STAFF REPORT TO COMMITTEE

DATE OF REPORT	October 18, 2024
MEETING TYPE & DATE	Electoral Area Services Committee Meeting of November 6, 2024
FROM:	Development Services Division Land Use Services Department
SUBJECT:	Application No. RZ23A01 (2522/2528 Mill Bay Road/PID: 032-165-315 and 032-165-307) – Public Input Prohibited Subject to *Local Government Act Section 464*
FILE:	RZ23A01

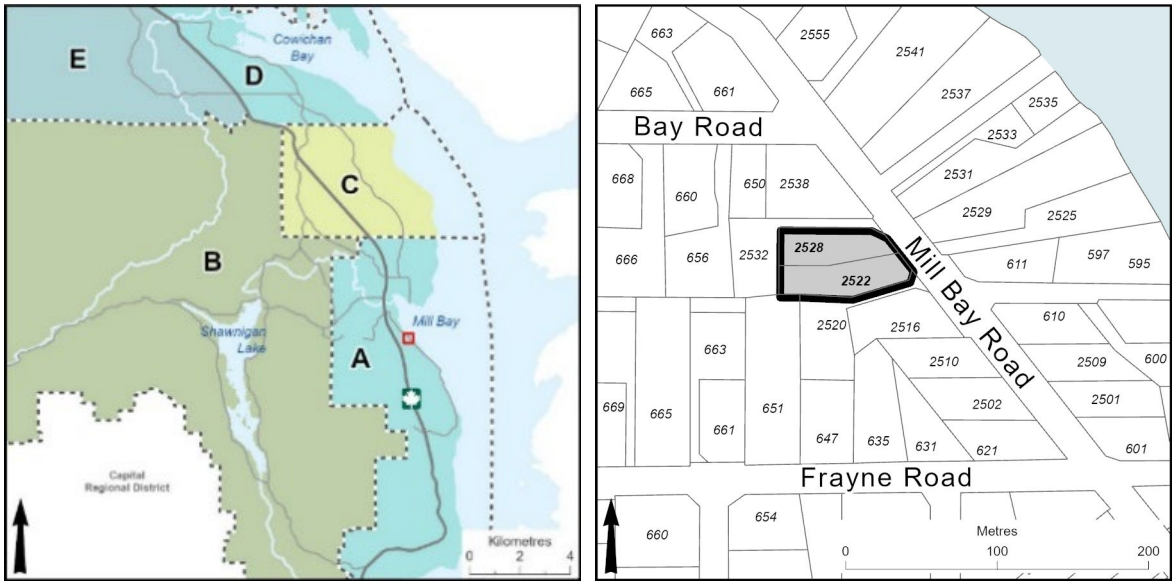
PURPOSE/INTRODUCTION

The purpose of this report is to present the Drainage Management Plan and Erosion and Sediment Control Plan, required to be submitted prior to 2nd reading of the Amendment Bylaw Nos. 4591 (OCP) and 4592 (Zoning Bylaw) for RZ23A01. At the May 15, 2024, Electoral Area Services Committee (EASC) meeting, the Committee expressed interested in reviewing this information along with the accompanying draft section 219 covenant.

RECOMMENDED RESOLUTION

For information.

LOCATION MAP



BACKGROUND

This application was considered at the May 22, 2024, Board meeting, where the following resolution was passed:

1. *That an Official Community Plan Amendment Bylaw for Application No. RZ23A01 (2522/2528 Mill Bay Road/PID: 032-165-315 and 032-165-307), be prepared and forwarded to the Board for consideration of 1st reading.*
2. *That a Zoning Amendment Bylaw for Application No. RZ23A01 (2522/2528 Mill Bay Road/PID: 032-165-315 and 032-165-307), be prepared and forwarded to the Board for consideration of 1st reading.*
3. *That prior to consideration of 2nd reading of the amendment bylaws for Application No. RZ23A01 (2522/2528 Mill Bay Road/PID: 032-165-315 and 032-165-307), the following be completed:*
   a. *Submission of a stormwater management plan providing an analysis of the predevelopment and post-development natural hydrological conditions including peak flows and recommendations on low impact development features and design of on-site drainage works; and*
   b. *Submission of an erosion and sediment control plan for proposed development of onsite stormwater drainage.*
4. *That prior to adoption of the amendment bylaws a Section 219 covenant be registered on the property to ensure installation and maintenance of on-site drainage infrastructure and erosion and sediment control measures.*
5. *That prior to adoption of amendment bylaws a Section 219 covenant be registered to secure park community amenity contributions.*
6. *That a public hearing be scheduled for Application No. RZ23A01 (2522/2528 Mill Bay Road/PID: 032-165-315 and 032-165-307).*

MOTION CARRIED

Amendment Bylaw Nos. 4591 (OCP) and 4592 (Zoning Bylaw) were given 1st reading at the July 10, 2024, Board meeting.

The submitted drainage management plan and erosion and sediment control plan satisfy Item 3 from the May 22, 2024, Board resolution. At the May 15, 2024, EASC meeting, the Committee expressed interest in reviewing these plans and the accompanying covenant (Item 4 of Board resolution).

The next steps for the application include consideration of 2nd reading of the Amendment Bylaw Nos. 4591 and 4592, and scheduling a public hearing. The applicants will also need to work with Development Services staff and Parks & Trails staff to register the required covenants.

COMMENTS

The drainage management plan by Lewkowich Engineering Associates (LEA), dated October 15, 2024, describes the existing drainage characteristics, examines potential drainage impacts as a result of the proposed subdivision, and provides recommended measures to retain the existing drainage conditions on the subject properties.

LEA recommends the installation of rock pits on Proposed Lots 1, 2 and 4 of the subdivision to manage post development surface flow; proposed Lot 3 already contains a rock pit. Rock pits are based on the expected post development rates for the 5-year design storm and will be sized to accommodate lot-specific characteristics. A detailed drawing is attached to the LEA plan.

LEA also recommends that the proposed Common Property access driveway be surfaced with gravel to allow for absorption and infiltration of surface flows, based on the post development discharge rates for the 25-year design storm. The driveway apron at Mill Bay Road will be paved, as required by the Ministry of Transportation and Infrastructure (MOTI).

The Erosion and Sediment Control Plan (ESC) by LEA, dated October 11, 2024, provides measures for erosion and runoff control, both during construction and post-development, which include:

- Placement of silt-fencing along property boundaries to the north, south and east (along Mill Bay Road) until residential build out;
- Soil stockpiles placed at least 1 m from parcel boundaries, covered with poly-sheeting and encircled with silt-fence on all lots;
- Retain/maintain vegetation where possible, fenced and/or flagged for protection;
- Monitoring the site during and/or following storm events to ensure silt-fencing is in place and no sediment-waters leave the site.

A copy of the draft covenant is also attached.

Prepared by:

Jaime Dubyna
Planner III

Reviewed by:

Michelle Pressman, RPP, MCIP, MPlan
Manager, Development Services Division

Ann Kjerulf, MCP, RPP, MCIP
General Manager

Reviewed for form and content and approved for submission to the Committee:

Resolution:

☒ Corporate Officer

Financial Considerations:

☒ Chief Financial Officer

ATTACHMENTS:

Attachment A – Drainage Management Plan, Lewkowich Engineering Associates, October 15, 2024
Attachment B – Post Construction – Erosion and Sediment Control Plan, Lewokowich Engineering Associates, October 11, 2024
Attachment C – Draft Covenant

DRAINAGE MANAGEMENT PLAN

Four Lot Subdivision
2522/2528 Mill Bay Road
Mill Bay, BC V0R 2P1

Legal Address:
Lots A & B, District Lots 18 and 47, Malahat District, Plan EPP133046;
PID's: 032-165-315 & 032-165-307

Prepared For:
Bennefield Construction Ltd.
11A 2720 Mill Bay Road
Mill Bay, BC, V0R 2P0

Attention:
Blue Bennefield
bennefieldconstructionltd@gmail.com

October 15, 2024

File No.: E2672.03
Revision No.: 04
Prepared by: Louis Chapdelaine, P.Geo
Reviewed by: Darron Clark, P.Eng.

Lewkowich Engineering Associates Ltd.
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Permit to Practice Number: 1001802

Lewkowich Engineering Associates Ltd.

DISCLAIMER

1. Lewkowich Engineering Associates Ltd. (LEA) acknowledges that this report, from this point forward referred to as "the Report," may be used by the Cowichan Valley Regional District (CVRD) and the Ministry of Transportation and Infrastructure (MOTI) as a precondition to the issuance of a development and/or building permit.
2. This Report has been prepared in accordance with standard geotechnical engineering practice solely for and at the expense of Bennefield Construction Ltd. We have not acted for or as an agent of the CVRD or MOTI in the preparation of this Report.
3. The conclusions and recommendations submitted in this Report are based upon information from relevant publications, a visual site assessment of the subject property, anticipated and encountered local subsurface soil conditions, current construction techniques, and generally accepted engineering practices. No other warrantee, expressed or implied, is made. If unanticipated conditions become known during construction or other information pertinent to the drainage system becomes available, the recommendations may be altered or modified in writing by the undersigned.
4. This Report was authored, to the best of our knowledge at the time of issuance, with considerations for local requirements specific to the CVRD and MOTI and their standards for the preparation of such reports and current engineering standards. Updates to municipal bylaws, policies, or requirements of the CVRD and MOTI, or updates to the BCBC and/or professional practice guidelines may impact the validity of this Report.
5. This Report has been prepared by Mr. Louis Chapdelaine, P.Geo., and Mr. Darron Clark, P.Eng. Messrs. Chapdelaine and Clark are adequately experienced and are members in good standing with the Engineers and Geoscientists of British Columbia.

EXECUTIVE SUMMARY

1. The following is a brief synopsis of the property, assessment methods, and findings presented in the Report. The reader must read the Report in its entirety; the reader shall not rely solely on the information provided in this summary.
2. The subject property, 2530 Mill Bay Road, Mill Bay, BC, from this point forward referred to as "the Property," is located on the east coast of Vancouver Island within the jurisdictional boundaries of the CVRD. The proposed development for the Property at the time of this Report consists of a village residential, four-lot subdivision.

TABLE OF CONTENTS

1.0 INTRODUCTION

1.1 General

a. As requested, LEA has conducted a Drainage Assessment for the proposed development (four-lot residential subdivision).

b. The purpose of the Drainage Assessment was to describe the current storm drainage regime as well as assesses the potential drainage impacts of the proposed subdivision and provide mitigation measures to maintain existing drainage patterns.

c. In preparation of this report, LEA has reviewed the CVRD Bylaw No. 4331 – 2024[1] and the MOTI Tac Manual, Hydraulics chapter 1000.[2]

1.2 Proposed Development

a. The proposed development consists of the creation of 4 lots (Lot 1, Lot 2, Lot 3 and Lot 4) along with a gravel surface Common Property. It is our understanding that the new lots will maintain an R-3 "Village Residential" zoning. Under Section 10.9.2 of Bylaw No. 3520, the impervious surface coverage of a parcel in the R-3 Zone shall not exceed 35%, of which not more than 30% may be parcel coverage.

1.3 Assessment Methodology

a. Multiple subsurface geotechnical investigations were carried out in 2023 and 2024. A total of four (4) infiltration tests (IT 23-01 and IT24-01 to IT24-03) were carried out.

b. The IT locations were determined based on design information and preferred locations as determined by the Client.

c. A site plan showing the location of the infiltration testing is attached, following the text of this Report.

1.4 Parent Parcel Legal Description

a. LOT A, DISTRICT LOT 18, MALAHAT DISTRICT, PLAN EPP133046, and LOT B, DISTRICT LOTS 18 AND 47, MALAHAT DISTRICT, PLAN EPP133046.

1.5 Covenant Review

a. As part of our assessment, we have reviewed the legal title of the Property, specifically relative to any restrictive covenants that may impact the conclusions or recommendations made in this Report.

b. There are no covenants registered against the Property at the time of assessment.

2.0 SITE CONDITIONS

2.1 Physical Setting

a. The Property is located on the east coast of Vancouver Island, located on the west side of Mill Bay Road between Shorewood Road and Bay Road, within the community of Mill Bay.

b. The Property is zoned Village Residential Zone(R-3). The Property is immediately bordered to the south by 2520 Mill Bay Road, to the west and north by 2532 Mill Bay Road, and to the east by Mill Bay Road. Refer to Figure 2.1 below.

Figure 2.1: Location Plan of Subject Property[3]

2.2 Regional Geology

a. Surficial geology mapping indicates the subsurface conditions are comprised of glaciofluvial deposits of the Quamichan formation, consisting of fluvial and fluvioglacial deposits of gravel, sand, silt and clay.[4] We conducted infiltration testing on-site and in general, our test pits confirm the mapped soil conditions, however, fill soils were noted in within the area of Proposed Lot 1.

b. Bedrock geology for the area is classified as the Island Plutonic Suite, comprised of intrusive igneous rocks from the Eary to Middle Jurassic period, generally consisting of granodiorite, diorite, porphyry and gabbro.[4]

c. Soil classification terminology is based on the modified unified soil classification system. The relative proportions of the major and minor soil constituents are indicated by the use of appropriate Group Names

as provided in ASTM D2488-93 and/or D2487 Figures 1a, 1b, and 2. Other descriptive terms generally follow conventions of the Canadian Foundation Engineering Manual.

2.3 Existing Groundwater Conditions

a. Available mapping indicates that this area of Mill Bay is underlain by a bedrock aquifer and a sand and gravel aquifer.[5] The bedrock aquifer is identified with Aquifer Number 208 and is reported to have moderate vulnerability. The sand and gravel aquifer is identified with Aquifer Number 206, and is reported to have high vulnerability.

b. The slope and existing excavations were visually inspected for signs of seepage and abnormal groundwater conditions. Although much of the slope face was covered in forest litter, there were no obvious indications of seepage lenses nor evidence of past piping failures.

c. Groundwater levels can be expected to fluctuate seasonally with cycles of precipitation. Groundwater conditions at other times and locations can differ from those observed at the time of our assessment.

3.0 EXISTING DRAINAGE CHARACTERISTICS

3.1 Existing Residence

a. It is our (LEA) understanding that the existing residence roof and foundation drain water is directed to the ditch along the west side of Mill Bay Road. The existing driveway is permeable gravel, and any runoff is directed to the ditch along Mill Bay Road.

3.2 On-site Recharge

a. Given the nature of the permeable sandy gravel soils found within the site, it is our (LEA) expectation that moderate infiltration or storage occurs with the Property. It is likely that any infiltrated groundwater would flow as interflow through the permeable gravel soils, from the sloped yard areas down towards the municipal drainage ditch on Mill Bay Road, ultimately discharging to Mill Bay.

3.3 Overland Flow

a. No overland flow was observed during our assessment; however, we (LEA) expect that there is potential for overland flow following significant rain events. Any overland flow would likely come from the yard area adjacent to the existing residence and nearby areas with similar impermeable soils and flow to the municipal drainage ditch on Mill Bay Road along the eastern property boundary.

4.0 HYDROLOGICAL ANALYSIS

4.1 PRE AND POST DEVELOPMENT DISCHARGE CALCULATIONS

a. Stormwater analysis was carried out following section 1010.3 of the MOTI Supplement to TAC Geometric Design Guide for *Land Development Drainage Design* in concert with establishing existing drainage patterns from site specific surveys. Calculations were completed using Microsoft Excel software.

b. Total discharge (Q) was determined using the rational method: Q = CxIxA

   i. Where Q = total discharge (m^3/day)

   ii. Where C = Runoff coefficient

   iii. Where I = Rainfall intensity (m/day)*

   iv. Where A = Watershed area (m^2).

   * Design storm event for Lot Drainage = 5 year, 24-hour event accounting for climate change, following climate model SSP1.26.[6]

   * Design storm event for Common Property Drainage = 25 year, 24-hour event accounting for climate change, following climate model SSP1.26.[6]

c. To account for the effects of climate change, we (LEA) have use climate models 1.26, from the Western University Canada IDC tool.

d. The design storm(s) and runoff coefficients used in the following calculations are from the MOTI supplement to Tac Geometric Design Guide Table 1020.A – Maximum Runoff Coefficient Values for Coastal Type basins and Table 1010.A – Design Return Periods for Hydraulic Structures.

e. Pre and Post Development Flow Calculations can be found in Figures 4.1 and 4.2 below.

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5 year - 24-hr PRE and POST DEVELOPMENT FLOWS

PRE DEVELOPMENT
DESIGN STORM: 5 year - 24hr Return Period
METHOD: Rational Method

Basin	Runoff Coefficient (C)	Rainfall Intensity (I) (mm/day)	Lot Area (A) (m^2)	Discharge (Q) (m^3/day)
Lot 1	0.65	67.73	704.00	30.99
Lot 2	0.5	67.73	705.00	23.87
Lot 3	0.65	67.73	714.00	31.43
Lot 4	0.5	67.73	714.00	24.18

POST DEVELOPMENT
DESIGN STORM: 5 year - 24hr Return Period Including Effects of Climate Change Model SSP1.26
METHOD: Rational Method
Zoning Lot RR-3 Rural Residential Zone
Coverage %: 35%

Basin	Runoff Coefficient (C)	Rainfall Intensity (I) (mm/day)	Lot Area (A) (m^2)	Hard Surface Area Based on Zoning (m^2)	Hard Surface Runoff Coefficient (C)	Hard Surface Discharge (Q)(m^3/day)	Total Discharge (Q) (m^3/day)
Lot 1	0.65	72.78	704.00	246.4	1.00	17.93	39.58
Lot 2	0.65	72.78	705.00	246.75	1.00	17.96	39.64
Lot 3	0.65	72.78	714.00	249.9	1.00	18.19	40.14
Lot 4	0.65	72.78	714.00	249.9	1.00	18.19	40.14

Δ POST - PRE DEVELOPMENT
DESIGN STORM: 5 year - 24-hr Return Period

Basin	Post Discharge (Q) (m^3/day)	Pre Discharge (Q) (m^3/day)	Δ Discharge (m^3/day) + 10% Adjustment Factor
Lot 1	39.58	30.99	9.45
Lot 2	39.64	23.87	17.34
Lot 3	40.14	31.43	9.58
Lot 4	40.14	24.18	17.56

Figure 4.1 – Pre and Post Development Lot Flows

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25 year - 24-hr PRE and POST DEVELOPMENT FLOWS

PRE DEVELOPMENT
DESIGN STORM: 25 year - 24hr Return Period
METHOD: Rational Method

Basin	Runoff Coefficient (C)	Rainfall Intensity (I) (mm/day)	WatershedArea (A) (m^2)	Discharge (Q) (m^3/day)
CP	0.65	95.58	591.60	36.75

POST DEVELOPMENT
DESIGN STORM: 25 year - 24hr Return Period
METHOD: Rational Method

Basin	Runoff Coefficient (C)	Rainfall Intensity (I) (mm/day)	WatershedArea (A) (m^2)	Total Discharge (Q) (m^3/day)
CP	0.75	103.83	591.60	46.07

Δ POST - PRE DEVELOPMENT
DESIGN STORM: 25 year - 24-hr Return Period

Basin	Post Discharge (Q) (m^3/day)	Pre Discharge (Q) (m^3/day)	Δ Discharge (m^3/day) + 10% Adjustment Factor
CP	46.07	36.75	10.25

Figure 4.2 – Pre and Post Development Common Property Flows

4.2 5-year Design Stormwater Management – Lot Drainage

a. Based on the expected post development discharge rates for the 5-year design storm. We (LEA) recommend the installation of rock pits for the proposed Lots 1,2 and 4, to be installed at the time of residential construction. It should be noted that proposed Lot 3 already contains an existing 7.59m^3 rock pit, which is adequately sized to manage the post development flow. For detailed design regarding the sizing of the required rock pit, see attached LEA Drawing E2672-04 – Rainwater Management Plan – Lot Drainage.

4.3 25-year Design Stormwater Management – Common Property

a. Based on the expected post development discharge rates for the 25-year design storm. We (LEA) recommend the installation of a gravel surfaced common property be installed at the time of subdivision. The gravel surfacing and granular base course will allow for the absorption of surface flows thereby reducing flow velocities and allowing for infiltration into the infiltrative subgrade soils. For detailed design regarding the sizing of the required rock pit, see attached LEA Drawing E2672-05 – Rainwater Management Plan – Common Property.

5.0 CONCLUSIONS AND RECOMMENDATIONS

a. Based on the in-situ soil conditions we (LEA) conclude that the site is conducive to on-site rainwater infiltration. Therefore, to suitably dewater the proposed Lots and Common Property while allowing for groundwater recharge as interflow, as well as buffer the increase in total rainwater discharge, we recommend the following:

   i. The installation of rock pits, sized to accommodate the maximum future hard surfacing not limited to dwelling, patios and driveways, for the proposed Lots. See attached LEA Drawing E2672-04 – Rainwater Management Plan – Lot Drainage.

   ii. The Common Property is to be completed in a permeable gravel surfacing, sloped and graded to direct potential surface flows to the surrounding Lots 1 and 2. As per the attached LEA Drawing E2672-05 – Rainwater Management Plan – Common Property.

   iii. Every effort must be made to direct or absorb any potential surface flows away from the neighboring properties.

   iv. Final lot grading surrounding the house foundations should be graded at 2.0% minimum for a distance of 2.0m from the foundation.

b. The recommended Drainage Management Plan is intended to retain the natural drainage conditions to allow for maximum groundwater recharge. We expect no downstream impact, assuming our recommendations are followed.

6.0 ACKNOWLEDGEMENTS

a. We acknowledge that this Report has been prepared solely for, and at the expense of, Bennefield Construction Ltd.

b. Lewkowich Engineering Associates Ltd. acknowledges that this Report may be requested by the building inspector (or equivalent) of the CVRD and MOTI as a precondition to the issuance of a building or development permit. It is acknowledged that the Approving Officers and Building Officials may rely on this Report when making a decision on application for development of the land.

c. We have not acted for or as an agent of the CVRD or MOTI in the preparation of this Report. We acknowledge the CVRD and MOTI and the Approving Officer(s) are authorized users of this Report.

7.0 LIMITATIONS

a. The conclusions and recommendations submitted in this report are based upon data obtained from site specific infiltration testing, local experience in the area and a desktop review of the local surficial geology. The nature and extent of soil variations may not become evident until construction or further investigation. The recommendations given are based on the subsurface soil conditions encountered during our assessment, current construction techniques, and generally accepted engineering practices. No other warrantee, expressed or implied, is made. If unanticipated conditions become known during construction or other information pertinent to the development becomes available, the recommendations may be altered or modified in writing by the undersigned.

8.0 CLOSURE

a. LEA appreciates the opportunity to be of service on this project. If you have any comments, or additional requirements at this time, please contact us at your convenience.

Respectfully Submitted,
Lewkowich Engineering Associates Ltd.

2024-10-15

Louis Chapdelaine, P.Geo.
Project Geoscientist

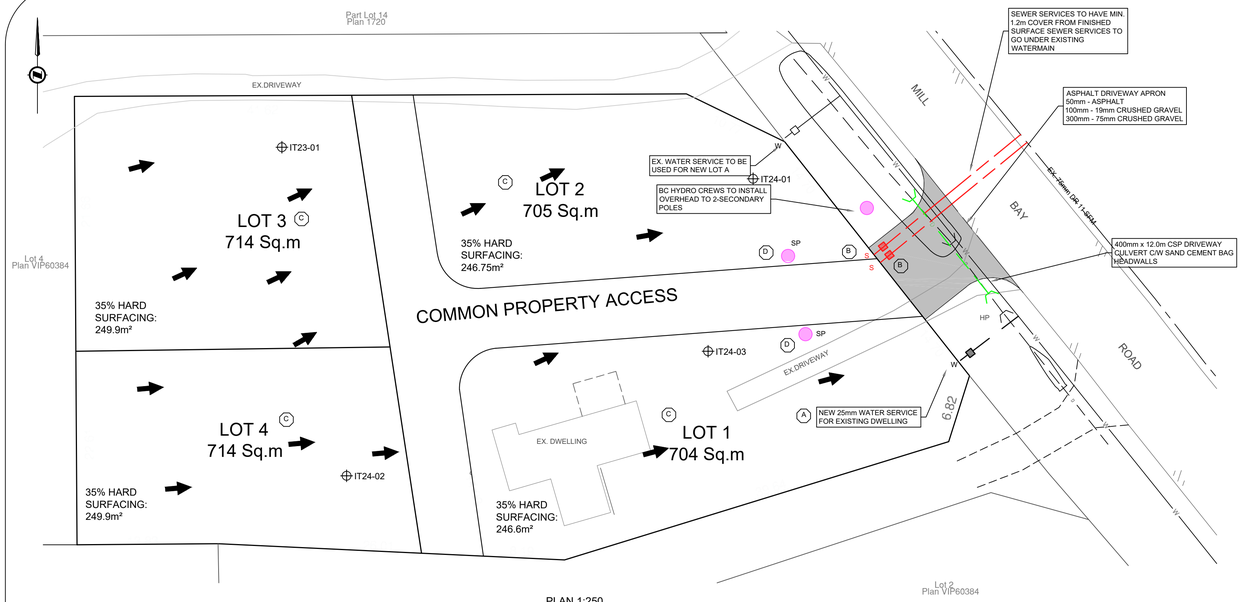
Darron G. Clark, P.Eng.
Senior Project Engineer

9.0 ATTACHMENTS

1. LEA Drawing No. E2672-04. Rainwater Management Plan – Lot Drainage.
2. LEA Drawing No. E2672-05. Rainwater Management Plan – Common Property.

10.0 REFERENCES AND RESOURCES

1. Cowichan Valley Regional District, Bylaw No. 4331 – 2024.
2. BC MoTI. Supplement to TAC Geometric Design Guide. Section 1000. April 2019.
3. CVRD Webmap. Accessed August 2024.
4. iMapBC. Accessed August 2024.
5. Groundwater Well and Aquifers – Province of British Columbia. Accessed July 2024.
6. Simonovic, S.P., A. Schardong, R. Srivastav, and D. Sandink (2015), *IDF_CC Web-based Tool for Updating Intensity-Duration-Frequency Curves to Changing Climate – ver 6.5*, Western University Facility for Intelligent Decision Support and Institute for Catastrophic Loss Reduction, open access https://www.idf-cc-uwo.ca.
7. Cowichan Engineering Services Ltd. 2530 Mill Bay Road. Plan – Driveway & Servicing Plan.



PLAN 1:250

SITE PLAN:

NTS
IMPORTED FROM COWICHAN ENGINEERING SERVICES LTD.
FILE NUMBER: 1498-C
DATE: 2024/10/09

4m 0 20m

INFILTRATION TESTING RESULTS	
INFILTRATION TEST ID	INFILTRATION RATE (cm/sec)
IT23-01	0.0113
IT-24-01	0.0033
IT24-02	0.0037
IT24-03	0.0004

COMMON PROPERTY:

- 150mm OF DRIVEWAY CHIP
- 250mm OF GRANULAR BASE
- ON GEOTECHNICALLY APPROVED SUBGRADE

LEWKOWICH ENGINEERING ASSOCIATES LTD.

25 year - 24-hr PRE and POST DEVELOPMENT FLOWS

PRE DEVELOPMENT
DESIGN STORM: 25 year - 24hr Return Period
METHOD: Rational Method

Basin	Runoff Coefficient (C)	Rainfall Intensity (I) (mm/day)	WatershedArea (A) (m²)	Discharge (Q) (m³/day)
CP	0.65	95.58	591.60	36.75

POST DEVELOPMENT
DESIGN STORM: 25 year - 24hr Return Period
METHOD: Rational Method

Basin	Runoff Coefficient (C)	Rainfall Intensity (I) (mm/day)	WatershedArea (A) (m²)	Total Discharge (Q) (m³/day)
CP	0.75	103.83	591.60	46.07

∆ POST - PRE DEVELOPMENT
DESIGN STORM: 25 year - 24-hr Return Period

Basin	Post Discharge (Q) (m³/day)	Pre Discharge (Q) (m³/day)	∆ Discharge (m³/day) + 10% Adjustment Factor
CP	46.07	36.75	10.25

Common Property
Gravel

Gravel Driveway Structure:			Porosity	Infiltration Rate	
Surfacing (Driveway Chip)	0.15	m Thick	0.15	Not Used	
Granular Base	0.25	m Thick	0.21	Not used	
Subgrade	Not Used		Not Used	14.4	mm/hr

Project Detention Requirement (min.)	10.25	m³
Design Storm Period	1440.00	min
Infiltration Rate	14.40	mm/hr
Common Property Area	591.60	m²
Common Property Granular Base Thickness	0.25	m
Common Property Driveway Chip Thickness	0.15	m
Volume Infiltrated over the Design Storm Period	204.50	m³
Granular Base Porosity	0.21	
Driveway Chip Porosity	0.15	
Common Property Storage Volume	44.37	m³
Total System Storage =	248.87	m³

REV No.	DATE	BY	P.Eng.	REVISION DESCRIPTION
01	2024-10-15	LC	DC	UPDATED WITH NEW CIVIL BASE PLAN

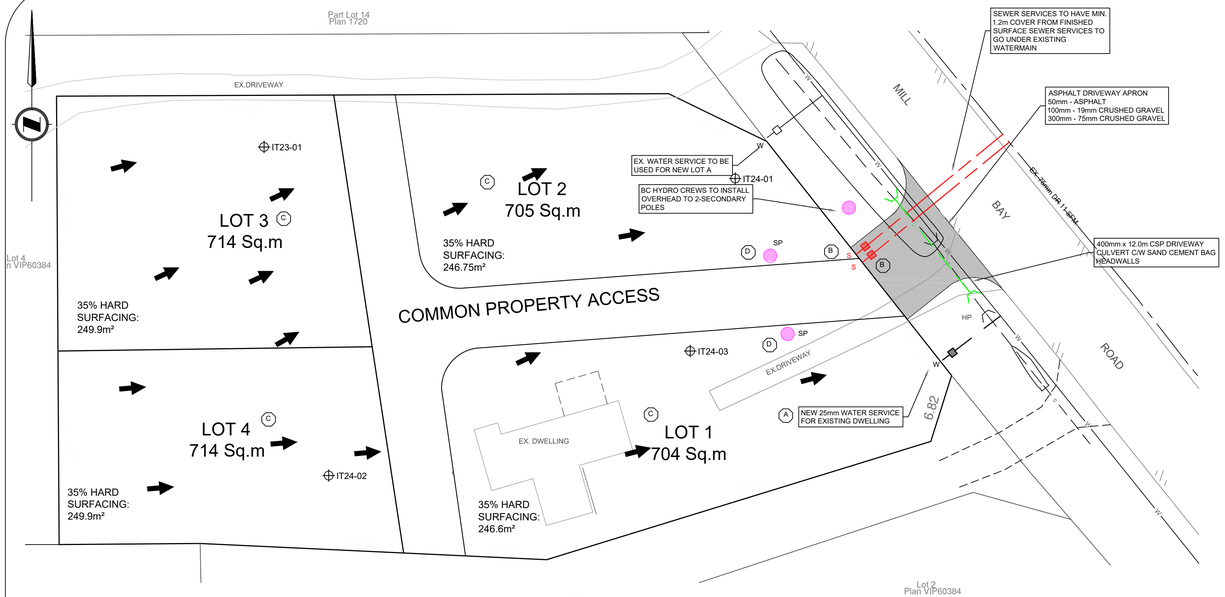
LEGEND

DRAWING TITLE: RAINWATER MANAGEMENT PLAN - COMMON PROPERTY
PROJECT NAME: 2530 MILL BAY ROAD, MILL BAY, BC
LEGAL DESCRIPTION: LOTS A & B, DISTRICT LOTS 18 AND 47, MALAHAT DISTRICT, PLAN EPP133046

ENGINEER'S SEAL
EGBC PERMIT TO PRACTICE No. 1001802

PLOT DATE	DRAWN BY
2024-09-23	LC
REVIEWED BY	SCALE
DC	AS NOTED
PROJECT No.	DRAWING No.
E2672	E2672-04

Lewkowich Engineering Associates Ltd.



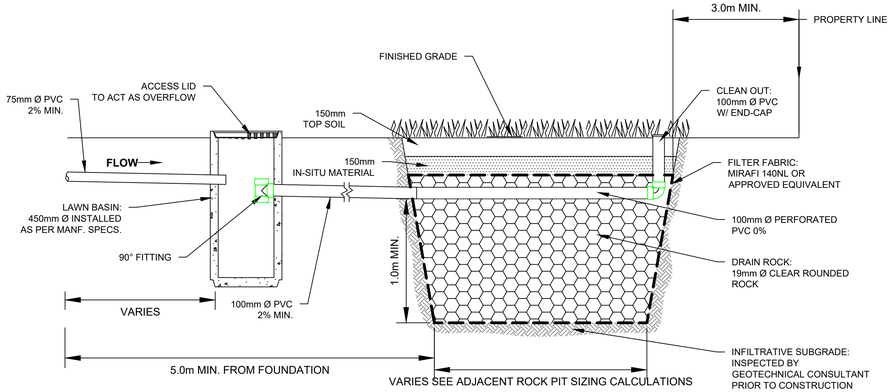
PLAN 1:250

SITE PLAN:

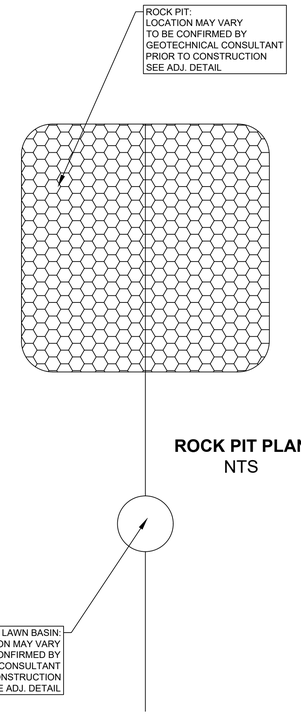
NTS
IMPORTED FROM COWICHAN ENGINEERING SERVICES LTD.
FILE NUMBER: 1498-C
DATE: 2024/10/09

4m 0 20m

INFILTRATION TESTING RESULTS	
INFILTRATION TEST ID	INFILTRATION RATE (cm/sec)
IT23-01	0.0113
IT-24-01	0.0033
IT24-02	0.0037
IT24-03	0.0004



ROCK PIT TYP.
NTS



ROCK PIT PLAN
NTS

CONSTRUCTION NOTES:

1. ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH CURRENT BUILDING CODES.

2. GEOTECHNICAL INSPECTION REQUIRED FOR:
   - INFILTRATIVE SUBGRADE
   - COMPLETE SYSTEM PRIOR TO BACKFILL

3. ALL WORK TO FOLLOW THIS DRAWING, INCLUSIVE OF MANUFACTURERS SPECIFICATIONS FOR NOTED PRODUCTS OR MATERIALS.

4. ROCK PIT MAINTENANCE IS THE RESPONSIBILITY OF THE OWNER.

LEWKOWICH ENGINEERING ASSOCIATES LTD.

5 year - 24-hr PRE and POST DEVELOPMENT FLOWS

PRE DEVELOPMENT
DESIGN STORM: 5 year - 24hr Return Period
METHOD: Rational Method

Basin	Runoff Coefficient (C)	Rainfall Intensity (I) (mm/day)	Lot Area (A) (m²)	Discharge (Q) (m³/day)
Lot 1	0.65	67.73	704.00	30.99
Lot 2	0.5	67.73	705.00	23.87
Lot 3	0.65	67.73	714.00	31.43
Lot 4	0.5	67.73	714.00	24.18

POST DEVELOPMENT
DESIGN STORM: 5 year - 24hr Return Period Including Effects of Climate Change Model SSP1.26
METHOD: Rational Method
Zoning Lot RR-3 Rural Residential Zone
Coverage %: 35%

Basin	Runoff Coefficient (C)	Rainfall Intensity (I) (mm/day)	Lot Area (A) (m²)	Hard Surface Area Based on Zoning (m²)	Hard Surface Runoff Coefficient (C)	Hard Surface Discharge (Q)(m³/day)	Total Discharge (Q) (m³/day)
Lot 1	0.65	72.78	704.00	246.4	1.00	17.93	39.58
Lot 2	0.65	72.78	705.00	246.75	1.00	17.96	39.64
Lot 3	0.65	72.78	714.00	249.9	1.00	18.19	40.14
Lot 4	0.65	72.78	714.00	249.9	1.00	18.19	40.14

Δ POST - PRE DEVELOPMENT
DESIGN STORM: 5 year - 24-hr Return Period

Basin	Post Discharge (Q) (m³/day)	Pre Discharge (Q) (m³/day)	Δ Discharge (m³/day) + 10% Adjustment Factor
Lot 1	39.58	30.99	9.45
Lot 2	39.64	23.87	17.34
Lot 3	40.14	31.43	9.58
Lot 4	40.14	24.18	17.56

Rock Pit
Lot 1

Project Detention Requirement (min.)	9.45	m³		
Design Storm Period	1440.00	min		
Infiltration Rate	13.00	mm/hr		
"Rock Pit" dimensions below overflow	3.00	m Wide	5.25 m Long	1.00 m High
Bottom Rock Pit Area	15.75	m²		
Volume Infiltrated over the Design Storm Period	4.91	m³		
Drain Rock Porosity	0.30			
Rock pit volume	15.75	m³		
Void Space Volume Available =	4.73	m³		
Total System Storage =	9.64	m³		

Rock Pit
Lot 2

Project Detention Requirement (min.)	17.34	m³		
Design Storm Period	1440.00	min		
Infiltration Rate	111.60	mm/hr		
"Rock Pit" dimensions below overflow	1.75	m Wide	3.50 m Long	1.00 m High
Bottom Rock Pit Area	6.13	m²		
Volume Infiltrated over the Design Storm Period	16.41	m³		
Drain Rock Porosity	0.30			
Rock pit volume	6.13	m³		
Void Space Volume Available =	1.84	m³		
Total System Storage =	18.25	m³		

Rock Pit
Lot 3

Project Detention Requirement (min.)	9.58	m³		
Design Storm Period	1440.00	min		
Infiltration Rate	406.80	mm/hr		
"Rock Pit" dimensions below overflow	2.30	m Wide	3.30 m Long	1.00 m High
Bottom Rock Pit Area	7.59	m²		
Volume Infiltrated over the Design Storm Period	74.12	m³		
Drain Rock Porosity	0.30			
Rock pit volume	7.59	m³		
Void Space Volume Available =	2.28	m³		
Total System Storage =	76.39	m³		

Rock Pit
Lot 4

Project Detention Requirement (min.)	17.56	m³		
Design Storm Period	1440.00	min		
Infiltration Rate	133.56	mm/hr		
"Rock Pit" dimensions below overflow	1.50	m Wide	3.50 m Long	1.00 m High
Bottom Rock Pit Area	5.25	m²		
Volume Infiltrated over the Design Storm Period	16.83	m³		
Drain Rock Porosity	0.30			
Rock pit volume	5.25	m³		
Void Space Volume Available =	1.58	m³		
Total System Storage =	18.41	m³		

REV No.	DATE	BY	P.Eng.	REVISION DESCRIPTION
01	2024-10-15	LC	DC	UPDATED WITH REVISED ZONING AND CIVIL BASE PLAN

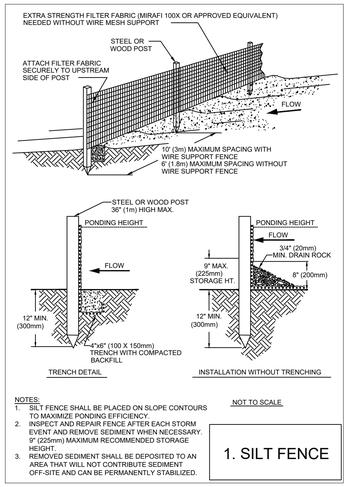
LEGEND

DRAWING TITLE: RAINWATER MANAGEMENT PLAN - LOT DRAINAGE
PROJECT NAME: 2530 MILL BAY ROAD, MILL BAY, BC
LEGAL DESCRIPTION: LOTS A & B, DISTRICT LOTS 18 AND 47, MALAHAT DISTRICT, PLAN EPP133046

ENGINEER'S SEAL
EGBC PERMIT TO PRACTICE No. 1001802

PLOT DATE	DRAWN BY
2024-09-23	LC
REVIEWED BY	SCALE
DC	AS NOTED
PROJECT No.	DRAWING No.
E2672	E2672-04

Lewkowich Engineering Associates Ltd.



NOTES:
1. SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY.
2. INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN NECESSARY. 9" (225mm) MAXIMUM RECOMMENDED STORAGE HEIGHT.
3. REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.

NOT TO SCALE

1. SILT FENCE

RETAIN SILT-FENCING UNTIL RESIDENTIAL LOT BUILD OUT IS COMPLETE
SEE DETAIL No. 1

KEEP SOIL STOCKPILES 1.0m FROM PROJECT BOUNDARIES
COVER W/ POLY-SHEETING OR ENCIRCLE W/ SILT FENCE
APPLY TO ALL LOTS

EXISTING DITCH TO REMAIN FUNCTIONAL AND WELL VEGETATED

Part Lot 14
Plan 1720

EX.DRIVEWAY

41.62

10.77

14.70

W

MILL BAY ROAD

EX. 75mm DR 11 SrPM

LOT 3
714 Sq.m

LOT 2
705 Sq.m

RETAIN/MAINTAIN VEGETATION WHERE POSSIBLE

RETAIN/MAINTAIN VEGETATION WHERE POSSIBLE

21.66

Lot 4
Plan VIP60384

COMMON PROPERTY ACCESS

SP

HP

RETAIN/MAINTAIN VEGETATION WHERE POSSIBLE

RETAIN/MAINTAIN VEGETATION WHERE POSSIBLE

LOT 4
714 Sq.m

LOT 1
704 Sq.m

EX. DWELLING

EX.DRIVEWAY

22.61

14.98

6.82

39.64

INSTALL SILT FENCE
WHEN CONSTRUCTION GRADES EQUAL NEIGHBORING GRADES
SEE DETAIL No. 2

13.83

26.01

8.19

Lot 2
Plan 26937

Lot 2
Plan VIP60384

INSTALL SILT FENCE
WHEN CONSTRUCTION GRADES EQUAL NEIGHBORING GRADES
SEE DETAIL No. 1

COVER EXPOSED EXCAVATION SOILS
W/ NON-ERODIBLE FILL MATERIAL
GRADE EXCAVATION TO LOW POINT
DISCHARGE TO MUNICIPAL STORM SYSTEM

GENERAL NOTES:

1. EROSION AND SEDIMENT CONTROL FOR THIS PROJECT WILL BE AS OUTLINED IN THE FISHERIES AND OCEANS CANADA AND MINISTRY OF WATER, LANDS AND AIR PROTECTION HANDBOOK ENTITLED "LAND DEVELOPMENT GUIDELINES FOR THE PROTECTION OF AQUATIC HABITAT, MAY 1992" AND "BEST MANAGEMENT PRACTICES FOR URBAN AND RURAL LAND DEVELOPMENT IN BRITISH COLUMBIA, JUNE 2004" AND "EROSION & SEDIMENT CONTROL GUIDELINE" BY THE COWICHAN VALLEY REGIONAL DISTRICT. IT IS INCUMBENT UPON THE CONTRACTOR TO ACQUIRE THESE GUIDELINES AND FAMILIARIZE THEM SELF WITH THE REQUIREMENTS THEREIN.
2. THE CONSULTANT ASSUMES NO RESPONSIBILITY FOR DAMAGES RESULTING FROM IMPROPER EROSION AND SEDIMENT CONTROL MEASURES UNDERTAKEN BY THE CONTRACTOR.
3. ANY DIRECTION GIVEN BY THE ENGINEER TO THE CONTRACTOR FOR EROSION AND SEDIMENT CONTROL AND NOT FOLLOWED BY THE CONTRACTOR WILL BE REPORTED TO THE COWICHAN VALLEY REGIONAL DISTRICT.
4. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT NO MUD, DIRT, SOIL, SILT OR ANY OTHER SUBSTANCES ARE SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY, OR AREAS THAT LEAD TO CATCH BASINS CONNECTED TO PUBLIC SYSTEMS. THE CONTRACTOR IS TO CLEAN UP ANY SUCH MATERIAL IMMEDIATELY. STREETS ARE TO BE SWEPT AFTER WORK STOPPAGE EACH DAY.
5. THE SITE ENTRANCE IS TO BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION. MAINTENANCE MAY INCLUDE THE PLACEMENT OF ADDITIONAL TOP DRESSING MATERIAL AS CONDITIONS DEMAND. A WHEEL WASH STATION SHOULD BE INSTALLED IF THE ACCESS PAD IS NOT WORKING. THE TEMPORARY ACCESS PAD MAY BE REMOVED DURING PREPARATION FOR PAVING.
6. PRIOR TO CONSTRUCTION, AREAS OF NO DISTURBANCE AND/OR VEGETATION TO BE RETAINED AND SHALL BE FENCED OFF AND/OR FLAGGED FOR PROTECTION. THESE MEASURES ARE TO REMAIN IN PLACE THROUGHOUT THE CONSTRUCTION PERIOD.
7. IF GRADED AREAS WITHIN THE PROJECT WILL BE COMPLETED DURING THE WET SEASON (OCTOBER - APRIL), REVEGETATION AND/OR SURFACE EROSION MEASURES SHOULD BE CARRIED OUT WITHIN ONE WEEK OF GRADING COMPLETION.
8. SILT FENCING IS TO BE INSTALLED AROUND ALL STOCK/SPOIL PILES, OR PILES ARE TO BE OTHERWISE PROTECTED TO LIMIT EROSION.
9. LIMIT DISTURBANCE TO 4.0 m ON EITHER SIDE OF TRENCHING. STRIP AND STOCKPILE TOPSOIL AND ROOT MATTER SEPARATELY FROM MINERAL SOIL: STOCKPILE THE ROOT MATTER AND TOPSOIL ON THE DOWN-SLOPE SIDE OF THE TRENCH AND MINERAL SOIL ON THE UP-SLOPE SIDE OF THE TRENCH TO DEFLECT ANY UP-SLOPE FLOW THAT MAY OCCUR. IF EXCAVATED SOIL WILL NOT BE RE-USED, REMOVE IMMEDIATELY. SILT FENCE SHOULD BE ERECTED BETWEEN THE TRENCHING OPERATION AND AREAS OFF-SITE. BACKFILL ALL EXCAVATIONS UP TO THE 'WORKING END' OF THE PIPE BY THE COMPLETION OF EACH WORK DAY. FOLLOWING BACKFILL, MATCH THE EXISTING GROUND SURFACE (I.E. THE FINISHED TRENCH SHOULD NOT FORM A BERM OR SWALE THAT WOULD CONCENTRATE OVERLAND FLOWS OF SURFACE WATER).
10. THE CONTRACTOR IS TO CARRY OUT ROUTINE INSPECTIONS AND MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROL SYSTEM COMPONENTS ON-SITE. AT A MINIMUM, THE CONTRACTOR SHALL INSPECT ALL BMP's WEEKLY AND PROVIDE A REPORT TO THE CONSULTANT FOR REVIEW.
11. DURING AND/OR FOLLOWING EACH SIGNIFICANT STORM EVENT, THE CONTRACTOR SHOULD OBSERVE THE STORMWATER LEAVING SITE AND / OR DOWNSTREAM STORM DRAINS TO CONFIRM THAT TURBID WATERS FROM SOURCES ASSOCIATED WITH CONSTRUCTION ARE NOT ENTERING THE STORM DRAINAGE SYSTEM. THE CONTRACTOR SHALL RECORD INSPECTION DATES C/W ANY SIGNIFICANT OBSERVATIONS AND ACTIONS TAKEN, AND THEN INFORM THE CONSULTANT AND COWICHAN VALLEY REGIONAL DISTRICT.
12. LEWKOWICH ENGINEERING ASSOCIATES (LEA) PERSONNEL WILL VISIT THE SITE TO ASSIST THE CONTRACTOR WITH THE IMPLEMENTATION OF THE ESCP DURING STORM EVENTS, AND TO PROVIDE INDEPENDENT ESCP REVIEW AND DOCUMENTATION. MODIFICATIONS TO THE ESCP, IF NECESSARY, WILL BE PROVIDED IN A WRITTEN MEMO FORMAT.

EROSION CONTROLS (EC):

1. ***RETAIN VEGETATION*** - PRIOR TO CONSTRUCTION, AREAS OF NO DISTURBANCE AND/OR VEGETATION TO BE RETAINED AND SHALL BE FENCED OFF AND/OR FLAGGED FOR PROTECTION. THESE MEASURES ARE TO REMAIN IN PLACE THROUGHOUT THE CONSTRUCTION PERIOD.
2. ***STOCKPILE PROTECTION*** - ALWAYS COVER STOCKPILES OF SILTY SOILS WITH A TARP OR PLASTIC SHEETING WHEN STOCKPILES WILL NOT BE USED WITHIN 2-3 DAYS, OR WHEN RAIN IS EXPECTED.

RUNOFF CONTROLS (RC):

1. **SILT FENCING** - TO BE INSTALLED AS INDICATED ON THE DRAWING TO DIRECT TURBID WATERS TO SEDIMENT CONTROL FACILITIES.
2. **SILT FENCING** - TO BE INSTALLED AS INDICATED ON THE DRAWING TO DIRECT TURBID WATERS TO SEDIMENT CONTROL FACILITIES.

REV No.	DATE	BY	P.Eng.	REVISION DESCRIPTION

LEGEND

DRAWING TITLE: POST CONSTRUCTION - EROSION AND SEDIMENT CONTROL PLAN

PROJECT NAME: 2530 MILL BAY ROAD, MILL BAY, BC

LEGAL DESCRIPTION: LOT 3, DISTRICT LOT 18 AND 47, MALAHAT DISTRICT, PLAN VIP60384

ENGINEER'S SEAL

EGBC PERMIT TO PRACTICE No. 1001802

PLOT DATE	DRAWN BY
2024-10-11	LC
REVIEWED BY	SCALE
LC	1:250
PROJECT No.	DRAWING No.
E2672	E2672-06

Lewkowich Engineering Associates Ltd.

TERMS OF INSTRUMENT - PART 2

THIS COVENANT is made pursuant to Section 219 of the *Land Title Act,*

BETWEEN:

ENTER NAME AND ADDRESS OF
CURRENT OWNER
(the "Grantor"),

AND:

Cowichan Valley Regional District, a Regional District incorporated under the Local Government Act of British Columbia, having its offices at 175 Ingram Street, Duncan, BC, V9L 1N8 (the Grantee").

WHEREAS:

A. The Grantor is the registered owner of the land located in the territorial area of the Grantee and legally known and described as:

Parcel Identifier:
Legal Description: (the "Land");

B. The Grantee is a Local Government incorporated and operating pursuant to the provisions of the *Community Charter,* S.B.C. 2003, c.26 and the *Local Government Act,* R.S.B.C. 1996, c.323 and preceding legislation thereto;

C. Section 219 of the *Land Title Act,* R.S.B.C. 1996, c.250, provides that a covenant of a negative or positive nature in respect of the use of the lands, to restrict building on the land, and to preserve amenities, may be registered as a charge against title to the land in favour of a local government; and

D. The Grantor has agreed to grant this Covenant to ensure that the use and development of the Land proceeds in the manner set out herein.

NOW THEREFORE, in consideration of the sum of $1.00 paid by the Grantee to the Grantor, the receipt and sufficiency of which is hereby acknowledged by the parties, the Grantor covenants and agrees with the Grantee pursuant to Section 219 of the *Land Title Act,* R.S.B.C. 1996, c.250, as follows:

Restrictions on Use

1. All buildings, structures and landscaping constructed on the Land shall be constructed so as to provide adequate and reasonable drainage of the Land. The Grantor shall be required to install and maintain storm water management infrastructure in accordance with the Drainage Management Plan prepared by Lewkowich Engineering Associates Ltd. and dated October 15, 2024 which has been attached to this Covenant as Schedule “A”, when building on the Land.

2. The Grantor shall be required to install and maintain erosion and sediment control measures in accordance with the Erosion and Sediment Control Plan prepared by Lewkowich Engineering Associates Ltd. and dated October 11, 2024 which has been attached to this Covenant as Schedule "B", during any construction activities on the Land.

Withholding Building Permits

3. The Grantor agrees that the Grantee may withhold the approval of any building permit for any proposed construction which does not comply with the Drainage Management Plan attached as Schedule "A" as approved by the Grantee and any provision of this Covenant.

4. The Grantee shall not be required to issue a final occupancy certificate for any building on the Land, until the Grantor has provided written confirmation from a qualified professional that the installation of the storm water management infrastructure has been satisfactorily completed in accordance with this Covenant and its related attachments.

Inspection

5. The Grantee, including its officers, employees and agents may inspect the Land or any building or structure on the Land, to determine whether the provisions of this Covenant are being or have been complied with.

Enforcement Remedy of the Grantee

6. If the Grantee believes that the Grantor is in breach of any term or terms of this Covenant:

    a. the Grantee may serve the Grantor with written notice (the "Notice") setting out particulars of the breach and following service of the Notice;

    b. the Grantor must immediately or within any time period specified by the Notice, remedy the breach, or make arrangements deemed satisfactory by the Grantee to remedy the breach.

    c. If the Grantor does not remedy a breach as specified in the Notice, the Grantee is entitled to enter the Land and remedy the breach at the sole cost of the Grantor.

Notice

7. Whenever provision is made for notice to be given to the Grantor pursuant to this agreement, notice is deemed to have been given when delivered personally to the Grantor, or to an officer or director of the Grantor, or when mailed by prepaid registered mail to the registered and records office of the Grantor, on the fourth day following the date of mailing. Notice to the Grantee is deemed to have been given when delivered personally to the business office of the Grantee, or when mailed by prepaid registered mail to the postal address of the Grantee, on the fourth day following the date of mailing.

Non-Enforcement

8. Notwithstanding the provisions of clause 7 and clause 8 herein, the Grantee is under no obligation

to enforce any provision of this Covenant.

Indemnity

9. The Grantor must indemnify and save harmless at all times the Grantee, its officers, employees, contractors and agents from and against any proceeding, claim or demand which may be made in relation to restrictions imposed by this agreement or in relation to any obligation required to be performed under this agreement. This indemnity applies to any act or omission occurring while the Grantor is an Owner of the Land, notwithstanding that the Grantor may have ceased to be an Owner of the Land, and must survive the discharge of this Covenant from title to the Land in relation to acts or omissions occurring before such discharge.

The Grantor shall indemnify and save harmless the Grantee from any and all claims, causes of action, suits, demands, fines, penalties, costs or expenses or legal fees whatsoever which anyone has or may have against the Grantee or which the Grantee incurs as a result of any loss or damage or injury, including economic loss, arising out of or connected with:

a. the breach of any covenant in this Agreement;
b. the use of the Land contemplated under this Agreement; and
c. restrictions or requirements under this Agreement.

Performance at Cost of Grantor

10. Unless otherwise expressly provided for herein, whenever the Grantor requests something to be done, or is obliged or required to do or cause to be done any act, matter or thing, such act, matter or thing must be done by the Grantor at its sole expense.

Interest in Land and Enurement

11. This Covenant must charge the Land pursuant to Section 219 of the *Land Title Act* and the burden of all covenants herein must run with the Land and charge the Land and every parcel into which the Land may be subdivided.

12. This Covenant enures to the benefit of and is binding upon the parties hereto and their respective successors, heirs, administrators and assigns.

13. No liability for any breach of this Covenant occurring after a person has ceased to be a Grantor of the Land, or any parcel into which the land may be subdivided, must attach to that person.

Amendment and Waiver

14. No amendment or waiver of any provision in this Covenant is valid unless it is made in writing and executed by the Grantor and the Grantee.

Discharge of Covenant

15. This Covenant must be of no force and effect if the Grantee declares in writing that the Covenant is to be discharged from title to the Land.

Severability

16. All provisions of this Covenant are to be construed as independent covenants and should any provision thereof be held invalid by a Court of competent jurisdiction, that portion must be severed, and the invalidity or unenforceability of such provision must not affect the validity of the remainder, which is to remain binding upon the parties and remain a charge upon the Land.

Further Acts

17. The Grantor covenants and agrees to do and cause to be done all things, and to execute and cause to be executed all plans, documents and other instruments which may be necessary to give proper effect to this Covenant.

No Exemption From Jurisdiction

18. Nothing in this Covenant exempts the Grantor or the Land from any statutory requirement or from the ordinary jurisdiction of the municipal council of the Grantee, including its bylaws, permits, regulations and orders.

19. The construction of any works or services required to be provided by this Covenant must not confer any exemption or right of set-off from development cost charges, connection charges, application fees, user fees or any other fee or charge of whatever nature, except as statutorily required.

Interpretation

20. Wherever the singular or masculine is used herein, the same must be construed as meaning the plural or the feminine or the body corporate or politic where the context so requires.

Entire Agreement

21. This Covenant constitutes the entire agreement between the parties, and the Grantee has made no representations, warranties, guaranties, promises, covenants or agreements to or with the Grantor in relation to the subject matter of this Covenant other than those expressed in writing herein.

Priority Agreement

22. The Grantor must, at the expense of the Grantor, do or cause to be done all actions reasonably necessary to grant priority to this agreement over all financial charges and encumbrances which may have been registered against the title to the Land save and except those specifically approved in writing by the Grantee or that are in favour of the Grantee.

Execution

23. As evidence of its agreement to be bound by the above terms, the Grantor has executed and delivered this Covenant by executing the *Land Title Act* Form C to which this Covenant is attached and which forms part of this agreement.

24. The Grantor agrees to do everything necessary at its own expense to ensure that this Covenant, and the interests it creates, is registered against title to the Land, with priority over all financial charges, liens and encumbrances registered or pending registration in the Land Title Office at the time of application for registration of this Covenant at the appropriate Land Title Office.

25. By executing and delivering this agreement, each of the parties intends to create both a contract, and a deed and covenant executed and delivered under seal.