET METAL FLASHING SHALL BE PREFINISHED 0.33 mm THICK GALVANIZED STEEL OR 0.48 mm THICK ALUMINUM.
- 5.02 FLASHING SHALL BE OF A MATERIAL COMPATIBLE WITH ADJACENT MATERIALS OR SHALL BE TREATED SO AS TO PREVENT ADVERSE REACTIONS WITH ADJACENT MATERIALS.
- 5.03 INSTALL SHEET METAL FLASHING TO PROTECT FROM MOISTURE PENETRATION ALL EXTERIOR HORIZONTAL OR OBLIQUE CHANGES OF PLANE OR MATERIAL.
- 5.04 INSTALL SHEET METAL FLASHING WITH END DAMS OVER ALL OTHERWISE UNPROTECTED OPENINGS TO THE EXTERIOR. SUCH FLASHING SHALL EXTEND A MINIMUM OF 1" BEYOND THE EDGE OF THE JAMB ROUGH OPENING.
- 5.05 SEAL AROUND ALL WINDOW AND DOOR OPENINGS TO THE EXTERIOR WITH A PAINTABLE, NON-HARDENING CAULKING MATERIAL. FOLLOW WINDOW AND DOOR MANUFACTURER'S RECOMMENDATIONS WHERE APPROPRIATE.
- 5.06 FLASH AND COUNTERFLASH ALL VENTS, FLUES, AND OTHER ROOF PENETRATIONS IN ACCORDANCE WITH ROOFING CONTRACTORS' ASSOCIATION OF BRITISH COLUMBIA STANDARDS.
- 5.07 FLASHINGS SHALL HAVE A MINIMUM 20% SLOPE DOWN AWAY FROM THE BUILDING. (OR, WHERE THE FLASHING TERMINATES ON A SLOPED ROOF, MATCH SLOPE)
- 5.08 FLASHINGS SHALL HAVE A FORMED DRIP EDGE (NOT REQUIRED WHERE FLASHING TERMINATES ON A SLOPED ROOF)
- 5.09 ALL SEALANTS, MEMBRANES, COATINGS, ETC. SHALL BE INSTALLED IN ACCORDANCE WITH THEIR MANUFACTURER'S RECOMMENDATIONS FOR:
 - INSTALLATION METHODS AND PROCEDURES;
 - CURING TIMES FOR SEALANTS, COATINGS, ETC.;
 - ENVIRONMENTAL CONDITIONS DURING INSTALLATION;
 - PREPARATION OF SUBSTRATE SURFACES;
 - COMPATIBILITY WITH ADJACENT MATERIALS;
 - WORKPLACE AND PUBLIC SAFETY PRECAUTIONS DURING INSTALLATION;
 - DISPOSAL OF PACKAGING AND EXCESS MATERIALS.

6. INSULATION AND VENTILATION:

- 6.01 INSTALL A 6 MIL POLYETHYLENE VAPOUR BARRIER ON THE WARM SIDE OF BATT AND LOOSE FILL INSULATION. LAP POLYETHYLENE JOINTS A MINIMUM OF 4" AND SEAL TIGHTLY WITH COMPATIBLE TAPE. SEAL TIGHTLY AROUND WALL AND CEILING PENETRATIONS WITH COMPATIBLE TAPE.
- 6.02 VENTILATION OF INTERIOR SPACES SHALL CONFORM TO THE REQUIREMENTS OUTLINED BY PART 6 OF THE BC BUILDING CODE, 2018.
- 6.03 FILL VOIDS AT LINTELS AND ANY OTHER SIMILAR LOCATIONS WITH INSULATION MATERIAL.
- 6.04 INSTALL VAPOUR PERMEABLE MEMBRANE OVER ALL EXTERIOR SHEATHING. INSTALL LAYERS STARTING AT THE LOWEST POINT AND LAP SUCCESSIVE LAYERS OVER LOWER LAYERS SHINGLE STYLE. LAP JOINTS A MINIMUM OF 4" AND SEAL WITH COMPATIBLE TAPE.

6. INSULATION AND VENTILATION, CONT'D:

- 6.05 INSTALL A 6 MIL POLYETHYLENE MOISTURE BARRIER BELOW ALL INTERIOR CONCRETE SLABS OR SKIM COATS. LAP JOINTS A MINIMUM OF 4" AND SEAL WITH COMPATIBLE TAPE.
- 6.06 MINIMUM INSULATION VALUES SHALL CONFORM TO THE FOLLOWING CHART:

INSULATION VALUES - ZONE 5

HEATING DEGREE DAYS: 3,100 (VALUE FOR COURTENAY, BC.)
VALUES ASSUME NO HEAT RECOVERY VENTILATOR IS INSTALLED.

CEILING:
RSI 8.80 (R 50) BATT OR LOOSE FILL INSULATION.
EFFECTIVE VALUE REQUIRED: RSI 8.87 (R 49.26).
EFFECTIVE INSULATION VALUE PROVIDED: RSI 8.70 (R 49.40).

EXTERIOR STUD WALLS:
RSI 3.70 (R 21) BATT INSULATION.
EFFECTIVE VALUE REQUIRED: RSI 3.78 (R 17.5).
EFFECTIVE INSULATION VALUE PROVIDED: RSI 3.09 (R 17.53).

FOUNDATION WALLS:
3.5" RIGID PERIMETER INSULATION @ RSI 0.88 (R 5) PER INCH.
EFFECTIVE VALUE REQUIRED: RSI 2.98 (R 16.53).
EFFECTIVE INSULATION PROVIDED: RSI 2.08 (R 17.5).
PORTION OF WALL ABOVE GRADE TO A MAXIMUM OF 600 mm INCLUDED PER SENTENCE 9.36.2.8 (3) AND CLAUSE 9.36.2.8 (4) (b) (i).
ICF MANUFACTURER SHALL PROVIDE DOCUMENTATION CERTIFYING THE SYSTEM MEETS THE EFFECTIVE INSULATION VALUE REQUIRED ABOVE.

UNDERSIDE OF SLAB (REQUIRED IF IN-FLOOR HEATING IS INSTALLED):
3.0" RIGID PERIMETER INSULATION @ RSI 0.98 (R 5) PER INCH.
EFFECTIVE VALUE REQUIRED: RSI 2.32 (R 13.16).
EFFECTIVE INSULATION PROVIDED: RSI 2.64 (R 15.0).
NOTE: REQUIRED BENEATH THE ENTIRE SLAB PER BCCBC 9.36.2.8 (5) OR 1.2 M. 1.2 METERS BEYOND PERIMETER OF HEATED AREA WHERE FLOOR IS ONLY PARTIALLY HEATED PER BCCBC 9.36.2.8 (6).

WINDOWS AND EXTERIOR DOORS:
WINDOWS AND DOORS SHALL HAVE A MAXIMUM THERMAL TRANSMITTANCE VALUE OF U=1.80.

REQUIRED EFFECTIVE INSULATION VALUES ARE DERIVED FROM TABLES 9.36.2.6.A AND 9.36.2.8.A OF THE BC BUILDING CODE, 2018.

NOTE: EFFECTIVE INSULATION VALUES FOR CEILING AND STUD WALLS ARE DERIVED FROM OWENS-CORNING LTD. ON-LINE EFFECTIVE INSULATION CALCULATOR PROGRAM.

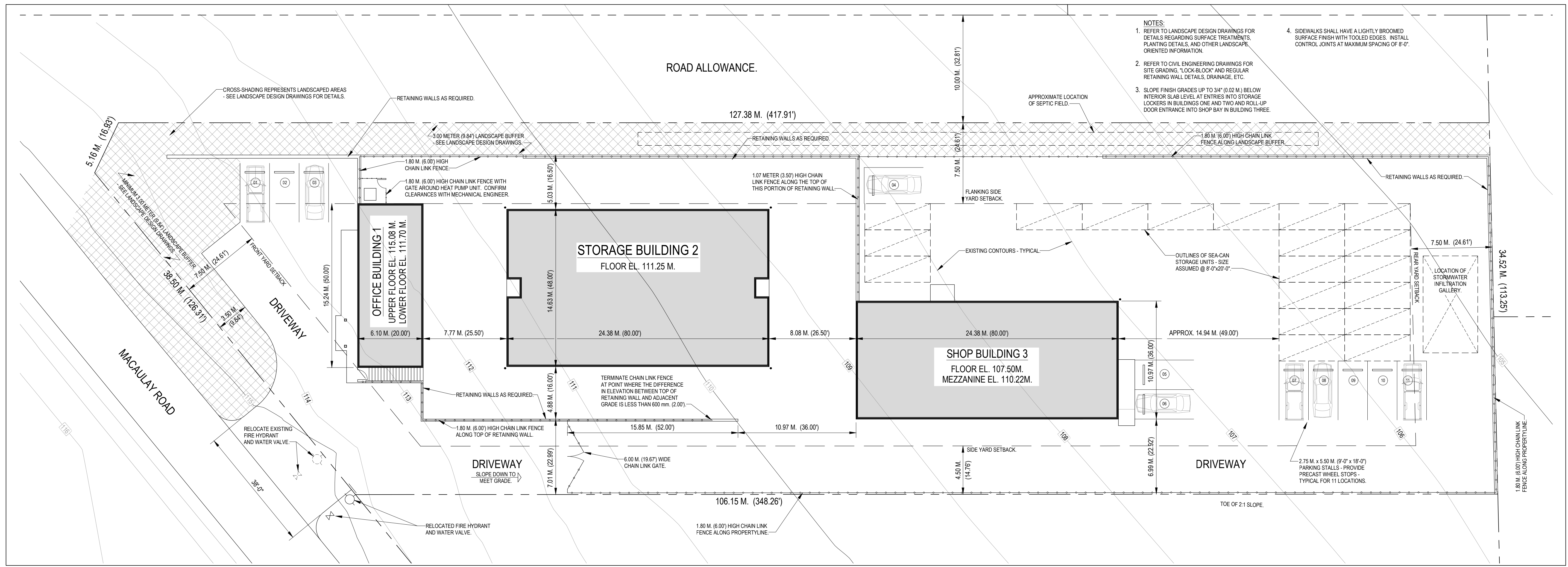
- 6.07 ATTIC SPACES SHALL BE VENTED TO THE EXTERIOR USING VENTS HAVING A MINIMUM FREE VENT AREA EQUALING AT LEAST 1/300th OF THE INSULATED CEILING AREA. SUCH VENTS SHALL BE LOCATED AT BOTH THE EAVES AND NEAR THE RIDGE WITH A MINIMUM OF AT LEAST 25% OF THE REQUIRED FREE VENT AREA LOCATED AT EACH POSITION.

- 6.08 EXHAUST VENT TERMINATIONS ON THE EXTERIOR OF THE BUILDING SHALL BE FITTED WITH PLASTIC OR PREFINISHED SHEET METAL HOUSINGS THAT ARE DESIGNED TO PREVENT THE INGRESS OF RAIN, SNOW, INSECTS, OR SMALL ANIMALS.

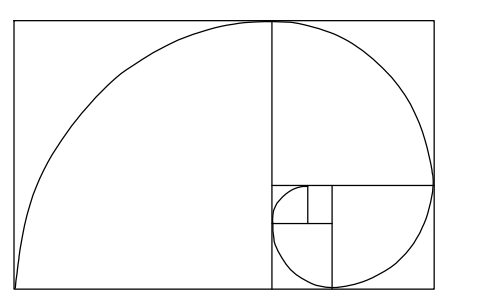
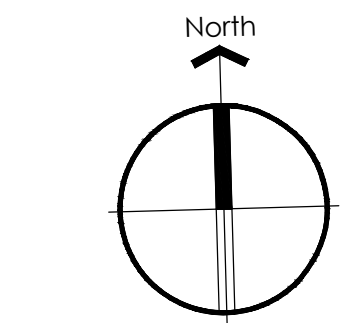
7. GUARDRAILS:

- 7.01 WHERE THE DIFFERENCE BETWEEN ANY WALKING SURFACE ACCESSIBLE BY PEOPLE AND AN ADJACENT SURFACE IS GREATER THAN 2" EITHER VERTICALLY OR AT A SLOPE MORE THAN 1 IN 2 WITHIN 4'-0" OF THE WALKING SURFACE, THE HIGHER SURFACE SHALL BE PROTECTED BY A GUARD RISING A MINIMUM OF 42" ABOVE THE WALKING SURFACE.
- 7.02 GUARDS FOR STAIRWAYS SHALL RISE A MINIMUM OF 36" VERTICALLY ABOVE A LINE DRAWN THROUGH THE LEADING EDGES OF THE TREAD NOSINGS.
- 7.03 GUARDS SHALL BE DESIGNED SO THAT THEY HAVE NO OPENINGS THAT WILL PERMIT THE PASSAGE OF A 4" DIAMETER SPHERE. WHERE APPROVED BY THE AUTHORITY HAVING JURISDICTION, THE OPENINGS MAY BE INCREASED TO NO OPENINGS THAT WILL ALLOW PASSAGE OF A 21" SPHERE.
- 7.04 GUARDS SHALL BE DESIGNED SO THAT THERE ARE NO CLIMBABLE ELEMENTS BETWEEN 5" AND 36" ABOVE THE ADJACENT WALKING SURFACE. WHERE APPROVED BY THE AUTHORITY HAVING JURISDICTION, A GUARD MAY CONSIST OF A TOP RAIL AND INTERMEDIATE HORIZONTAL RAILS HAVING A MAXIMUM 21" GAP BETWEEN THEM.

GENERAL NOTES
NO SCALE



SITE PLAN
1/16"=1'-0"

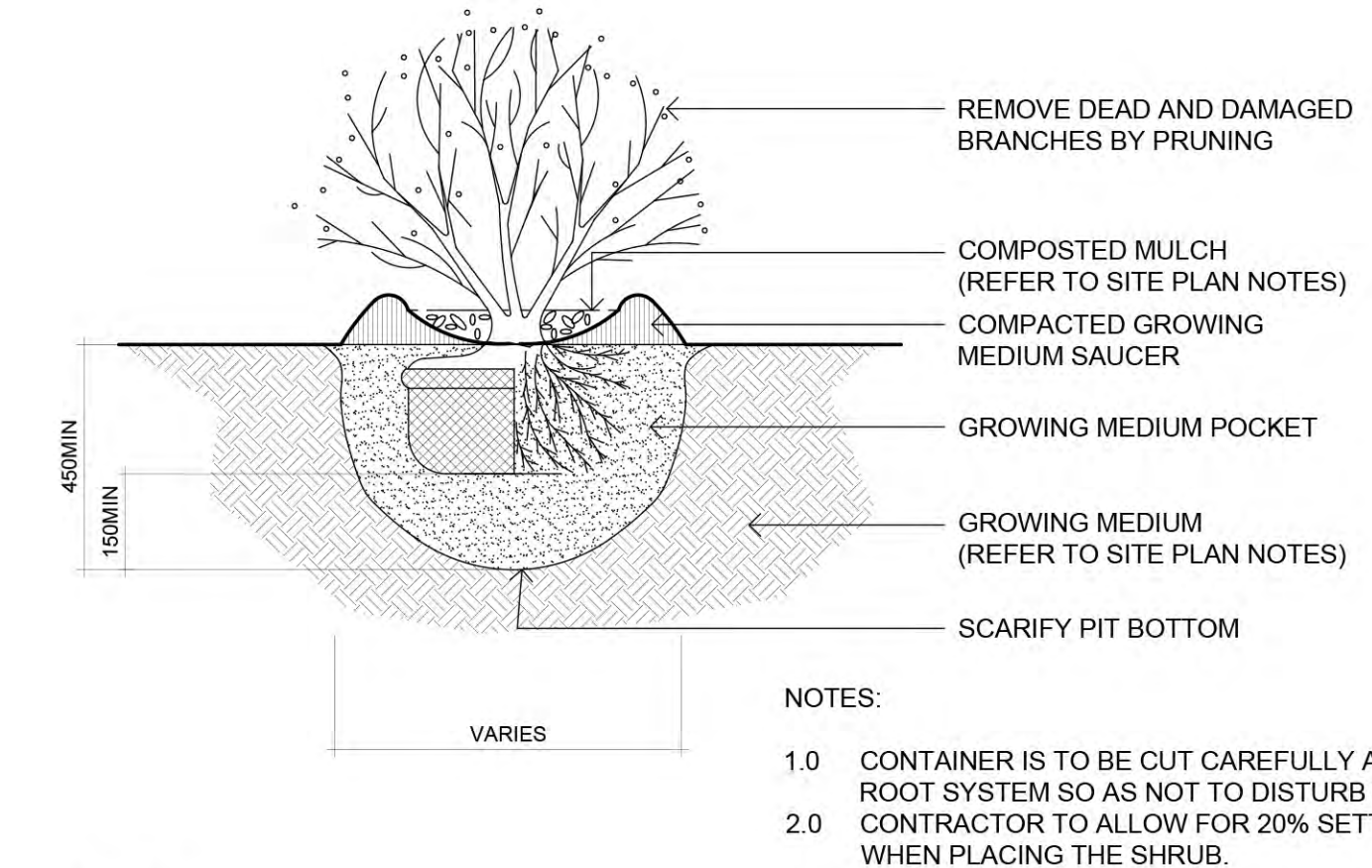
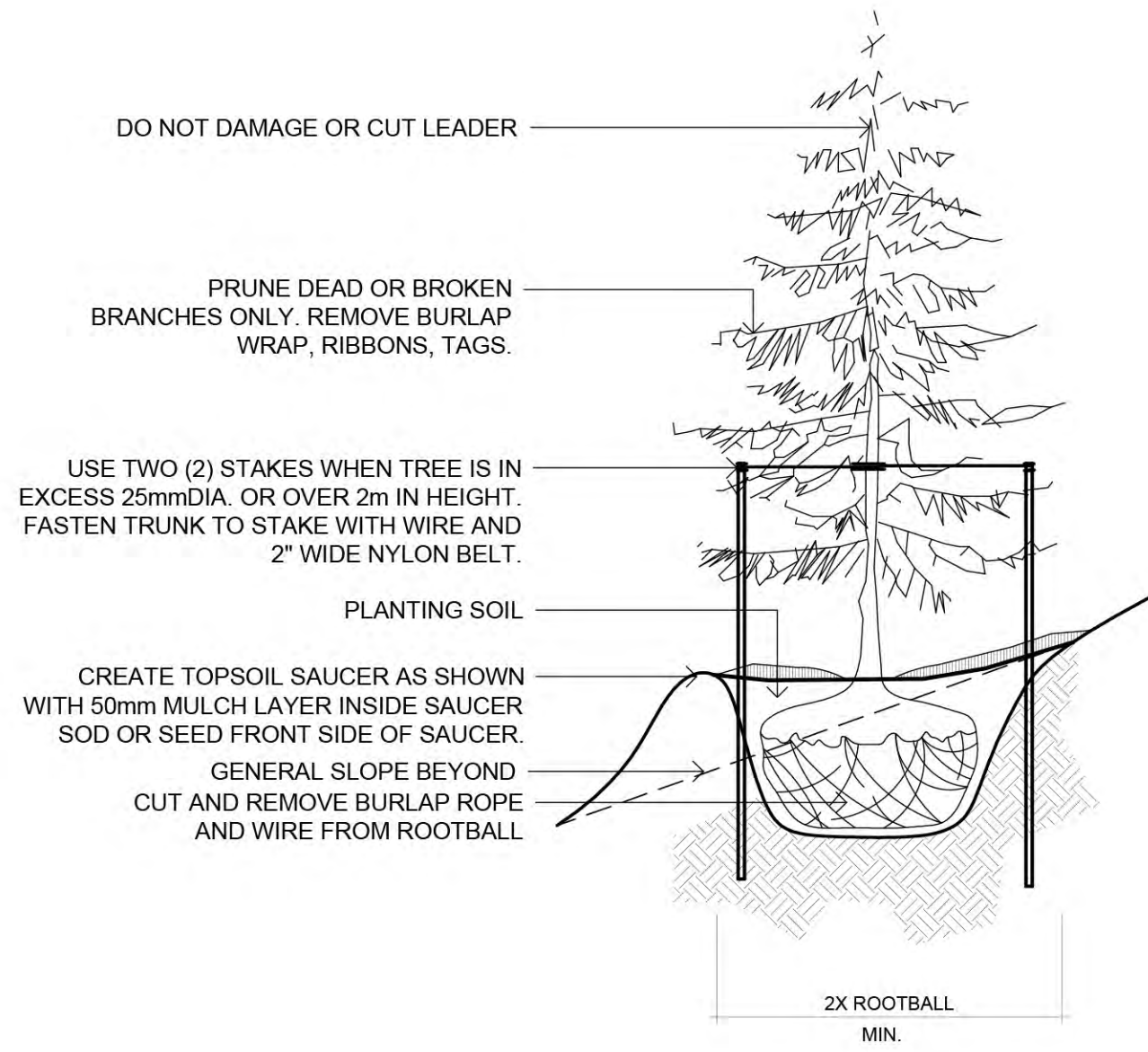


Philippa Atwood Architect
5 Little Bear Way Royston BC
1 250-703-0433 c 250-218-0724
pippa@patwoodarchitect.ca

PROJECT: **SARATOGA STORAGE**
SELF-STORAGE LOCKER AND LIGHT INDUSTRIAL DEVELOPMENT
2330 MACAULAY ROAD
BLACK CREEK, BC

DRAWING NAME: **GENERAL NOTES, SITE PLAN.**

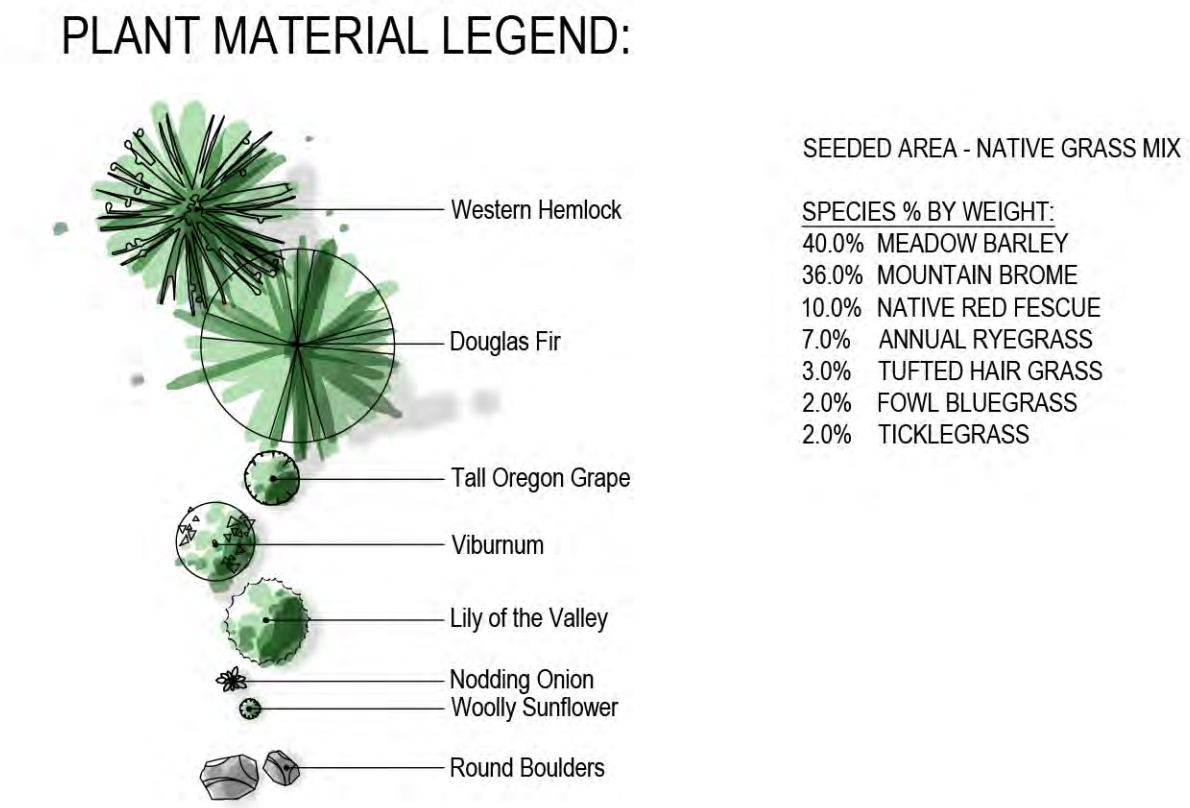
FILE: 1233 - Saratoga Storage - BP.dwg	SCALE: 1/16"=1'-0"
DRAWN BY: GW	DATE: 24 MARCH, 2019
PROJECT NUMBER: 1233	DRAWING NUMBER: A2 of 13



REPRESENTATIVE PLANT LIST

QTY	BOTANICAL NAME	COMMON NAME	SIZE / SPACING
TREES			
4	<i>Pseudotsuga menziesii</i>	Douglas Fir	#10 Pot
3	<i>Tsuga heterophylla</i>	Western Hemlock	#10 Pot
SHRUBS			
19	<i>Mahonia aquifolium</i>	Oregon Grape	#02 cont.
22	<i>Pieris japonica 'Red Head'</i>	Japanese Andromeda	#05 cont.
29	<i>Viburnum x pragensis</i>	Prague Viburnum	#05 cont.
ORNAMENTAL GRASSES & PERENNIALS			
30	<i>Allium cernuum Roth</i>	Nodding Onion	4"
30	<i>Eriophyllum lanatum</i>	Common Woolly Sunflower	4"

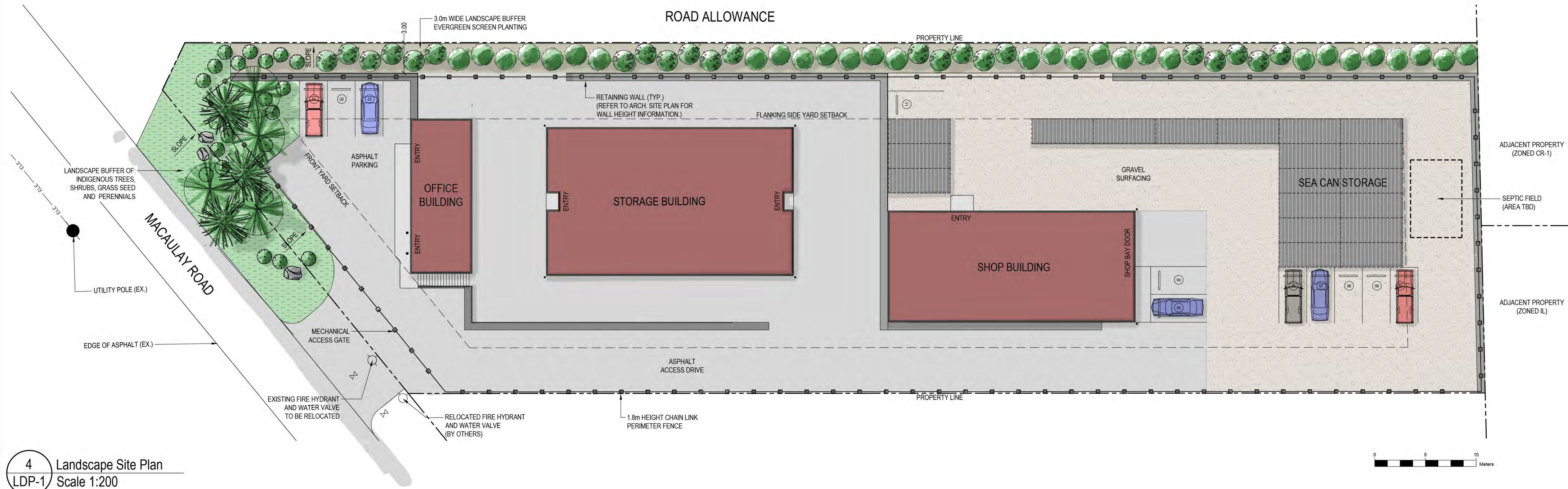
- SITE PLAN NOTES:**
- SITE PLAN IS SHOWN FOR DESIGN INTENT/FORM AND CHARACTER PURPOSES ONLY.
 - FINAL QUANTITIES OF PERENNIAL AND SHRUB PLANTINGS MAY VARY.
 - ALL INSTALLATION OF LANDSCAPE WORKS TO BE IN ACCORDANCE WITH THE CANADIAN LANDSCAPE STANDARD (CLS) CURRENT EDITION.
 - IMPORTED GROWING MEDIUM SHALL BE TESTED AND SHOWN TO MEET STANDARDS OUTLINED IN THE CLS. GROWING MEDIUM SHALL BE PLACED AT THE FOLLOWING DEPTHS:
SEEDING AREAS: 150mm DEPTH
PLANT BED AREAS: 450mm DEPTH
TREE PITS: 300mm DEPTH AROUND AND BELOW THE ROOT BALL
 - MULCH TO BE COMPOSTED BARK MULCH, PLACED AT MINIMUM 75mm DEPTH.
 - PLANT MATERIAL TO BE IRRIGATED BY A HIGH EFFICIENCY, AUTOMATED SYSTEM FOR THE FIRST TWO (2) GROWING SEASONS TO ENSURE ESTABLISHMENT.



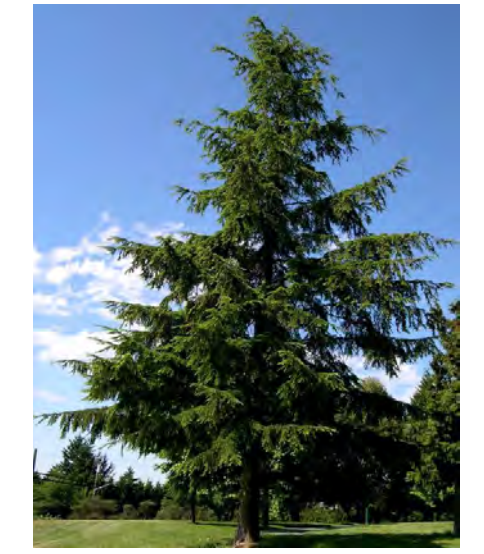
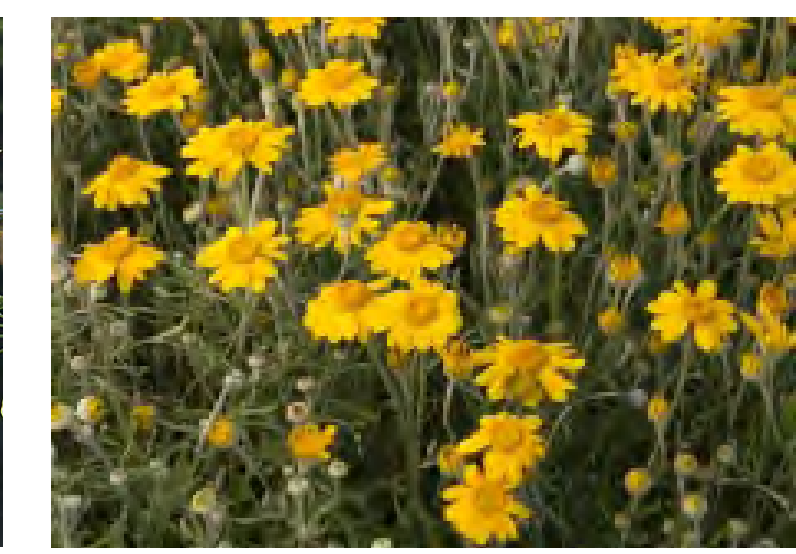
1 Coniferous Tree Planting on Slope - Section
LDP-1 Scale 1:15 (mm)

2 Shrub Planting - Section
LDP-1 Scale 1:15 (mm)

3 Seeded Area - Enlargement
LDP-1 Scale 1:100



4 Landscape Site Plan
LDP-1 Scale 1:200



EVERGREEN SCREEN PLANTING

DROUGHT TOLERANT / INDIGENOUS MEADOW

INDIGENOUS TREES



PROJECT TITLE:
SARATOGA STORAGE
BLOCK 29
Comox District
Plan EPP81926

DRAWING TITLE:
LANDSCAPE SITE PLAN

ISSUED FOR / REVISION	
1	ISSUED FOR REVIEW 2019-01-02
2	ISSUED FOR REVIEW 2019-03-08
3	ISSUED DEVELOPMENT PERMIT 2019-03-18

SEAL:

DRAWN BY:	LSC
DATE:	2018-12-28
SCALE:	AS NOTED
DWG. NO.:	

LDP-1

Subject: DarkSky	
Category: Community Planning Services	Policy Reference: 3010-00

Purpose

1. To include a set of guidelines to be considered regarding exterior lighting for commercial, industrial, and multi-family residential unit development. These regulations include an interpretation section to define the various terms, standardize how light systems are designed, constructed and installed, and to reduce glare, light trespass and obtrusive light while conserving energy and resources. Safety, security and productivity shall be maintained and encouraged while reducing the degradation of the nighttime visual environment.

Scope

2. The scope of this policy includes the various electoral area official community plans that have a form and character development permit area for commercial, industrial or multi-unit family residential development.

Guiding Principle

3. To guide commercial, industrial and multi-family residential development to have exterior lighting that does not negatively impact the quality of life for adjacent neighbours nor create any light pollution.

Interpretation

4. The following are definitions relating to this DarkSky policy:
 - a) **Abandonment:** The relinquishment of a property, or the cessation of a use or activity by the owner or tenant for a period of six months, excluding temporary or short term interruptions for the purpose of remodeling, maintaining, or otherwise improving or rearranging a facility. A use shall be deemed abandoned when such use is suspended as evidenced by the cessation of activities or conditions that constitute the principle use of the property.
 - b) **Development project:** Any multi-family residential, commercial, industrial or mixed use subdivision plan or development plan which is submitted to the regional district for approval.
 - c) **Direct illumination:** Illumination resulting from light emitted directly from a lamp or luminaire, not light diffused through translucent signs or reflected/bounced from other surfaces such as the ground or building faces.
 - d) **Filtered light:** Light from a light source that is covered by a glass, acrylic or other cover that restricts the amount of non-visible radiation (infrared, ultraviolet) emitted by the light fixture.
 - e) **Fully shielded fixture:** An outdoor light fixture shielded in such a manner that all light emitted by the fixture, either directly from the lamp or indirectly from the fixture, is projected below the horizontal as certified by the manufacturer.

- f) Glare: Harsh, uncomfortable bright light emitting from a luminaire causing reduced vision or momentary blindness when shining into one's cone of vision.
- g) Installed lighting: Attached, or fixed in place, whether or not connected to a power source.
- h) Light trespass: Exterior light fixtures shining light beyond one's property line.
- i) Multi-unit family residential: properties zoned and utilized for multi-unit family residential use.
- j) Outdoor light fixture: Outdoor electricity powered illuminating devices, outdoor lighting or reflective surfaces, lamps and similar devices, either permanently installed or portable, which are used for illumination or advertisement. Such devices shall include, but are not limited to, search, spot and flood lights for: buildings and structures; recreational areas; parking lot lighting; landscaping and architectural lighting; billboards and other signs (advertising or other); street lighting; product display area lighting.
- k) Outdoor recreation facility: A facility used and equipped for the conduct of sports, leisure and/or entertainment.
- l) Partially shielded light fixture: An outdoor light fixture shielded in such a manner that more than zero but less than ten percent of the light emitted directly from the lamp or indirectly from the fixture is projected at angles above the horizontal, as certified by the manufacturer.
- m) Sign: Any object, device, display, structure, or part thereof, which is used to advertise, identify, display, direct or attract attention to any object, service, event or location by any means including words, letters, figures, design, symbols, fixtures, colours, illumination or projected image.
- n) Sign, indirectly lit: Any sign facing that reflects light from a source intentionally directed upon it.
- o) Sign, internally lit: Any sign that has the source of light entirely enclosed within the sign and not directly visible to the eye.
- p) Temporary lighting: Lighting which does not conform to the provisions of the DarkSky policy and will not be used for more than one thirty day period within a calendar year may be permitted, subject to approval from the regional district, with a possible one, thirty day extension. Temporary lighting is intended for uses that by their nature are limited in duration; example: holiday decorations, civic events or construction projects.
- q) Up light: Any light from a luminaire that shines above the horizontal plane causing illumination of the sky.

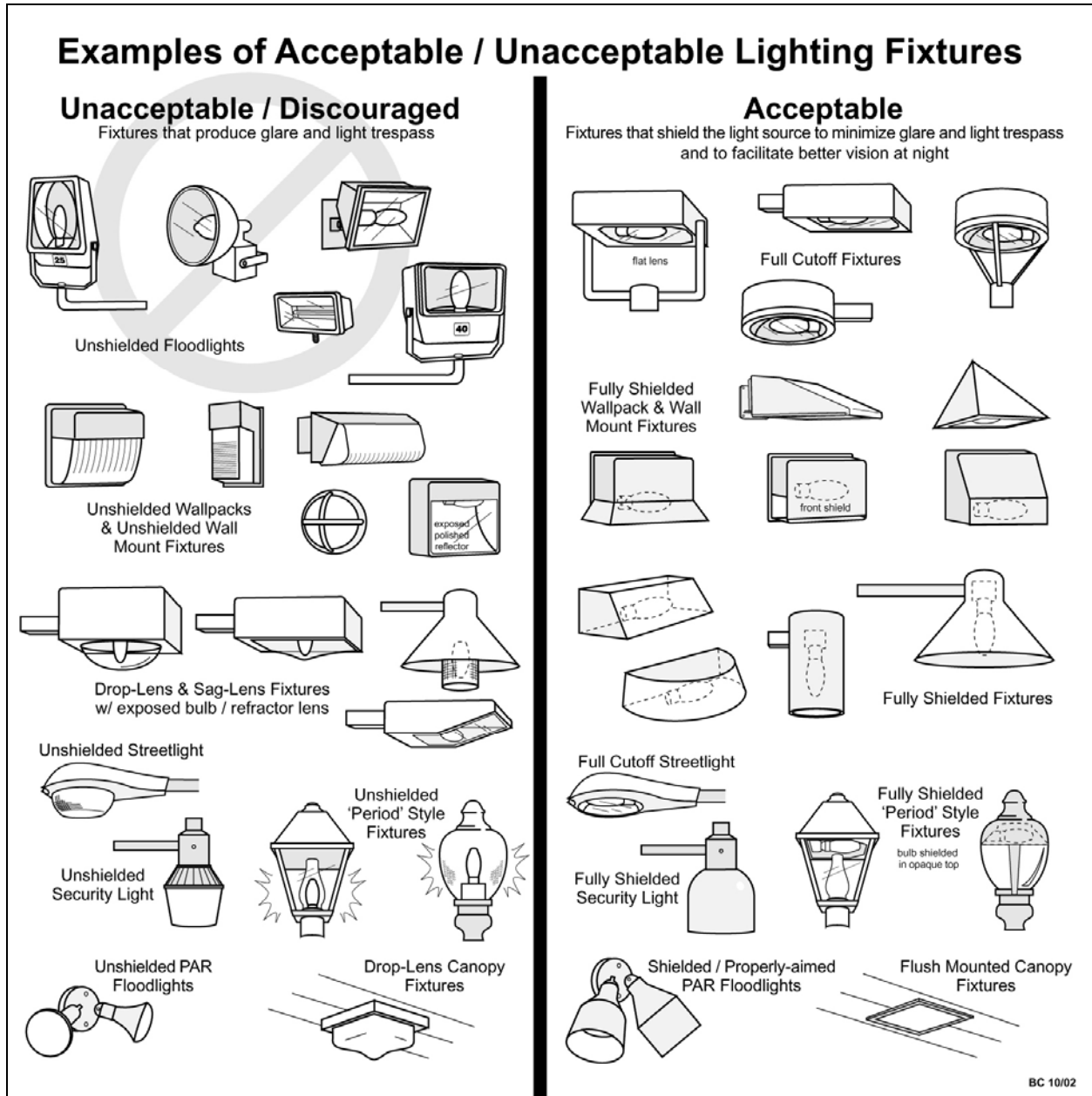


Figure One: Sample of light fixtures that are discouraged and recommended as part of the DarkSky policy.

Policy Statements

5. Shielding of outdoor light fixtures
 - a) All outdoor lighting fixtures shall be shielded to minimize up-light. Mounted incandescent type fixtures shall be shielded. Lighting is encouraged to be activated by motion sensors versus being on all the time.
 - b) Outdoor floodlighting shall be shielded in such a manner that the lighting system will not produce light trespass.

6. Limiting trespassing of light beyond property lines
 - a) All light fixtures shall be located, aimed and or shielded so as no direct light trespasses beyond the property line on which the light is mounted.

7. Non-conforming light fixtures
 - a) In addition to other exemptions provided in the regional district DarkSky policy, an outdoor lighting fixture not meeting these provisions shall be allowed if the fixture is extinguished by an automatic shutoff device between sundown and sunrise.
 - b) No outdoor recreational facility, whether public or private, shall be illuminated after sundown except when the facility is in use. Outdoor lighting is encouraged to be on only when the field is in use, such as by a user pass activation system.
 - c) The use of searchlight, laser light, or any similar high intensity light for outdoor advertising or entertainment, except in emergencies by police and fire personnel is prohibited. Temporary exemption to this may be granted if approved by the General Manager of Community Planning Services.

8. Effective Date
 - a) The development permit must conform to the DarkSky policy that exists at the time of application. When existing lighting fixtures are considered inoperable, all replacements are subject to all the provisions of the DarkSky policy. The light will be considered inoperable when the housing of the fixture requires replacement or when the lens, lamp, and ballast need to be replaced.

9. New Construction
 - a) All exterior lighting installed shall be approved by the International DarkSky Association (IDA) and must be installed correctly.

10. Exemptions
 - a) The following are exempt from the requirements of the DarkSky policy:
 - i. Single-family development (less than or equal to three dwelling units on one property and zoned residential). Note: the regional district does encourage single-family development to seriously consider the installation of IDA approved lighting.
 - ii. Outdoor lighting fixtures existing and legally installed prior to the implementation of the DarkSky policy.
 - iii. Outdoor advertising signs of the type constructed of translucent materials and wholly illuminated from within do not require shielding. Dark backgrounds with lighter coloured lettering or symbols are preferred to minimize detrimental effects.
 - iv. Navigational and general life safety lighting systems required at airports and other transportation installations.

Approval History

Policy adopted:	December 13, 2007
Policy amended:	