

Considered at the October 24, 2023, Regular Council meeting

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Memorandum

Date: October 24, 2023
 Submitted by: Legislative Services Division
 Subject: New Stream and Drainage Bylaw, No. 3426 – Three Readings

At the Governance and Legislation Committee meeting held on October 17, 2023, Council considered a report from the Community Services Department – Environment Division regarding Proposed Update to Stream and Drainage System Protection Bylaw, No. 2470, 2000 (**Attachments 1 and 2**) and passed the following resolution:

GLC23/050

THAT City of Port Moody Stream and Drainage Bylaw, 2023, No. 3426 be referred to the Regular Council meeting of October 24, 2023, for consideration of first three readings as recommended in the report dated October 17, 2023, from the Community Services Department – Environment Division regarding Proposed Update to Stream and Drainage System Protection Bylaw, No. 2470, 2000;

AND THAT, upon adoption of Bylaw No. 3426, staff be directed to prepare relevant amendments to City of Port Moody Municipal Ticket Information Authorization Bylaw, 2020, No. 3218;

AND THAT, upon adoption of Bylaw No. 3426, the associated fees be included in the 2024 City of Port Moody Fees Bylaw.

City of Port Moody Stream and Drainage Bylaw, 2023, No. 3426 (**Attachment 3**)—a bylaw to a) protect the drainage system from damage, obstruction, interference, unauthorized use, alteration, or the release of prohibited materials; b) protect the City of Port Moody's employees, infrastructure, environment, and the public from exposure to dangerous conditions; c) protect, control, and monitor the volume and ensure that an acceptable quality of water enters the drainage system; and d) provide for a system of permits and permissions that impose conditions on releases to the drainage system—will be before Council for consideration of first three readings at the Regular Council meeting of October 24, 2023. The recommended resolution is:

THAT City of Port Moody Stream and Drainage Bylaw, 2023, No. 3426 be read a first, second, and third time as recommended in the memo dated October 24, 2023, from the Legislative Services Division regarding New Stream and Drainage Bylaw, No. 3426 – Three Readings.

Attachment(s)

1. Report considered at the October 17, 2023, GLC meeting – New Stream and Drainage Bylaw.
2. On-table materials considered at the October 17, 2023, GLC meeting – New Stream and Drainage Bylaw.
3. Draft City of Port Moody Stream and Drainage Bylaw, 2023, No. 3426.

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Report Approval Details

Document Title:	New Stream and Drainage Bylaw, No. 3426 – Three Readings.docx
Attachments:	<ul style="list-style-type: none"> - Attachment 1 - Report considered at the October 17, 2023, GLC meeting - Stream and Drainage Bylaw.pdf - Attachment 2 - On-table materials considered at the October 17, 2023, GLC meeting - Stream and Drainage Bylaw.pdf - Attachment 3 - Draft City of Port Moody Stream and Drainage Bylaw, 2023, No. 3426.pdf
Final Approval Date:	Oct 18, 2023

This report and all of its attachments were approved and signed as outlined below:

Stephanie Lam, City Clerk and Manager of Legislative Services - Oct 18, 2023 - 12:37 PM

Tim Savoie, City Manager - Oct 18, 2023 - 1:33 PM

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City of Port Moody Governance and Legislation Committee

Date: October 17, 2023
Submitted by: Community Services Department – Environment Division
Subject: Proposed Update to Stream and Drainage System Protection Bylaw, No. 2470, 2000

Purpose

To present for Council consideration Stream and Drainage Bylaw 2023, No. 3426 and updates to Erosion & Sediment Control (ESC) requirements.

Recommended Resolution(s)

THAT City of Port Moody Stream and Drainage Bylaw, 2023, No. 3426 be referred to the Regular Council meeting of October 24, 2023, for consideration of first three readings as recommended in the report dated October 17, 2023, from the Community Services Department – Environment Division regarding Proposed Update to Stream and Drainage System Protection Bylaw, No. 2470, 2000;

AND THAT, upon adoption of Bylaw No. 3426, staff be directed to prepare relevant amendments to City of Port Moody Municipal Ticket Information Authorization Bylaw, 2020, No. 3218;

AND THAT, upon adoption of Bylaw No. 3426, the associated fees be included in the 2024 City of Port Moody Fees Bylaw.

Background

In Port Moody, the drainage system is comprised of a network of municipal infrastructure and watercourses that are used to manage stormwater across the city to reduce the potential for flooding. This system includes grey infrastructure (pipes, culverts and storm drains), natural assets (creeks, ditches, wetlands, marine receiving waters, ravines, tidal flats), and enhanced assets (bioswales, bioponds, raingardens), which collect and convey road runoff, rainwater, and snow melt, and discharge into the receiving environment. Stormwater is untreated and any material entering this drainage system flows directly into aquatic habitat.

The City regulates the quality of water entering the drainage system in the Stream and Drainage System Protection Bylaw, No. 2470, 2000 to ensure compliance with the federal Fisheries Act and provincial water-quality guidelines. This Bylaw prohibits the discharge of any prohibited material, which is based on senior legislation and guidelines, to protect both municipal storm

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infrastructure and the receiving environment. This Bylaw is used to regulate spills and discharge from development activities, largely related to the discharge of sediment-laden water into the drainage system.

Erosion & Sediment Control (ESC) refers to measures, procedures, and technologies used to prevent the detachment, transport, and deposition of soils, typically in a construction setting. Proper ESC planning and management is critical for both planned soil disturbance (such as excavating or landscaping) and unplanned soil disturbance (such as slope failure or extreme rain events). Issues from improper ESC planning and management can result in soils or contaminated water being washed into the drainage system and impacting drainage infrastructure and the receiving environment. For example, large amounts of soil suspended in stormwater (heavily-silted water) can cause flooding by clogging pipes or can negatively impact aquatic habitat. Soils and runoff water washed into the drainage system from construction areas may also contain pollutants such as concrete wash, paint, detergents, or heavy metals that will deposit into streams and Port Moody Arm and impact fish and aquatic species.

An update to the City's ESC standards and, by extension, the Bylaw (Attachment 1), is required to meet current standards and practices and ensure continued compliance with senior regulatory requirements and protection of the drainage system. This also follows:

- Official Community Plan (2014) policies that direct developers and contractors to control discharges, and broader objectives to protect streams and maintain and improve water quality and fish habitat;
- Moody Centre Stormwater Management Servicing Plan (2019) recommendations to require sediment control for all developments (including single family or two-dwelling units), improve requirements to minimize erosion and sediment transport, and provide improved guidance for developers;
- Chines Integrated Stormwater Management Plan (2019) recommendations for improved stormwater standards and guidelines; and
- Climate Action Plan (2020) action to improve standards for erosion and sediment control, included in the Phase One Implementation Strategy.

In 2022, a consultant was retained to conduct an external review of the City's current regulatory tools. This review provided recommendations for updating, as reflected in the proposed Stream and Drainage Bylaw, 2023, No. 3426 (intended to replace the existing Bylaw).

Discussion

Since the most recent update of the Stream and Drainage System Protection Bylaw No. 2470 in 2000, updating is required to address the following:

- Increased development creates more opportunities for soil disturbance through clearing and excavation;

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- Multi-family and mixed-use developments require deeper excavations and larger volumes of concrete, and result in potential sediment and alkalinity in runoff as well as increased impervious surfaces;
- Increased frequency and severity of extreme weather events with climate change requires updated planning to manage stormwater and overland flow; and
- Improved industry standards, technology, and Best Management Practices. This includes the Erosion and Sediment Control Association of BC (est. 2011) and Certified Erosion and Sediment Control Lead (CESCL) training available throughout BC, WA, AK, and OR.

Given the extent of updates proposed to modernize the current bylaw, Staff recommend that it be repealed and Council adopt Stream and Drainage Bylaw, 2023, No. 3426 (Attachment 1). This Bylaw will:

- Improve protection of the receiving environment, natural assets, and storm sewer infrastructure by meeting best management practices;
- Improve customer service City business processes by streamlining the standardization and quality of ESC document submissions; and
- Modernize ESC requirements to align with provincial and federal regulations and the ESC bylaws of neighbouring municipalities.

Notable proposed changes are summarized in Table 1:

Table 1: Summary of Notable Proposed Changes, Stream and Drainage Bylaw 2023, No. 3426		
Proposed Change	Justification	Other Municipalities ²
Item 1		
Bylaw modernized for discharge standards, Best Management Practices requirements, and document submission requirements at all development sites.	Align better with federal and provincial requirements and water-quality criteria, and standards used by neighbouring municipalities. Ensures water quality of construction site discharge to drainage system and receiving environment meets requirements.	Coquitlam Burnaby Surrey Vancouver Langley (Town.) N. Vancouver (Dist.)
Item 2		
ESC Permit required preceding Building Permit and/or Development Permit* <i>*Simplified ESC Plan, reduced requirements, and no fees for small developments¹.</i>	Formalizes process to ensure best management practices are proactively considered and followed at all sites to protect the drainage system and receiving environment. Permit fee (\$500) covers administrative costs.	Surrey Burnaby Pitt Meadows Langley (Town.) New Westminister
Item 3		
ESC security collected under ESC Permit. Security to be 120% of cost estimate for ESC installation, maintenance, removal. <i>*Small developments¹ exempt.</i>	Security incentivises compliance and provides a reserve that the City can use to mitigate, serious ESC failures. Reinspection charges (\$150) are drawn from this security when 3+ Staff responses are necessary for non-compliance.	Coquitlam Surrey New Westminister Langley (Town.) N. Vancouver (City)
Item 4		
Escalating penalty system for Bylaw non-compliance.	Incentivise compliance with proposed fines following penalty structure of Solid Waste Bylaw No.3058 (\$500 to \$1,000 escalation).	New Westminister Burnaby (\$500) Coquitlam (\$1,000)
Item 5		
Independent Third-Party Continuous Monitoring technology required during	Bridges gap inherent to in-person ESC monitoring inspections. Allows for proactive response to ESC	Coquitlam* Burnaby

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Table 1: Summary of Notable Proposed Changes, Stream and Drainage Bylaw 2023, No. 3426		
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Item 2		
ESC Permit required preceding Building Permit and/or Development Permit* <i>*Simplified ESC Plan, reduced requirements, and no fees for small developments¹.</i>	Formalizes process to ensure best management practices are proactively considered and followed at all sites to protect the drainage system and receiving environment. Permit fee (\$500) covers administrative costs.	Surrey Burnaby Pitt Meadows Langley (Town.) New Westminster
Item 3		
ESC security collected under ESC Permit. Security to be 120% of cost estimate for ESC installation, maintenance, removal. <i>*Small developments¹ exempt.</i>	Security incentivises compliance and provides a reserve that the City can use to mitigate, serious ESC failures. Reinspection charges (\$150) are drawn from this security when 3+ Staff responses are necessary for non-compliance.	Coquitlam Surrey New Westminster Langley (Town.) N. Vancouver (City)
Item 4		
construction for developments >2,000m²* <i>*General Manager may exempt sites >2,000m² or require sites <2,000m² to have technology per Bylaw Section 6.1</i>	issues. Provides clear, data-driven evidence of site's ESC performance or compliance under wet-weather conditions. Requested by local stewardship groups to reduce pollution incidents. Approximate cost to Developer is \$4,000/month .	<i>*Stoney Creek watershed only.</i>
NOTES: 1 Small developments refers to Single- or Two-Family Dwellings 2 Similar or equivalent change implemented as of August 2023. List of cities shown represents examples and is not exhaustive.		

Independent Third-Party Continuous ('Real-Time') Monitoring technology combines hardware and software that:

- Provides live, online water-quality data of discharge entering the drainage system that can be accessed by Staff and project personnel to assess a project's ESC performance.
- Prevents contaminated discharge from entering the drainage system by triggering a shut-off valve if water-quality is detected to be non-compliant.
- Automatically notifies Staff and project personnel of non-compliance.
- Addresses gaps inherent to in-person ESC monitoring inspections that only capture a 'snapshot in time' of field conditions and reduces time to locate source of pollution.
- Operates under a supplier independent from a project's water-treatment provider to mitigate bias.

Staff have requested this technology from at active construction sites since 2019 and have experience with system features and applications across six (6) projects. The cost for this technology is approximately \$4,000 monthly (paid for by the Developer), is required on-site prior to the first discharge to the drainage system and must remain active until substantial completion

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is reached or at the discretion of Staff based on site performance. As of 2023, this technology is required by two other municipalities in the BC Lower Mainland (Coquitlam and Burnaby).

Key differences proposed in the ESC process between small and large developments are summarized in Table 2:

Proposed Requirement	Small Development¹	Large Development	Large City Project⁴
ESC Permit (prior to Building/Development Permit, starting City project)	Yes	Yes	Yes
ESC Permit Fee	No	Yes	No
ESC Permit – Submit Schedule A – Declaration of Permit Holder	Yes	Yes	Yes
ESC Permit – Submit Schedule B – Letter of Undertaking	Yes	Yes	Yes
ESC Permit – Submit Schedule C – Letter of Appointment	No	Yes	Yes
ESC Permit – Submit Schedule D – Detailed Cost Estimate	No	Yes	Yes
ESC Permit – Submit Schedule E – Water Treatment Chemical Checklist	No	Yes	Yes
ESC Permit – Submit Schedule F – Simplified ESC Plan	Yes	No	No
Detailed ESC Plan	No ²	Yes	Yes
ESC Security	No	Yes	No
Independent Third-Party Continuous Monitoring	No	Yes ³	Yes ³
NOTES: 1. Small developments refers to Single Family and Two-Lot Subdivisions Bylaw criteria.			
2. May utilize Simplified ESC Plan provided.		3. Sites >2,000m ² or per	
completed on behalf of the City or third party.		4. Ground disturbance	

Other Option(s)

This report is for information only; therefore, no other options are being provided.

Financial Implications

No additional operational budget is needed. Management of the current Bylaw is already part of existing work plans in various departments, but not under a cost recovery model. Any increases in costs around environmental monitoring and enforcement are cost neutral through additional permit fees and penalties.

A request for additional funds of \$15,000 is included in the 2024 Capital Plan budget to support additional ESC auditing to monitor uptake should the Bylaw be adopted.

Communications and Civic Engagement Initiatives

If approved, the updated Bylaw will be posted to the City website for public access. Targeted communication materials will be prepared to inform industry professionals, environmental consultants, developers, contractors, and homeowners of their responsibilities under the updated Bylaw. Staff provide an opportunity for those impacted to learn more and ask questions, such as information sessions.

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Council Strategic Plan Goals

The recommendations in this report align with the following Council Strategic Plan Goal(s):

- Strategic Goal 2.1 – Protect, integrate and enhance our natural assets

Attachment(s)

1. Draft City of Port Moody Stream and Drainage Bylaw, 2023, No. 3426.

Report Author

Emily Gutenberg, AScT, RBTech, BC-CESCL
Environmental Technician

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Report Approval Details

Document Title:	Proposed Update to Stream and Drainage System Protection Bylaw, No. 2470, 2000.docx
Attachments:	- Attachment 1 - Draft City of Port Moody Stream and Drainage Bylaw, 2023, No. 3426.pdf
Final Approval Date:	Oct 10, 2023

This report and all of its attachments were approved and signed as outlined below:

Julie Pavey-Tomlinson, Director of Environment and Parks - Sep 28, 2023 - 6:48 PM

Anna Mathewson, General Manager of Community Services - Sep 29, 2023 - 1:13 PM

Stephen Judd, Manager of Infrastructure Engineering - Oct 6, 2023 - 3:58 PM

Jeff Moi, General Manager of Engineering and Operations - Oct 6, 2023 - 7:13 PM

Stephanie Lam, City Clerk and Manager of Legislative Services - Oct 6, 2023 - 7:28 PM

Lindsay Todd, Manager of Communications and Engagement - Oct 6, 2023 - 10:03 PM

Paul Rockwood, General Manager of Finance and Technology - Oct 7, 2023 - 10:48 AM

Tim Savoie, City Manager - Oct 10, 2023 - 9:28 AM

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Attachment 1



City of Port Moody

Bylaw No. 3426

A Bylaw to:

- a) protect the drainage system from damage, obstruction, interference, unauthorized use, alteration, or the release of prohibited materials;
- b) protect the City of Port Moody's employees, infrastructure, environment, and the public from exposure to dangerous conditions;
- c) protect, control, and monitor the volume and ensure that an acceptable quality of water enters the drainage system; and
- d) provide for a system of permits and permissions that impose conditions on releases to the drainage system.

WHEREAS there is an increasing recognition of the need to protect our shared streams and drainage systems and pursuant to the *Community Charter*, SBC 2003, c 27, Council has the authority by bylaw to regulate the design and installation of drainage works;

AND WHEREAS pursuant to the *Community Charter*, SBC 2003, c 27, Council has authority to regulate, prohibit, and impose requirements in relation to polluting or obstructing, or impeding the flow of, a stream, creek, waterway, watercourse, waterworks, ditch, drain, or sewer, whether or not it is located on private property;

AND WHEREAS pursuant to the *Community Charter*, SBC 2003, c 27, Council has the authority to impose requirements on persons undertaking the construction of works to maintain the proper flow of water in a stream, ditch, drain, or sewer;

AND WHEREAS pursuant to the *Community Charter*, SBC 2003, c 27, Council may impose penalties in relation to ticket offences for contravention of a bylaw;

NOW THEREFORE, the Council of the City of Port Moody enacts as follows:

1. Citation

- 1.1 This Bylaw may be cited as "City of Port Moody Stream and Drainage Bylaw, 2023, No. 3426".

2. Repeal

- 2.1 City of Port Moody Stream and Drainage System Protection Bylaw No. 2470, 2000 and all amendments thereto are hereby repealed.

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3. Definitions

3.1 In this bylaw:

“Background” means immediately upstream of point of entry of the discharge.

“BMP” means best management practice(s).

“Bylaw Enforcement Officer” means the person appointed from time to time by the Council of the City of Port Moody to enforce City bylaws.

“City” means the City of Port Moody.

“Construction Works” means any activity which might cause or permit Prohibited Materials to be discharged into a Drainage System, including, but not limited to, land-clearing, removal of soil, deposit of soil or other material, construction of any building or structure, paving or concrete pouring, building demolition, and construction of any underground services, including the installation of drainage works.

“Drainage System” means the system and network of streams, creeks, waterways, ponds (excluding stormwater control ponds, but not their discharge), lakes, waterworks, ditches, drains or sewers, drainage works, mains, pipes, culverts, catch basins, leads, and curbs and gutters, located in the City on private or public property, by which surface or ground water is conveyed to receiving waters.

“Environmentally Sensitive Area (ESA)” means areas indicated as such on the City of Port Moody’s online mapping system, as amended from time to time.

“ESC” means erosion and sediment control.

“ESC Facilities” means all erosion and sediment control works, measures, facilities, and methods constructed or installed to reduce the likelihood of sediment, sediment-laden water, or prohibited materials reaching the Drainage System during all stages of construction.

“ESC Designer” means a Qualified Professional responsible for developing and amending an ESC Plan for the construction works.

“ESC Permit” means the erosion and sediment control permit issued by the City to the Owner or Permit Holder in accordance with the terms and conditions of this Bylaw.

“ESC Plan” means the specifications, drawings, plans, and design calculations for works to control and monitor the discharge of any Prohibited Materials from any source into the Drainage System.

“ESC Supervisor” means a Qualified Professional who assumes responsibility for inspecting, maintaining, monitoring, and reporting on the ESC Facilities constructed and installed pursuant to the approved ESC Plan.

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“Foul” means to deposit, discharge, spill, spray, leak, seep, pour, empty, place, dump, or wash, whether directly or indirectly, a prohibited materials into a Drainage System.

“General Manager” means the General Manager of Engineering and Operations or the General Manager of Community Services for the City of Port Moody or their designates.

“Owner” means the person listed as the registered Owner in the Land Title Office of the lands that are subject to an application for an ESC Permit.

“Paving” means any graded and hardened surface covered with materials comprised of asphalt, concrete, masonry, or combinations thereof.

“Permit Holder” means the person to whom the authority to carry out construction works is granted under a building permit or an ESC Permit.

“Prohibited Materials” includes, but is not limited to:

- a) soil, sediment, earth, or excavation waste, including sand, silt, clay, gravel, or other aggregate materials;
- b) concrete wash, solvents, paint, or household or industrial cleaning products;
- c) soaps, detergents, or chlorinated water;
- d) pesticides, herbicides, or fertilizers;
- e) waste oil, motor oil, cooking oil, wax, gasoline, diesel fuel, transmission fluid, or antifreeze;
- f) any ‘deleterious substance’ as defined under the *Fisheries Act*, RSC 1985, c. F-14 as amended or re-enacted from time to time;
- g) any ‘waste’ as defined under the *Environmental Management Act*, SBC 2003, c 53 as amended or re-enacted from time to time; and
- h) any substance or material that results in the water exceeding the *Approved and Working BC Water Quality Guidelines (BCWQGs)* or the *Canadian Environmental Quality Guidelines (CEQGs)* as amended or re-enacted from time to time.

“Qualified Professional” means an individual who:

- a) is registered and in good standing with one or more of the following professional organizations:
 - i) Engineers and Geoscientists British Columbia;
 - ii) College of Applied Biology;
 - iii) Applied Science Technologists and Technicians of BC;
 - iv) BC Institute of Agrologists; or
 - v) EnviroCert International (as a Certified Professional in Erosion and Sediment Control); or
 - vi) BC Society of Landscape Architects
- b) is acting under that organization’s code of ethics and subject to disciplinary action by that organization;

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- c) has an area of expertise that is recognized in the field of ESC for the purpose of providing all or part of the design, inspection, and monitoring of ESC facilities; and
- d) is acting within their area of expertise.

“Significant Rainfall Event (SRE)” means any precipitation event which meets or exceeds the intensity of 25mm precipitation within 24 hours or 10mm precipitation within 1 hour.

“Stream” means any of the following:

- a) a Watercourse, or body of water, whether or not usually containing water; or
- b) any of the following that is connected by surface flow to a Watercourse or body of water referred to in:
 - i) a ditch, whether or not usually containing water;
 - ii) a spring, whether or not usually containing water; or
 - iii) a wetland, as defined under the *Riparian Areas Protection Regulation*, B.C. Reg. 178/2019, as amended or re-enacted from time to time.

“Structure” means any material or a combination of materials that are constructed for use, occupancy, or ornamentation, whether installed on, above, or below the surface of land or water, but excludes paving.

“Turbidity” means the measurement of relative water clarity or cloudiness using a turbidimeter, as measured in Nephelometric Turbidity Units (NTU), which is an indirect measurement of total suspended solids.

“Watercourse” means a flowing waterbody, including those with flows that may be ephemeral, intermittent, temporary, or seasonal in nature that is connected to a downstream waterbody, either naturally or artificially, including via a storm sewer pipe. Class A, B, or C Watercourses are described in accordance with the City’s Official Community Plan.

“Water Treatment Chemical” means any substance which is intentionally introduced to water to alter the physical or chemical properties.

“Water Treatment System” means on-site facilities installed with the purpose of treating site effluent to meet the requirements of this Bylaw.

4. Prohibitions of Discharge

- 4.1 No person shall Foul, obstruct or impede a Drainage System, or permit any Prohibited Materials or water containing any Prohibited Materials to be discharged, dumped, deposited, spilled, or washed directly or indirectly into a Drainage System.

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- 4.2 Without limiting the generality of section 4.1, no person shall cause or permit to be released, directly or indirectly into the Drainage System any Prohibited Materials, water, or substances which when mixed with water or Water Treatment Chemical, results in:
- a) a discharge with a pH value outside the range of 6.5 to 8.0;
 - b) a discharge exceeding Turbidity level of 75 NTU during and for 24 hours following a Significant Rainfall Event, or 25 NTU during any other time;
 - c) a discharge exceeding total suspended solid levels of 75 mg/L during and for 24 hours following a Significant Rainfall Event, or 25 mg/L during any other time; or
 - d) a discharge with temperatures higher than 16 degrees Celsius in the dry season (May-September) and 12 degrees Celsius in the wet season (October-April).
- 4.3 Any non-compliance with section 4.1 must be remedied immediately by the persons responsible to the satisfaction of the City.
- 4.4 Any non-compliance with section 4.1 must be immediately reported by the persons responsible to the City.
- 4.5 Compliance with the limits outlined in section 4.2 must be monitored at point of discharge.
- 4.6 Site discharge with pH values >9 or <5, or NTU values exceeding 100, as field-sampled by a Qualified Professional, is to be immediately sampled and submitted for laboratory analysis of pH, total suspended solids, total metals, and dissolved metals. Copies of laboratory results are to be provided via email to the City.
- 4.7 The General Manager may allow for non-compliance under section 4.2, if the background water-quality conditions off-site conditions outside of the project boundary are demonstrated to be contributing factors of non-compliance, as demonstrated by a technical report prepared by a Qualified Professional and submitted to the City.

5. Construction Works and ESC Permit

- 5.1 No person undertaking any Construction Works shall place, store, transport, or dispose of any Prohibited Materials in such a manner so as to permit the likely escape of the materials into a Drainage System.
- 5.2 No person shall suffer or permit the discharge or washing of cement or concrete during the construction of exposed aggregate driveways, patios, other surfaces, or from concrete vehicles or concrete equipment onto any highway, sidewalk, publicly owned land, or into a Drainage System.
- 5.3 No person shall suffer or permit any water to be discharged directly or indirectly from any property that does not continuously and at all times meet or exceed the requirements of this Bylaw.

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- 5.4 An ESC Permit is required prior to any Construction Works that require a Building Permit or Development Permit, or are occurring on City lands as part of works on behalf of the City or on behalf of a third party.
- 5.5 In the case of Construction Works related to an ESC Permit for the construction of a single- or two-family dwelling, an application for an ESC Permit must include:
- a) an ESC Plan, if required under section 7.1(b);
 - b) a Declaration of the Permit Holder and ESC Permit in the form of Schedule A;
 - c) a Letter of Undertaking in the form of Schedule B.
- 5.6 Notwithstanding section 5.5, an application for an ESC Permit for all other Construction Works requiring a Building Permit or Development Permit, a Building Permit or Development Permit, or are occurring on City lands as part of works on behalf of the City or on behalf of a third party, must include:
- a) an ESC Plan;
 - b) a Declaration of the Permit Holder and ESC Permit in the form of Schedule A;
 - c) a Letter of Undertaking in the form of Schedule B;
 - d) a Letter of Appointment in the form of Schedule C;
 - e) a Detailed Cost Estimate in the form of Schedule D;
 - f) a Water Treatment Chemical Checklist in the form of Schedule E;
 - g) a security in an amount of 120% of the accepted ESC Plan implementation, monitoring, and maintenance cost or \$5,000, whichever is greater; and
 - h) payment of the ESC Permit fee.
- 5.7 If during any Construction Works, any Prohibited Materials, or water that exceeds the limits outlined in 4.2, is being released directly or indirectly into the Drainage System, or otherwise impedes the Drainage System, the Permit Holder must immediately notify the City, as well as the appropriate federal and provincial agencies.
- 5.8 Any groundwater diverted during Construction Works must comply with the provincial *Water Sustainability Act*, SBC 2014, c 15 and its regulations as amended or re-enacted from time to time.
- 5.9 All Water Treatment Chemicals, as part of a Water Treatment System or as administered directly to water prior to discharge to the Drainage System, must adhere to the following:
- a) Chitosan acetate 1-2% (liquid form of chitosan) is the only approved material permitted to mitigate Turbidity. Dry coagulants and flocculants are not permitted for use in the City of Port Moody.
 - b) Liquid mineral acids (e.g., citric acid), strong alkali (e.g., caustic soda, sodium carbonate solution) and hazardous chemicals to mitigate pH levels must have secondary spill containment (110% volume).
 - c) All Water Treatment Chemicals:
 - i) must be labelled in accordance with WHMIS 2015 requirements, with current Safety Data Sheets (SDS) in accordance with WHMIS 2015 requirements readily available on site during use;
 - ii) must not be used beyond their expiry date;

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- iii) must not bring dissolved and total concentrations of metals, hydrocarbons, and inorganics in the discharge above respective *British Columbia Approved Water Quality Guidelines: Aquatic Life* and/or *Canadian Environmental Quality Guidelines for the Protection of Aquatic Life*, whichever is more stringent, even at the highest concentration (dose rate) used in water treatment operation.
- iv) must be administered at the dose rate and chemistry per manufacturer specifications and as defined per Schedule E. No change of chemistry or chemical substitution is permitted without prior written approval from the City of Port Moody.

5.10 The ESC Permit requirements under sections 5.6(g) and 5.6(h) do not apply to City projects.

6. Post-Treatment Qualifications

6.1 All discharges from the Water Treatment System(s) at sites exceeding 2,000m² must be monitored continuously, in real-time by a third-party that is independent from both the water treatment provider and ESC Supervisor, unless exempted by the General Manager in the event that the technology is unavailable, the technology cannot be feasibility installed on site, or if water will be captured and removed from site without discharging to the Drainage System. Sites smaller than 2,000m² may be required to implement continuous monitoring, as described above, at the discretion of the General Manager if one or more criteria is met as prescribed in section 7.1(b).

- a) The real-time monitoring system must include discharge shutoff and redirection of water exceeding criteria listed in section 4.2 back to the site for additional treatment or recirculation, until it is compliant with section 4.2.
- b) Minimum requirements for real-time monitoring are to include pH, Turbidity, temperature, flow rate, and volume of discharge(s) with a minimum acquisition and transmission frequency of 60 seconds, to minimize the volume of non-compliant water discharged to the Drainage System.
- c) The real-time monitoring system must remain in place until the City provides written approval to remove it.

6.2 The City must be provided access to the real-time data, including notifications within 48 hours of installation of the monitoring system and no later than the date of the first discharge to the Drainage System.

6.3 A clearly identified sample port located at the point of discharge of the Water Treatment System must be provided.

7. ESC Plan

7.1 General requirements:

- a) Single- and two-family dwelling unit construction and landscaping activities may utilize the example of sediment control works and BMPs provided in Schedule F, Simplified ESC Plan when applying for an ESC Permit.

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- b) The General Manager may require the Permit Holder to provide a detailed ESC Plan meeting criteria outlined in sections 7.1(c) and 7.1(d) in accordance with single- and two-family dwelling sites that meet one or more of the following criteria:
 - i) the construction site is within 30 metres to a stream or Environmentally Sensitive Area;
 - ii) construction on slopes greater than 20%; or
 - iii) construction on lands having a history of erosion events, or lands designated by a geotechnical study as being subject to geotechnical hazards, including but not limited to landslides or flooding, or Hazardous Lands or Steep Slope areas per the City's Official Community Plan.
- c) An ESC Plan submitted under an application for an ESC Permit, shall set out works and measures required during Construction Works to prevent the discharge of Prohibited Materials to the Drainage System. This shall include such detailed plans, specifications, and design calculations necessary to describe any works required to convey, control, and treat run-off water from the Construction Works.
- d) The ESC Plan must be prepared, signed, and sealed, by the ESC Designer, and reviewed and signed by the appointed ESC Supervisor.

8. Maintenance

- 8.1 All ESC Facilities are to be inspected and maintained daily until Construction Works at the site are complete, the site is stable and under control, and no longer poses risks to the Drainage System, and the ESC Facilities have been removed to the satisfaction of the City.
- 8.2 The Permit Holder shall correct any deficiencies in ESC Facilities immediately. If the Permit Holder fails to correct the deficiencies, they must be corrected by the Owner, or the City will correct the deficiencies at the Owner's expense.
- 8.3 Upon completion of construction, the Permit Holder shall remove all sediment from the onsite storm mains and ESC Facilities, especially sediment fencing, to the satisfaction of the ESC Supervisor and the City. CCTV inspection and flushing is required, if applicable.
- 8.4 If applicable, Water Treatment System components shall only be removed upon City approval and when the ESC Permit Holder effectively demonstrates that there are no outstanding deficiencies with ESC Facilities and that pre-treated water meets the requirement of this Bylaw at all times during an 8-week period or three Significant Rainfall Events (SREs), whichever occurs first.
- 8.5 If applicable, the independent third-party continuous monitoring system shall only be removed upon City approval and when the ESC Permit Holder is able to demonstrate that discharge remains compliant with the Bylaw, in the absence of a Water Treatment System for an 8-week period or three Significant Rain Events (SREs), whichever occurs first.

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9. Monitoring and Reporting

- 9.1 All ESC monitoring inspections are to be carried out by the ESC Supervisor, or their designates, up to the expiry of the ESC Permit weekly and within 24 hours of each Significant Rainfall Event (SRE). If more than two SREs occur within 7 days (Monday through Sunday), two site ESC monitoring inspections per week will be deemed acceptable, except for when a deficiency is identified during an inspection.
- a) Between May 1 and September 30, inspection frequency may be reduced to bi-weekly and within 24 hours of each SRE by submitting a written request to the City from the ESC Supervisor, subject to continued site compliance and approval by the City.
- 9.2 The Permit Holder shall complete an ESC monitoring inspection report in the form provided by the City within 7 days of the ESC monitoring inspection date. The Permit Holder shall report any ESC Permit violations to the City immediately. The first monitoring inspection must be completed within 7 days of Construction Works commencing.
- 9.3 The Permit Holder shall immediately notify the City and cease Construction Works, if for any reason the ESC Supervisor's services are terminated or withdrawn, until a replacement ESC Supervisor is appointed.
- 9.4 Grab samples for compliance monitoring shall be collected from a clearly identified sample port located at the point of discharge and be analyzed for Turbidity, pH, and temperature using industry-standard calibrated measurement field devices.
- 9.5 Further to section 9.4, residual chitosan shall be analyzed at the point of discharge using industry-standard calibrated field devices for sites that utilize this material as a Water Treatment Chemical.
- 9.6 If off-site disposal of site run-off is approved by the City as the alternative to on-site water treatment, all tracking slips including disposal quantities to be provided with the environmental monitoring inspection report to the City no later than one week after the date of disposal.
- 9.7 The monitoring and reporting requirements under section 9 do not apply to single- and two-family dwelling construction.

10. Signage

- 10.1 Every site where ESC Facilities are in effect under an ESC Permit must have a waterproof sign posted as clearly visible from road frontage for the duration of Construction Works. The sign must clearly state the Permit Number, name and contact information of the Owner, Permit Holder, and City Operations, and, if applicable, the ESC Designer and ESC Supervisor.

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11. ESC Plan Amendments

11.1 ESC Plans must be updated to account for any changes that may occur onsite that affect the staging of work, location, or ESC Facilities that were originally accepted by the City. An amendment must be submitted to the City prior to the implementation of ESC changes on-site, and must include applicable amended drawings and detailed portions of the ESC Plan.

12. Security

12.1 To secure the full and proper compliance with the provisions of this Bylaw, the ESC Permit Holder or Owner for all Construction Works other than that for single- or two-family dwellings or City projects, is required to provide an Irrevocable Letter of Credit (ILOC) in an amount of 120% of the accepted ESC Plan implementation, monitoring, and maintenance cost or \$5,000, whichever is greater, as a security deposit. A detailed cost estimate, upon which the 120% ILOC is based, must be submitted to the City, and signed by both the ESC Designer and ESC Supervisor before the ESC Permit can be issued.

12.2 In the event the ESC Permit Holder has not complied with the provisions of this Bylaw or fulfilled all the terms and conditions expressed in the ESC Permit and Construction Works have commenced, the necessary funds from the ILOC may be drawn down, at the City's option, and the money used either by the City or its agents to protect the Drainage System.

12.3 If the amount of the security deposit is insufficient for the City to complete the remedial work, the ESC Permit Holder will pay any deficiency to the City on demand.

12.4 When the ESC Permit Holder complies with the provisions of this Bylaw, the City will return the security deposit at such a time as the ESC Supervisor provides the City with written notice that all Construction Works at the site are complete, the site is stable and under control, and no longer poses risks to the Drainage System, and the ESC Facilities have been removed to the satisfaction of the City.

12.5 Alternative forms of security are not preferable and are at the discretion of the General Manager.

13. Remedies

13.1 If during the Construction Works any Prohibited Materials enter the Drainage system, then the Owner, ESC Permit Holder, ESC Supervisor, or contractor performing the work shall immediately notify the appropriate federal, provincial, and municipal agencies and under the appropriate direction take remedial steps to remove such Prohibited Materials.

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13.2 If, in the opinion of the General Manager, immediate steps must be taken to prevent the likely escape of Prohibited Materials, or to stop an escape of Prohibited Materials which is ongoing, and/or if the General Manager is not satisfied that the persons responsible or Permit Holder has taken the appropriate steps to mitigate the damages, then the City may enter onto private property to take such steps as are necessary in the circumstances. The General Manager shall provide written notice of the actions taken or proposed to the landowner, Permit Holder, or persons responsible at the address as it appears on the records of the Land Title Office or other last known address. The cost of any work done by the City will be assessed to the landowner, Permit Holder, or persons responsible. The cost will be due and payable by December 31 of the year in which said costs were incurred and if unpaid on that date shall be deemed to be taxes in arrears and must promptly be so entered on the tax roll by the collector pursuant to the appropriate sections of the *Local Government Act* RSBC 2015, c 1. If the work is done on City property, the cost will be billed to the persons responsible for causing a discharge of Prohibited Materials to the Drainage System.

- a) The City may collect and submit site discharge for laboratory analysis of water-quality parameters. Should laboratory results confirm the presence of Prohibited Materials and thereby demonstrate ESC site discharge non-compliance, the cost of any laboratory fees incurred by the City to test water-quality parameters of ESC site discharge will be billed to the persons responsible for causing a discharge of Prohibited Materials to the Drainage System.
- b) Any response-based ESC site inspections by the City in response to three or more instances of non-compliance will be deemed superfluous and be compensated to the City as reinspection charges at a rate of \$150 drawn from ESC securities.

14. Authority to Enter Upon a Property

14.1 The General Manager and Bylaw Enforcement Officer or their designates are authorized to enter at all reasonable times upon any property for the purpose of ascertaining whether the regulations of this Bylaw are being observed.

15. Offence and Penalty

15.1 Every person who contravenes this Bylaw; causes, authorizes, or permits any act to be done in contravention of this Bylaw; or disregards or refrains from doing anything required to be done by any of the provisions of this Bylaw, terms and conditions of a permit or an order issued pursuant to this Bylaw commits an offence and is liable to a fine of up to \$1,000 for each offence. Each day that the violation continues is deemed a separate offence.

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16. Attachments and Schedules

16.1 The following schedules are attached to and form part of this Bylaw:

- Schedule A – Declaration of the Permit Holder;
- Schedule B – Letter of Undertaking;
- Schedule C – Letter of Appointment;
- Schedule D – Detailed Cost Estimate;
- Schedule E – Water Treatment Chemical Checklist; and
- Schedule F – Simplified ESC Plan.

17. Severability

17.1 If a portion of this Bylaw is found invalid by a court, it will be severed, and the remainder of the Bylaw will remain in effect.

Read a first time this ___ day of _____, 2023.

Read a second time this ___ day of _____, 2023.

Read a third time this ___ day of _____, 2023.

Adopted this ___ day of _____, 2023.

M. Lahti
Mayor

S. Lam
City Clerk

I hereby certify that the above is a true copy of Bylaw No. 3426 of the City of Port Moody.

S. Lam
City Clerk

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PORT MOODY
CITY OF THE ARTS

100 Newport Drive, Port Moody, B.C., V3H 5C3, Canada
Tel 604.469.4500 Fax 604.469.4550
www.portmoody.ca

SCHEDULE A

Declaration of the Permit Holder and ESC Permit

City of Port Moody Stream and Drainage Bylaw, 2023, No. 3426

Under City of Port Moody Stream and Drainage Bylaw, 2023, No. 3426, landowners, contractors, builders, and developers, are expected to adhere to Erosion and Sediment Control (ESC) measures to prevent the release of Prohibited Materials into the Drainage System.

Instructions:

For Single- and Two-Family Construction Works, please complete Section A. For all other Construction Works, please complete Section B.

SECTION A. Single and Two-Family Construction

NAME OF APPLICANT: _____

COMPANY NAME (IF APPLICABLE): _____

BUILDING PERMIT #: _____

PROJECT ADDRESS: _____

PHONE NUMBER: _____

EMAIL ADDRESS: _____

RELATIONSHIP TO PROJECT: OWNER CONTRACTOR

I, _____ declare that the following statements are true:

1. I understand that for the purpose of this declaration, defined terms are italicized and have the same meaning as set out in the City of Port Moody Stream and Drainage Bylaw, 2023, No. 3426.
2. I understand and acknowledge my responsibility to comply with the City's prohibitions of discharge;
3. I agree to adhere to ESC Facilities and best practices per the Simplified ESC Plan of Schedule F, unless a detailed ESC Plan is required under Section 7.1(b) of the Bylaw;
4. I will immediately notify the City and appropriate federal, provincial, and municipal agencies in the event of release of Prohibited Material to the Drainage System during or in relation to Construction Works, and take remedial steps to remove such Prohibited Material to the satisfaction of the City or to the applicable standards set out in the applicable environmental laws.

SIGNATURE OF APPLICANT	DATE

Personal information is collected by the City of Port Moody pursuant to Section 26 of the British Columbia *Freedom of Information and Protection of Privacy Act, R.S.B.C. 1996, c. 165*. Information collected will be used solely for the fulfillment of requirements for an Erosion and Sediment Control (ESC) Permit application.

Questions regarding this collection of information can be directed to the City of Port Moody Election Office by email at foi@portmoody.ca or by mail to 100 Newport Drive, Port Moody, B.C. V3H 5C3.

City of Port Moody Stream and Drainage Bylaw, 2023, No. 3426
EDMS#619823

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SECTION B. Construction Works Requiring an ESC Permit	
DEVELOPMENT PERMIT #: _____	
BUILDING PERMIT #: _____	
PROJECT ADDRESS: _____	
PROJECT NAME (IF APPLICABLE): _____	
NAME OF APPLICANT: _____	
TITLE: _____	
COMPANY NAME: _____	
PHONE NUMBER: _____	
EMAIL ADDRESS: _____	
RELATIONSHIP TO PROJECT: <input type="checkbox"/> OWNER <input type="checkbox"/> CONTRACTOR	
I, _____ declare that the following statements are true:	
<ol style="list-style-type: none"> 1. I understand that for the purpose of this declaration, defined terms are italicized and have the same meaning as set out in the City of Port Moody Stream and Drainage Bylaw, 2023, No. 3426. 2. I understand and acknowledge my responsibility to comply with the City's prohibitions of discharge; 3. I agree to adhere to ESC Facilities and best practices per the detailed ESC Plan accepted by the City under the ESC Permit; 4. I will immediately notify the City and appropriate federal, provincial, and municipal agencies in the event of release of Prohibited Material to the Drainage System during or in relation to Construction Works, and take remedial steps to remove such Prohibited Material to the satisfaction of the City or to the applicable standards set out in the applicable environmental laws. 	
SIGNATURE OF APPLICANT	DATE

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SCHEDULE B Letter of Undertaking

City of Port Moody Stream and Drainage Bylaw, 2023, No. 3426

Pertaining to Building Permit # _____ and/or Development Permit # _____

and/or works on City lands in the City of Port Moody, at [address] _____,

I/we _____ confirm that I/we commit to undertake the management and implementation of the accepted Erosion and Sediment Control (ESC) Plan OR Simplified ESC Plan (Single- or Two-Family Developments) including:

- inspection of the Construction Works to certify that they are being constructed in accordance with the accepted ESC Plan OR Simplified ESC Plan;
- periodic inspection of the works to certify that the standards of discharge established by this Bylaw are not exceeded;
- ensuring appropriate and timely measures are taken if site discharge exceeds the standards of discharge established by this Bylaw; and
- inspection of the receiving waters of the Drainage System before, during or after the Construction Works to determine whether Prohibited Material was discharged.

The ESC works required by an ESC Plan shall be inspected, maintained and operated for the duration of the Construction Works by the Owner and/or contractor performing the work as set out in the ESC Plan.

Erosion and Sediment Control (ESC) Supervisor:	
NAME:	
LANDOWNER:	<input type="checkbox"/> YES <input type="checkbox"/> NO
QUALIFIED PROFESSIONAL:	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A
COMPANY:	
PHONE NUMBER:	
EMAIL:	
ADDRESS:	
SIGNATURE:	
DATE:	
Professional Seal	
If applicable	

Personal information is collected by the City of Port Moody pursuant to Section 26 of the British Columbia *Freedom of Information and Protection of Privacy Act, R.S.B.C. 1996, c. 165*. Information collected will be used solely for the fulfillment of requirements for an Erosion and Sediment Control (ESC) Permit application.

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SCHEDULE C

Letter of Appointment

City of Port Moody Stream and Drainage Bylaw, 2023, No. 3426

Pertaining to Building Permit # _____ and/or Development Permit # _____
and/or capital works on City lands in the City of Port Moody, at ____ [address] _____,
I/we _____ confirm that I/we have retained:

Owner/ Authorized Agent:		Additional Owner(s) if applicable:	
NAME:		NAME:	
COMPANY:		COMPANY:	
PHONE NUMBER:		PHONE NUMBER:	
ADDRESS:		ADDRESS:	
SIGNATURE:		SIGNATURE:	
ESC Designer:			
NAME:		Professional Seal If applicable	
COMPANY:			
PHONE NUMBER:			
ADDRESS:			
QUALIFIED PROFESSIONAL:	<input type="checkbox"/> YES <input type="checkbox"/> NO		
SIGNATURE:			
ESC Supervisor:			
NAME:		Professional Seal If applicable	
COMPANY:			
PHONE NUMBER:			
ADDRESS:			
QUALIFIED PROFESSIONAL:	<input type="checkbox"/> YES <input type="checkbox"/> NO		
SIGNATURE:			
DATE COMPLETED: _____			
Personal information is collected by the City of Port Moody pursuant to Section 26 of the British Columbia <i>Freedom of Information and Protection of Privacy Act, R.S.B.C. 1996, c. 165</i> . Information collected will be used solely for the fulfillment of requirements for an Erosion and Sediment Control (ESC) Permit application. Questions regarding this collection of information can be directed to the City of Port Moody Election Office by email at foi@portmoody.ca or by mail to 100 Newport Drive, Port Moody, B.C. V3H 5C3.			

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SCHEDULE D Detailed Cost Estimate

City of Port Moody Stream and Drainage Bylaw, 2023, No. 3426

Section A of Schedule D must be completed along with an appended detailed cost estimate outlining the purchase, installation, maintenance, removal, and monitoring of Erosion and Sediment Control (ESC) Facilities during the duration of Construction Works associated with the subject ESC Permit.

SECTION A. Cost Estimate	
NAME OF PERSON SUBMITTING COST ESTIMATE:	_____
COMPANY NAME (IF APPLICABLE):	_____
RELATIONSHIP TO PROJECT:	<input type="checkbox"/> LANDOWNER <input type="checkbox"/> CONTRACTOR <input type="checkbox"/> DEVELOPER <input type="checkbox"/> ESC SUPERVISOR
PROJECT ADDRESS:	_____
PHONE NUMBER:	_____
EMAIL ADDRESS:	_____
DETAILED COST ESTIMATE ATTACHED:	<input type="checkbox"/> YES <input type="checkbox"/> NO
DATE COST ESTIMATE COMPLETED:	_____

Personal information is collected by the City of Port Moody pursuant to Section 26 of the British Columbia *Freedom of Information and Protection of Privacy Act, R.S.B.C. 1996, c. 165*. Information collected will be used solely for the fulfillment of requirements for an Erosion and Sediment Control (ESC) Permit application.

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SCHEDULE E

Water Treatment Chemical Checklist

City of Port Moody Stream and Drainage Bylaw, 2023, No. 3426

A Water Treatment Chemical means any substance which is intentionally introduced to water to alter the physical or chemical properties. The City reserves the right to reject any permission request to use any chemical or process, or require a more stringent process, if determined necessary.

Section A of Schedule E must be completed along with any necessary supporting documentation.

SECTION A. Water Treatment Chemical Details			
No.	Best Management Practice(s)	Attached Yes/No	Comments (optional)
1.	Intended use plan detailing the dose rates, operating conditions, and how the aquatic toxicity will be kept below the threshold values of the product, for each proposed chemical.		
2.	Safety Data Sheets (SDS) for each proposed chemical.		
3.	Product sheets, and other relevant information such as residual tests (coagulants and flocculants only).		
Based on my review of the information submitted with this application, I recommend using these chemical(s) under the intended use plan.			
NAME OF QUALIFIED PROFESSIONAL		COMPANY	
SIGNATURE OF QUALIFIED PROFESSIONAL		DATE	

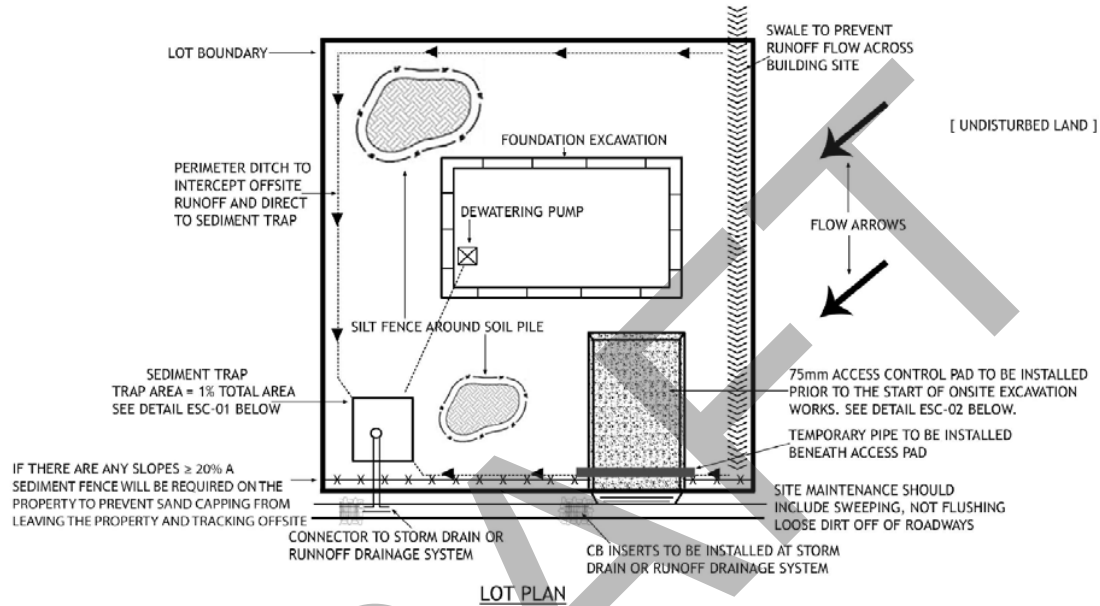
Personal information is collected by the City of Port Moody pursuant to Section 26 of the British Columbia *Freedom of Information and Protection of Privacy Act, R.S.B.C. 1996, c. 165*. Information collected will be used solely for the fulfillment of requirements for an Erosion and Sediment Control (ESC) Permit application.

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SCHEDULE F

Simplified Erosion and Sediment Control (ESC) Plan

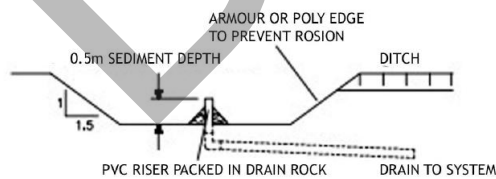
City of Port Moody Stream and Drainage Bylaw, 2023, No. 3426



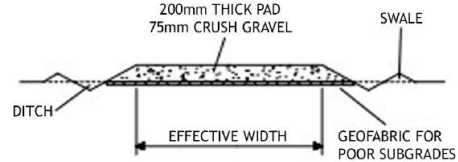
NOTES:

1. SEDIMENT TRAP TO BE INSTALLED IN THE LOW SIDE OF THE SITE NEAR THE DRAINAGE SYSTEM TIE IN.
2. ANY STOCKPILE MATERIALS TO BE COVERED AND ENCIRCLED BY SEDIMENT FENCE.
 - 2A. IF STOCKPILE IS KEPT ON EXISTING ASPHALT SEDIMENT FENCE IS TO BE REPLACED WITH A COMPOST WATTLE.
3. CAP EXPOSED SOILS ONCE THE FOUNDATION IS BACKFILLED WITH WASHED SAND OR STRAW.
4. PERIMETER PROTECTION MEASURES TO BE INSTALLED PRIOR TO INITIATING ONSITE CLEARING.
5. ACCESS CONTROL FACILITIES/ MEASURES TO BE INSTALLED AT ENTRY/ EXIT POINTS PRIOR TO INITIATING ONSITE CLEARING OR AT THE INITIAL STAGE OF CLEARING. ALL VEHICLE MOVEMENT TO AND FROM SITE TO BE RESTRICTED OR CONTROLLED AT ENTRY/ EXIT POINTS.
6. STORM DRAIN INLET PROTECTION MEASURES AT OR WITHIN EXISTING CATCH/ LAWN BASINS TO BE INSTALLED PRIOR TO INITIATING ONSITE CLEARING.
7. CONCRETE WASH WATER NEEDS TO BE COLLECTED AND EITHER DISPOSED OFFSITE AT AN APPROVED DISPOSAL FACILITY OR NEUTRALIZED TO pH 6.5-8.0. THIS NEEDS TO BE VERIFIED BY A CERTIFIED ESC INSPECTOR AND RESULTS SENT TO CITY FOR REVIEW PRIOR TO WATER BEING DISCHARGED TO CITY STORM / DRAINAGE SYSTEMS.
8. NEWLY CONSTRUCTED CATCH/ LAWN BASINS TO BE PROTECTED AS SOON AS INSTALLED.

DETAILS:



DEAIL ESC-01: SEDIMENT TRAP SECTION



DETAIL ESC-02: ACCESS ROAD SECTION

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Best Management Practices Matrix

Table 1 below outlines the minimum Best Management Practices (BMPs) to be followed when implementing a Simplified ESC Plan for different stages of construction.

Table 1. Minimum BMP and Audit Requirements During Different Stages of Construction

Stages of Construction		Best Management Practices
1. Site Clearing & Grubbing		
1.1 Site Clearing		A, B, D
1.2 Site Grubbing		A, B, C, D
2. Installation of Services		
2.1. Installation of Services On-Site		A, B, C, D, E, F, G
3. Building Construction		
3.1 Excavation, Shoring, and Foundation		A, B, C, D, E, F, G, H,
3.2 Construction		A, B, C, D, E, F, G
4. Final Grading and Landscaping		
4.1 Final Grading		A, B, D, E
4.2 Landscaping On-Site		A, B, D, E
Abbreviations		Examples
A	Perimeter Protection	Silt fencing, vegetation, gravel berm
B	Access Control	Gravel access pad, paved driveway
C	Stormwater Management / Drainage Control	Swales, dewatering pump/hose, sump, sediment trap
D	Storm Drain Inlet Protection	Silt sacks, silt socks
E	Road Sweeping	Manual or mechanical sweeping
F	Laydown Area	Rock pad, concrete pad
G	Exposed Soil Management	Polyethylene sheeting, straw, vegetation
H	Concrete Washout Facilities	Bucket, container, pit

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Item 4.2



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Summary of Proposed Update

- 1 Stream and Drainage Bylaw 2023, No. 3426 to replace the existing Stream and Drainage System Protection Bylaw 2000, No.2470
- 2 Changes to Erosion & Sediment Control (ESC) requirements and procedures

 Rationale:

- City Directives/Policies (e.g., Strategic Plans; 2020 Council-adopted Climate Action Plan)
- Regulatory Updates (e.g., Fisheries Act, BC Water Quality Guidelines)
- Other Drivers (e.g., improved industry standards/best practices, non-compliance, climate change)
- Standardization of the ESC process and alignment with other jurisdictions

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Item 4.2

Summary of Proposed Update

 Objectives: What are we hoping to achieve?

- Improve protection of infrastructure, receiving environment, and natural assets
- Improve customer service by providing clear expectations and procedures
- Modernize ESC requirements to support the Stream and Drainage Bylaw and due diligence

 Notable Bylaw Changes Proposed: How can we achieve our objectives?

1. Enhanced requirements for discharge water-quality and water-treatment chemicals
2. ESC Permit required for works needing a Building Permit or Development Permit
3. Escalating penalty system
4. ESC Security collected (with cost recovery mechanisms)
5. 'Real-Time' monitoring required for large developments

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Recommended Resolutions

THAT City of Port Moody Stream and Drainage Bylaw, 2023, No. 3426 be referred to the Regular Council meeting of October 24, 2023, for consideration of first three readings as recommended in the report dated October 17, 2023, from the Community Services Department – Environment Division regarding Proposed Update to Stream and Drainage System Protection Bylaw, No. 2470, 2000;

AND THAT, upon adoption of Bylaw No. 3426, staff be directed to prepare relevant amendments to City of Port Moody Municipal Ticket Information Authorization Bylaw, 2020, No. 3218;

AND THAT, upon adoption of Bylaw No. 3426, the associated fees be included in the 2024 City of Port Moody Fees Bylaw.

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Considered at the October 24, 2023, Regular Council meeting


Considered at the October 17, 2023, Governance and Legislation Committee meeting



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City Directives & Policies

- 
Climate Action Plan
 2020
S.13, Action 6: "Improve standards for erosion and sediment control for new developments and City projects."
- 
Council Strategic Plans
 2019-2022; 2023-2026
- 
Moody Centre Stormwater Management Servicing Plan
 2019
- 
Chines Integrated Stormwater Management Plan
 2019
- 
Official Community Plan
 2014










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Regulatory Frameworks

-  **Federal Fisheries Act**
-  **BC Approved Water Quality Guidelines**
-  **Canadian Environmental Quality Guidelines**
-  **MV Monitoring and Adaptive Management Framework**
Liquid Waste Resource Management Plan
-  **BC Water Sustainability Act**
-  **BC Environmental Management Act**









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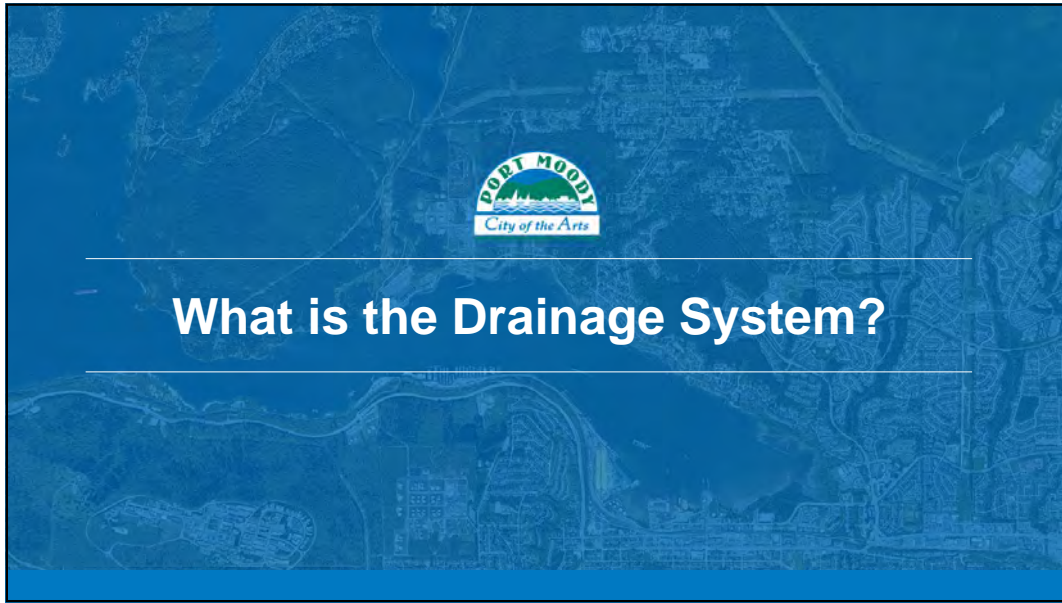
Other Drivers

-  **Industry Standards, Best Practices, New Technologies**
-  **Challenges with Non-Compliance, Spill-Source Tracking, Enforcement**
-  **Neighbouring Municipalities**
-  **Stakeholder Feedback (stewardship groups)**
-  **External & Internal Reviews of Port Moody's regulatory tools**
-  **Climate Change and Development Changes**

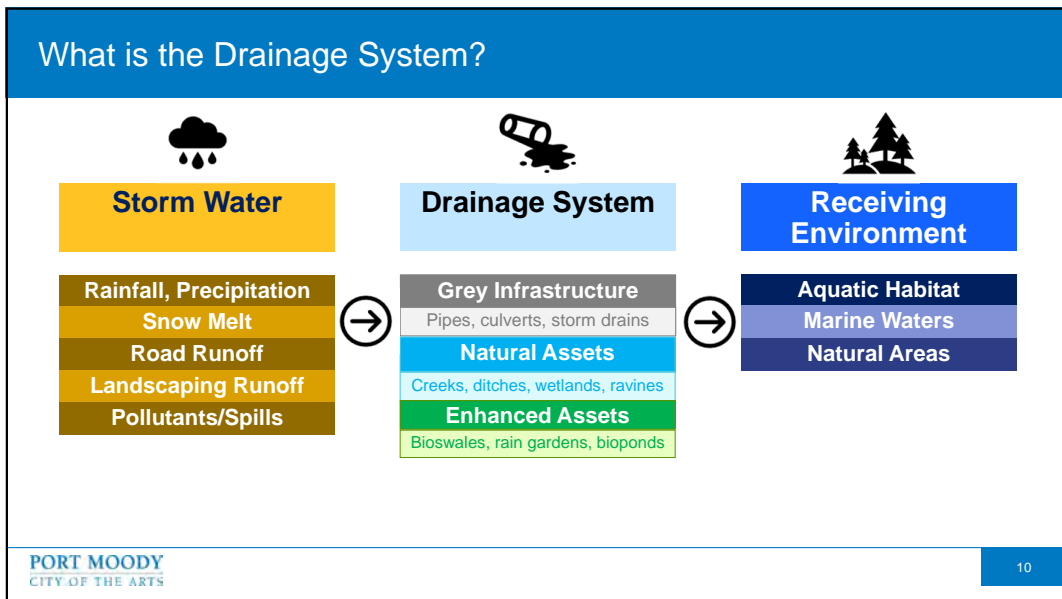
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Item 4.2

What does the Drainage System look like?

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What is ESC?

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What is Erosion and Sediment Control (ESC)?

 Measures, procedures, and technologies used to prevent the detachment, transport, and deposition of soils.

- Construction requirements by the City for DPs/BPs
- Silt fencing, poly sheeting, swales, access pads
- Weekly monitoring/reporting by an ESC Inspector

 Also includes means to capture or treat chemical pollutants related to building construction (e.g., concrete, paint, solvents).

- Water treatment systems
- 'Real-Time' monitoring systems with trigger valves






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What does ESC look like?












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Why is ESC important?

-  **Risks to Environment & Wildlife**
Soils, concrete, and other pollutants can have detrimental effects on fish, trees, natural areas.
-  **Risks to Infrastructure and Property**
Soils washed into storm drains can clog pipes and cause flooding of stream channels.
-  **Risks to Public Safety**
Uncontained soils and gravels can migrate to sidewalks and cause slip/trip hazards.
-  **Unightly Premises & Microplastics**
Poor housekeeping can result in muddy roads and plastic materials can get left behind.

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Why is ESC important?



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Item 4.2


How has ESC changed since 2000?

-  **More Development Overall**
Increased opportunities for soil disturbance from clearing and excavation.
-  **More Multi-Family and Mixed-Use Developments**
Deeper excavations (parkades), more concrete, more impervious surfaces (less infiltration).
-  **More Extreme Weather Events**
Increased frequency and severity of intense weather events.
-  **More Industry Standards, New Technologies, Best Management Practices**
ESCA-BC, CESCL, more stringent requirements from other municipalities.
-  **More Awareness and Expectations from the General Public**
Residents take initiative to report incidents for Staff investigation and follow-up.

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Notable Proposed Bylaw Amendments

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Notable Proposed Bylaw Amendments (new Bylaw)

 **Enhanced requirements for discharge water-quality and water-treatment chemicals**

- 'Prohibited materials' clearly outlined (with examples) to align with senior regulations
- Revised water-quality criteria to align with neighbouring municipalities (discrete values)
- Parameters can be easily field-measured to assess compliance (turbidity, pH, temperature, chitosan)
- Trigger values that require lab-testing if non-compliance is beyond a certain point (turbidity, pH)
- Only chitosan (flocculant) is permitted (see *City of Burnaby*)

 **ESC Permit required for works needing a Building Permit/Development Permit**


- Bylaw schedules to be completed prior to any soil disturbance
- Clarifies project roles, responsibilities, contact information, ESC Plans, water-treatment systems, etc.
- Includes chemical checklist to ensure the City knows what chemicals are proposed for use on-site
- Permit fee (**\$500**)
- Reduced ESC Permit requirements for Single- and Two-Family dwellings (no fee, no detailed ESC Plan)

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Notable Proposed Bylaw Amendments (new Bylaw)

 **Escalating Penalty System**

- Follows structure of Solid Waste Bylaw (**\$500, \$750, \$1,000**)
- Holds all people accountable if fouling (polluting) of the Drainage System occurs

 **ESC Security & Cost Recovery**


- 120% of ESC Cost Estimate collected (or **\$5,000** minimum)
- City can draw from security to remedy major ESC failures/emergencies
- City can draw from security for re-inspection fee (**\$150**) for repeat non-compliance (3+ Staff visits)
- Not required for Single- or Two-Family dwellings

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Notable Proposed Bylaw Amendments (new Bylaw)

 **Independent Continuous ('Real-Time') Monitoring**


- Required for sites >2,000m²
- Hardware/software technology provides live, online discharge water-quality data
- Bridges gaps inherent to weekly in-person ESC monitoring inspections
- Trigger valve prevents non-compliant water from entering the Drainage System
- Staff and project personnel can easily assess a site's ESC performance
- Monthly fee (~\$4,000) paid for by the Developer
- Staff have worked on six (6) projects in Port Moody and are familiar with the technology
- GM can exempt or require for smaller sites if specific criteria is met (e.g., proximity to ESA, steep slopes)
- Currently required in Burnaby and Coquitlam* (*Stoney Creek watershed, and at discretion of GM)


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Other things to accompany the update

 **Best Management Practices Document**
To be made available online and guide ESC Permit applicants on the process.

 **Stakeholder Training**
Staff to provide training opportunities for industry professionals to review new changes.

 **Request for Auditor**
Staff have submitted a capital request for \$15,000 to support ESC site auditing in 2024.

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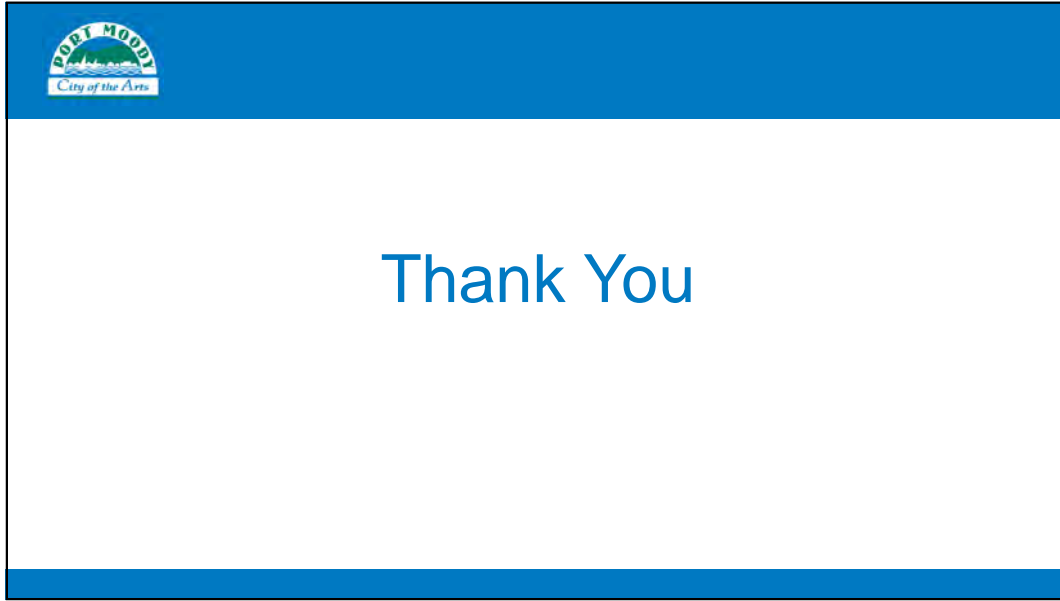
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Item 4.2

Table 1: Summary of Notable Proposed Changes, Stream and Drainage Bylaw 2023, No. 3426		
Proposed Change	Justification	Other Municipalities ²
Item 1		
Bylaw modernized for discharge standards, Best Management Practices requirements, and document submission requirements at all development sites.	Align better with federal and provincial requirements and water-quality criteria, and standards used by neighbouring municipalities. Ensures water quality of construction site discharge to drainage system and receiving environment meets requirements.	Coquitlam Burnaby Surrey Vancouver Langley (Town.) N. Vancouver (Dist.)
Item 2		
ESC Permit required preceding Building Permit and/or Development Permit* <i>*Simplified ESC Plan, reduced requirements, and no fees for small developments¹.</i>	Formalizes process to ensure best management practices are proactively considered and followed at all sites to protect the drainage system and receiving environment. Permit fee (\$500) covers administrative costs.	Surrey Burnaby Pitt Meadows Langley (Town.) New Westminster
Item 3		
ESC security collected under ESC Permit. Security to be 120% of cost estimate for ESC installation, maintenance, removal. <i>*Small developments¹ exempt.</i>	Security incentivises compliance and provides a reserve that the <u>City</u> can use to mitigate, serious ESC failures. Reinspection charges (\$150) are drawn from this security when 3+ Staff responses are necessary for non-compliance.	Coquitlam Surrey New Westminster Langley (Town.) N. Vancouver (City)
Item 4		
Escalating penalty system for Bylaw non-compliance.	Incentivise compliance with proposed fines following penalty structure of Solid Waste Bylaw No.3058 (\$500 to \$1,000 escalation).	New Westminster <i>Burnaby (\$500)</i> <i>Coquitlam (\$1,000)</i>
Item 5		
Independent Third-Party Continuous Monitoring technology required during construction for developments >2,000m²* <i>*General Manager may exempt sites >2,000m² or require sites <2,000m² to have technology per Bylaw Section 6.1.</i>	Bridges gap inherent to in-person ESC monitoring inspections. Allows for proactive response to ESC issues. Provides clear, data-driven evidence of site's ESC performance or compliance under wet-weather conditions. Requested by local stewardship groups to reduce pollution incidents. Approximate cost to Developer is \$4,000/month .	Coquitlam* Burnaby <i>*Stoney Creek watershed only.</i>
NOTES: 1 Small developments refers to Single- or Two-Family Dwellings 2 Similar or equivalent change implemented as of August 2023. List of cities shown represents examples and is not exhaustive.		



City of Port Moody

Bylaw No. 3426

A Bylaw to:

- a) protect the drainage system from damage, obstruction, interference, unauthorized use, alteration, or the release of prohibited materials;
- b) protect the City of Port Moody's employees, infrastructure, environment, and the public from exposure to dangerous conditions;
- c) protect, control, and monitor the volume and ensure that an acceptable quality of water enters the drainage system; and
- d) provide for a system of permits and permissions that impose conditions on releases to the drainage system.

WHEREAS there is an increasing recognition of the need to protect our shared streams and drainage systems and pursuant to the *Community Charter*, SBC 2003, c 27, Council has the authority by bylaw to regulate the design and installation of drainage works;

AND WHEREAS pursuant to the *Community Charter*, SBC 2003, c 27, Council has authority to regulate, prohibit, and impose requirements in relation to polluting or obstructing, or impeding the flow of, a stream, creek, waterway, watercourse, waterworks, ditch, drain, or sewer, whether or not it is located on private property;

AND WHEREAS pursuant to the *Community Charter*, SBC 2003, c 27, Council has the authority to impose requirements on persons undertaking the construction of works to maintain the proper flow of water in a stream, ditch, drain, or sewer;

AND WHEREAS pursuant to the *Community Charter*, SBC 2003, c 27, Council may impose penalties in relation to ticket offences for contravention of a bylaw;

NOW THEREFORE, the Council of the City of Port Moody enacts as follows:

1. Citation

- 1.1 This Bylaw may be cited as "City of Port Moody Stream and Drainage Bylaw, 2023, No. 3426".

2. Repeal

- 2.1 City of Port Moody Stream and Drainage System Protection Bylaw No. 2470, 2000 and all amendments thereto are hereby repealed.

3. Definitions

3.1 In this bylaw:

“Background” means immediately upstream of point of entry of the discharge.

“BMP” means best management practice(s).

“Bylaw Enforcement Officer” means the person appointed from time to time by the Council of the City of Port Moody to enforce City bylaws.

“City” means the City of Port Moody.

“Construction Works” means any activity which might cause or permit Prohibited Materials to be discharged into a Drainage System, including, but not limited to, land-clearing, removal of soil, deposit of soil or other material, construction of any building or structure, paving or concrete pouring, building demolition, and construction of any underground services, including the installation of drainage works.

“Drainage System” means the system and network of streams, creeks, waterways, ponds (excluding stormwater control ponds, but not their discharge), lakes, waterworks, ditches, drains or sewers, drainage works, mains, pipes, culverts, catch basins, leads, and curbs and gutters, located in the City on private or public property, by which surface or ground water is conveyed to receiving waters.

“Environmentally Sensitive Area (ESA)” means areas indicated as such on the City of Port Moody’s online mapping system, as amended from time to time.

“ESC” means erosion and sediment control.

“ESC Facilities” means all erosion and sediment control works, measures, facilities, and methods constructed or installed to reduce the likelihood of sediment, sediment-laden water, or prohibited materials reaching the Drainage System during all stages of construction.

“ESC Designer” means a Qualified Professional responsible for developing and amending an ESC Plan for the construction works.

“ESC Permit” means the erosion and sediment control permit issued by the City to the Owner or Permit Holder in accordance with the terms and conditions of this Bylaw.

“ESC Plan” means the specifications, drawings, plans, and design calculations for works to control and monitor the discharge of any Prohibited Materials from any source into the Drainage System.

“ESC Supervisor” means a Qualified Professional who assumes responsibility for inspecting, maintaining, monitoring, and reporting on the ESC Facilities constructed and installed pursuant to the approved ESC Plan.

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“Foul” means to deposit, discharge, spill, spray, leak, seep, pour, empty, place, dump, or wash, whether directly or indirectly, a prohibited materials into a Drainage System.

“General Manager” means the General Manager of Engineering and Operations or the General Manager of Community Services for the City of Port Moody or their designates.

“Owner” means the person listed as the registered Owner in the Land Title Office of the lands that are subject to an application for an ESC Permit.

“Paving” means any graded and hardened surface covered with materials comprised of asphalt, concrete, masonry, or combinations thereof.

“Permit Holder” means the person to whom the authority to carry out construction works is granted under a building permit or an ESC Permit.

“Prohibited Materials” includes, but is not limited to:

- a) soil, sediment, earth, or excavation waste, including sand, silt, clay, gravel, or other aggregate materials;
- b) concrete wash, solvents, paint, or household or industrial cleaning products;
- c) soaps, detergents, or chlorinated water;
- d) pesticides, herbicides, or fertilizers;
- e) waste oil, motor oil, cooking oil, wax, gasoline, diesel fuel, transmission fluid, or antifreeze;
- f) any ‘deleterious substance’ as defined under the *Fisheries Act*, RSC 1985, c. F-14 as amended or re-enacted from time to time;
- g) any ‘waste’ as defined under the *Environmental Management Act*, SBC 2003, c 53 as amended or re-enacted from time to time; and
- h) any substance or material that results in the water exceeding the *Approved and Working BC Water Quality Guidelines (BCWQGs)* or the *Canadian Environmental Quality Guidelines (CEQGs)* as amended or re-enacted from time to time.

“Qualified Professional” means an individual who:

- a) is registered and in good standing with one or more of the following professional organizations:
 - i) Engineers and Geoscientists British Columbia;
 - ii) College of Applied Biology;
 - iii) Applied Science Technologists and Technicians of BC;
 - iv) BC Institute of Agrologists; or
 - v) EnviroCert International (as a Certified Professional in Erosion and Sediment Control); or
 - vi) BC Society of Landscape Architects
- b) is acting under that organization’s code of ethics and subject to disciplinary action by that organization;

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- c) has an area of expertise that is recognized in the field of ESC for the purpose of providing all or part of the design, inspection, and monitoring of ESC facilities; and
- d) is acting within their area of expertise.

“Significant Rainfall Event (SRE)” means any precipitation event which meets or exceeds the intensity of 25mm precipitation within 24 hours or 10mm precipitation within 1 hour.

“Stream” means any of the following:

- a) a Watercourse, or body of water, whether or not usually containing water; or
- b) any of the following that is connected by surface flow to a Watercourse or body of water referred to in:
 - i) a ditch, whether or not usually containing water;
 - ii) a spring, whether or not usually containing water; or
 - iii) a wetland, as defined under the *Riparian Areas Protection Regulation*, B.C. Reg. 178/2019, as amended or re-enacted from time to time.

“Structure” means any material or a combination of materials that are constructed for use, occupancy, or ornamentation, whether installed on, above, or below the surface of land or water, but excludes paving.

“Turbidity” means the measurement of relative water clarity or cloudiness using a turbidimeter, as measured in Nephelometric Turbidity Units (NTU), which is an indirect measurement of total suspended solids.

“Watercourse” means a flowing waterbody, including those with flows that may be ephemeral, intermittent, temporary, or seasonal in nature that is connected to a downstream waterbody, either naturally or artificially, including via a storm sewer pipe. Class A, B, or C Watercourses are described in accordance with the City’s Official Community Plan.

“Water Treatment Chemical” means any substance which is intentionally introduced to water to alter the physical or chemical properties.

“Water Treatment System” means on-site facilities installed with the purpose of treating site effluent to meet the requirements of this Bylaw.

4. Prohibitions of Discharge

- 4.1 No person shall Foul, obstruct or impede a Drainage System, or permit any Prohibited Materials or water containing any Prohibited Materials to be discharged, dumped, deposited, spilled, or washed directly or indirectly into a Drainage System.

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- 4.2 Without limiting the generality of section 4.1, no person shall cause or permit to be released, directly or indirectly into the Drainage System any Prohibited Materials, water, or substances which when mixed with water or Water Treatment Chemical, results in:
- a) a discharge with a pH value outside the range of 6.5 to 8.0;
 - b) a discharge exceeding Turbidity level of 75 NTU during and for 24 hours following a Significant Rainfall Event, or 25 NTU during any other time;
 - c) a discharge exceeding total suspended solid levels of 75 mg/L during and for 24 hours following a Significant Rainfall Event, or 25 mg/L during any other time; or
 - d) a discharge with temperatures higher than 16 degrees Celsius in the dry season (May-September) and 12 degrees Celsius in the wet season (October-April).
- 4.3 Any non-compliance with section 4.1 must be remedied immediately by the persons responsible to the satisfaction of the City.
- 4.4 Any non-compliance with section 4.1 must be immediately reported by the persons responsible to the City.
- 4.5 Compliance with the limits outlined in section 4.2 must be monitored at point of discharge.
- 4.6 Site discharge with pH values >9 or <5, or NTU values exceeding 100, as field-sampled by a Qualified Professional, is to be immediately sampled and submitted for laboratory analysis of pH, total suspended solids, total metals, and dissolved metals. Copies of laboratory results are to be provided via email to the City.
- 4.7 The General Manager may allow for non-compliance under section 4.2, if the background water-quality conditions off-site conditions outside of the project boundary are demonstrated to be contributing factors of non-compliance, as demonstrated by a technical report prepared by a Qualified Professional and submitted to the City.
- 5. Construction Works and ESC Permit**
- 5.1 No person undertaking any Construction Works shall place, store, transport, or dispose of any Prohibited Materials in such a manner so as to permit the likely escape of the materials into a Drainage System.
- 5.2 No person shall suffer or permit the discharge or washing of cement or concrete during the construction of exposed aggregate driveways, patios, other surfaces, or from concrete vehicles or concrete equipment onto any highway, sidewalk, publicly owned land, or into a Drainage System.
- 5.3 No person shall suffer or permit any water to be discharged directly or indirectly from any property that does not continuously and at all times meet or exceed the requirements of this Bylaw.

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- 5.4 An ESC Permit is required prior to any Construction Works that require a Building Permit or Development Permit, or are occurring on City lands as part of works on behalf of the City or on behalf of a third party.
- 5.5 In the case of Construction Works related to an ESC Permit for the construction of a single- or two-family dwelling, an application for an ESC Permit must include:
- an ESC Plan, if required under section 7.1(b);
 - a Declaration of the Permit Holder and ESC Permit in the form of Schedule A;
 - a Letter of Undertaking in the form of Schedule B.
- 5.6 Notwithstanding section 5.5, an application for an ESC Permit for all other Construction Works requiring a Building Permit or Development Permit, a Building Permit or Development Permit, or are occurring on City lands as part of works on behalf of the City or on behalf of a third party, must include:
- an ESC Plan;
 - a Declaration of the Permit Holder and ESC Permit in the form of Schedule A;
 - a Letter of Undertaking in the form of Schedule B;
 - a Letter of Appointment in the form of Schedule C;
 - a Detailed Cost Estimate in the form of Schedule D;
 - a Water Treatment Chemical Checklist in the form of Schedule E;
 - a security in an amount of 120% of the accepted ESC Plan implementation, monitoring, and maintenance cost or \$5,000, whichever is greater; and
 - payment of the ESC Permit fee.
- 5.7 If during any Construction Works, any Prohibited Materials, or water that exceeds the limits outlined in 4.2, is being released directly or indirectly into the Drainage System, or otherwise impedes the Drainage System, the Permit Holder must immediately notify the City, as well as the appropriate federal and provincial agencies.
- 5.8 Any groundwater diverted during Construction Works must comply with the provincial *Water Sustainability Act*, SBC 2014, c 15 and its regulations as amended or re-enacted from time to time.
- 5.9 All Water Treatment Chemicals, as part of a Water Treatment System or as administered directly to water prior to discharge to the Drainage System, must adhere to the following:
- Chitosan acetate 1-2% (liquid form of chitosan) is the only approved material permitted to mitigate Turbidity. Dry coagulants and flocculants are not permitted for use in the City of Port Moody.
 - Liquid mineral acids (e.g., citric acid), strong alkali (e.g., caustic soda, sodium carbonate solution) and hazardous chemicals to mitigate pH levels must have secondary spill containment (110% volume).
 - All Water Treatment Chemicals:
 - must be labelled in accordance with WHMIS 2015 requirements, with current Safety Data Sheets (SDS) in accordance with WHMIS 2015 requirements readily available on site during use;
 - must not be used beyond their expiry date;

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- iii) must not bring dissolved and total concentrations of metals, hydrocarbons, and inorganics in the discharge above respective *British Columbia Approved Water Quality Guidelines: Aquatic Life* and/or *Canadian Environmental Quality Guidelines for the Protection of Aquatic Life*, whichever is more stringent, even at the highest concentration (dose rate) used in water treatment operation.
- iv) must be administered at the dose rate and chemistry per manufacturer specifications and as defined per Schedule E. No change of chemistry or chemical substitution is permitted without prior written approval from the City of Port Moody.

5.10 The ESC Permit requirements under sections 5.6(g) and 5.6(h) do not apply to City projects.

6. Post-Treatment Qualifications

6.1 All discharges from the Water Treatment System(s) at sites exceeding 2,000m² must be monitored continuously, in real-time by a third-party that is independent from both the water treatment provider and ESC Supervisor, unless exempted by the General Manager in the event that the technology is unavailable, the technology cannot be feasibility installed on site, or if water will be captured and removed from site without discharging to the Drainage System. Sites smaller than 2,000m² may be required to implement continuous monitoring, as described above, at the discretion of the General Manager if one or more criteria is met as prescribed in section 7.1(b).

- a) The real-time monitoring system must include discharge shutoff and redirection of water exceeding criteria listed in section 4.2 back to the site for additional treatment or recirculation, until it is compliant with section 4.2.
- b) Minimum requirements for real-time monitoring are to include pH, Turbidity, temperature, flow rate, and volume of discharge(s) with a minimum acquisition and transmission frequency of 60 seconds, to minimize the volume of non-compliant water discharged to the Drainage System.
- c) The real-time monitoring system must remain in place until the City provides written approval to remove it.

6.2 The City must be provided access to the real-time data, including notifications within 48 hours of installation of the monitoring system and no later than the date of the first discharge to the Drainage System.

6.3 A clearly identified sample port located at the point of discharge of the Water Treatment System must be provided.

7. ESC Plan

7.1 General requirements:

- a) Single- and two-family dwelling unit construction and landscaping activities may utilize the example of sediment control works and BMPs provided in Schedule F, Simplified ESC Plan when applying for an ESC Permit.

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- b) The General Manager may require the Permit Holder to provide a detailed ESC Plan meeting criteria outlined in sections 7.1(c) and 7.1(d) in accordance with single- and two-family dwelling sites that meet one or more of the following criteria:
 - i) the construction site is within 30 metres to a stream or Environmentally Sensitive Area;
 - ii) construction on slopes greater than 20%; or
 - iii) construction on lands having a history of erosion events, or lands designated by a geotechnical study as being subject to geotechnical hazards, including but not limited to landslides or flooding, or Hazardous Lands or Steep Slope areas per the City's Official Community Plan.
- c) An ESC Plan submitted under an application for an ESC Permit, shall set out works and measures required during Construction Works to prevent the discharge of Prohibited Materials to the Drainage System. This shall include such detailed plans, specifications, and design calculations necessary to describe any works required to convey, control, and treat run-off water from the Construction Works.
- d) The ESC Plan must be prepared, signed, and sealed, by the ESC Designer, and reviewed and signed by the appointed ESC Supervisor.

8. Maintenance

- 8.1 All ESC Facilities are to be inspected and maintained daily until Construction Works at the site are complete, the site is stable and under control, and no longer poses risks to the Drainage System, and the ESC Facilities have been removed to the satisfaction of the City.
- 8.2 The Permit Holder shall correct any deficiencies in ESC Facilities immediately. If the Permit Holder fails to correct the deficiencies, they must be corrected by the Owner, or the City will correct the deficiencies at the Owner's expense.
- 8.3 Upon completion of construction, the Permit Holder shall remove all sediment from the onsite storm mains and ESC Facilities, especially sediment fencing, to the satisfaction of the ESC Supervisor and the City. CCTV inspection and flushing is required, if applicable.
- 8.4 If applicable, Water Treatment System components shall only be removed upon City approval and when the ESC Permit Holder effectively demonstrates that there are no outstanding deficiencies with ESC Facilities and that pre-treated water meets the requirement of this Bylaw at all times during an 8-week period or three Significant Rainfall Events (SREs), whichever occurs first.
- 8.5 If applicable, the independent third-party continuous monitoring system shall only be removed upon City approval and when the ESC Permit Holder is able to demonstrate that discharge remains compliant with the Bylaw, in the absence of a Water Treatment System for an 8-week period or three Significant Rain Events (SREs), whichever occurs first.

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9. Monitoring and Reporting

- 9.1 All ESC monitoring inspections are to be carried out by the ESC Supervisor, or their designates, up to the expiry of the ESC Permit weekly and within 24 hours of each Significant Rainfall Event (SRE). If more than two SREs occur within 7 days (Monday through Sunday), two site ESC monitoring inspections per week will be deemed acceptable, except for when a deficiency is identified during an inspection.
- a) Between May 1 and September 30, inspection frequency may be reduced to bi-weekly and within 24 hours of each SRE by submitting a written request to the City from the ESC Supervisor, subject to continued site compliance and approval by the City.
- 9.2 The Permit Holder shall complete an ESC monitoring inspection report in the form provided by the City within 7 days of the ESC monitoring inspection date. The Permit Holder shall report any ESC Permit violations to the City immediately. The first monitoring inspection must be completed within 7 days of Construction Works commencing.
- 9.3 The Permit Holder shall immediately notify the City and cease Construction Works, if for any reason the ESC Supervisor's services are terminated or withdrawn, until a replacement ESC Supervisor is appointed.
- 9.4 Grab samples for compliance monitoring shall be collected from a clearly identified sample port located at the point of discharge and be analyzed for Turbidity, pH, and temperature using industry-standard calibrated measurement field devices.
- 9.5 Further to section 9.4, residual chitosan shall be analyzed at the point of discharge using industry-standard calibrated field devices for sites that utilize this material as a Water Treatment Chemical.
- 9.6 If off-site disposal of site run-off is approved by the City as the alternative to on-site water treatment, all tracking slips including disposal quantities to be provided with the environmental monitoring inspection report to the City no later than one week after the date of disposal.
- 9.7 The monitoring and reporting requirements under section 9 do not apply to single- and two-family dwelling construction.

10. Signage

- 10.1 Every site where ESC Facilities are in effect under an ESC Permit must have a waterproof sign posted as clearly visible from road frontage for the duration of Construction Works. The sign must clearly state the Permit Number, name and contact information of the Owner, Permit Holder, and City Operations, and, if applicable, the ESC Designer and ESC Supervisor.

Considered at the October 24, 2023, Regular Council meeting

11. ESC Plan Amendments

11.1 ESC Plans must be updated to account for any changes that may occur onsite that affect the staging of work, location, or ESC Facilities that were originally accepted by the City. An amendment must be submitted to the City prior to the implementation of ESC changes on-site, and must include applicable amended drawings and detailed portions of the ESC Plan.

12. Security

12.1 To secure the full and proper compliance with the provisions of this Bylaw, the ESC Permit Holder or Owner for all Construction Works other than that for single- or two-family dwellings or City projects, is required to provide an Irrevocable Letter of Credit (ILOC) in an amount of 120% of the accepted ESC Plan implementation, monitoring, and maintenance cost or \$5,000, whichever is greater, as a security deposit. A detailed cost estimate, upon which the 120% ILOC is based, must be submitted to the City, and signed by both the ESC Designer and ESC Supervisor before the ESC Permit can be issued.

12.2 In the event the ESC Permit Holder has not complied with the provisions of this Bylaw or fulfilled all the terms and conditions expressed in the ESC Permit and Construction Works have commenced, the necessary funds from the ILOC may be drawn down, at the City's option, and the money used either by the City or its agents to protect the Drainage System.

12.3 If the amount of the security deposit is insufficient for the City to complete the remedial work, the ESC Permit Holder will pay any deficiency to the City on demand.

12.4 When the ESC Permit Holder complies with the provisions of this Bylaw, the City will return the security deposit at such a time as the ESC Supervisor provides the City with written notice that all Construction Works at the site are complete, the site is stable and under control, and no longer poses risks to the Drainage System, and the ESC Facilities have been removed to the satisfaction of the City.

12.5 Alternative forms of security are not preferable and are at the discretion of the General Manager.

13. Remedies

13.1 If during the Construction Works any Prohibited Materials enter the Drainage system, then the Owner, ESC Permit Holder, ESC Supervisor, or contractor performing the work shall immediately notify the appropriate federal, provincial, and municipal agencies and under the appropriate direction take remedial steps to remove such Prohibited Materials.

Considered at the October 24, 2023, Regular Council meeting

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Attachment 3

13.2 If, in the opinion of the General Manager, immediate steps must be taken to prevent the likely escape of Prohibited Materials, or to stop an escape of Prohibited Materials which is ongoing, and/or if the General Manager is not satisfied that the persons responsible or Permit Holder has taken the appropriate steps to mitigate the damages, then the City may enter onto private property to take such steps as are necessary in the circumstances. The General Manager shall provide written notice of the actions taken or proposed to the landowner, Permit Holder, or persons responsible at the address as it appears on the records of the Land Title Office or other last known address. The cost of any work done by the City will be assessed to the landowner, Permit Holder, or persons responsible. The cost will be due and payable by December 31 of the year in which said costs were incurred and if unpaid on that date shall be deemed to be taxes in arrears and must promptly be so entered on the tax roll by the collector pursuant to the appropriate sections of the *Local Government Act* RSBC 2015, c 1. If the work is done on City property, the cost will be billed to the persons responsible for causing a discharge of Prohibited Materials to the Drainage System.

- a) The City may collect and submit site discharge for laboratory analysis of water-quality parameters. Should laboratory results confirm the presence of Prohibited Materials and thereby demonstrate ESC site discharge non-compliance, the cost of any laboratory fees incurred by the City to test water-quality parameters of ESC site discharge will be billed to the persons responsible for causing a discharge of Prohibited Materials to the Drainage System.
- b) Any response-based ESC site inspections by the City in response to three or more instances of non-compliance will be deemed superfluous and be compensated to the City as reinspection charges at a rate of \$150 drawn from ESC securities.

14. Authority to Enter Upon a Property

14.1 The General Manager and Bylaw Enforcement Officer or their designates are authorized to enter at all reasonable times upon any property for the purpose of ascertaining whether the regulations of this Bylaw are being observed.

15. Offence and Penalty

15.1 Every person who contravenes this Bylaw; causes, authorizes, or permits any act to be done in contravention of this Bylaw; or disregards or refrains from doing anything required to be done by any of the provisions of this Bylaw, terms and conditions of a permit or an order issued pursuant to this Bylaw commits an offence and is liable to a fine of up to \$1,000 for each offence. Each day that the violation continues is deemed a separate offence.

Considered at the October 24, 2023, Regular Council meeting

16. Attachments and Schedules

16.1 The following schedules are attached to and form part of this Bylaw:

- Schedule A – Declaration of the Permit Holder;
- Schedule B – Letter of Undertaking;
- Schedule C – Letter of Appointment;
- Schedule D – Detailed Cost Estimate;
- Schedule E – Water Treatment Chemical Checklist; and
- Schedule F – Simplified ESC Plan.

17. Severability

17.1 If a portion of this Bylaw is found invalid by a court, it will be severed, and the remainder of the Bylaw will remain in effect.

Read a first time this ___ day of _____, 2023.

Read a second time this ___ day of _____, 2023.

Read a third time this ___ day of _____, 2023.

Adopted this ___ day of _____, 2023.

M. Lahti
Mayor

S. Lam
City Clerk

I hereby certify that the above is a true copy of Bylaw No. 3426 of the City of Port Moody.

S. Lam
City Clerk

Considered at the October 24, 2023, Regular Council meeting



Attachment 3
100 Newport Drive, Port Moody, B.C., V3H 5C3, Canada
Tel 604.469.4500 Fax 604.469.4550
www.portmoody.ca

SCHEDULE A

Declaration of the Permit Holder and ESC Permit

City of Port Moody Stream and Drainage Bylaw, 2023, No. 3426

Under City of Port Moody Stream and Drainage Bylaw, 2023, No. 3426, landowners, contractors, builders, and developers, are expected to adhere to Erosion and Sediment Control (ESC) measures to prevent the release of Prohibited Materials into the Drainage System.

Instructions:

For Single- and Two-Family Construction Works, please complete Section A. For all other Construction Works, please complete Section B.

SECTION A. Single and Two-Family Construction	
NAME OF APPLICANT: _____	
COMPANY NAME (IF APPLICABLE): _____	
BUILDING PERMIT #: _____	
PROJECT ADDRESS: _____	
PHONE NUMBER: _____	
EMAIL ADDRESS: _____	
RELATIONSHIP TO PROJECT: <input type="checkbox"/> OWNER <input type="checkbox"/> CONTRACTOR	
I, _____ declare that the following statements are true:	
<ol style="list-style-type: none"> 1. I understand that for the purpose of this declaration, defined terms are italicized and have the same meaning as set out in the City of Port Moody Stream and Drainage Bylaw, 2023, No. 3426. 2. I understand and acknowledge my responsibility to comply with the City's prohibitions of discharge; 3. I agree to adhere to ESC Facilities and best practices per the Simplified ESC Plan of Schedule F, unless a detailed ESC Plan is required under Section 7.1(b) of the Bylaw; 4. I will immediately notify the City and appropriate federal, provincial, and municipal agencies in the event of release of Prohibited Material to the Drainage System during or in relation to Construction Works, and take remedial steps to remove such Prohibited Material to the satisfaction of the City or to the applicable standards set out in the applicable environmental laws. 	
SIGNATURE OF APPLICANT	DATE

Personal information is collected by the City of Port Moody pursuant to Section 26 of the British Columbia *Freedom of Information and Protection of Privacy Act, R.S.B.C. 1996, c. 165*. Information collected will be used solely for the fulfillment of requirements for an Erosion and Sediment Control (ESC) Permit application.

Questions regarding this collection of information can be directed to the City of Port Moody Election Office by email at foi@portmoody.ca or by mail to 100 Newport Drive, Port Moody, B.C. V3H 5C3.

Considered at the October 24, 2023, Regular Council meeting

SECTION B. Construction Works Requiring an ESC Permit	
DEVELOPMENT PERMIT #: _____	
BUILDING PERMIT #: _____	
PROJECT ADDRESS: _____	
PROJECT NAME (IF APPLICABLE): _____	
NAME OF APPLICANT: _____	
TITLE: _____	
COMPANY NAME: _____	
PHONE NUMBER: _____	
EMAIL ADDRESS: _____	
RELATIONSHIP TO PROJECT: <input type="checkbox"/> OWNER <input type="checkbox"/> CONTRACTOR	
I, _____ declare that the following statements are true:	
<ol style="list-style-type: none"> 1. I understand that for the purpose of this declaration, defined terms are italicized and have the same meaning as set out in the City of Port Moody Stream and Drainage Bylaw, 2023, No. 3426. 2. I understand and acknowledge my responsibility to comply with the City's prohibitions of discharge; 3. I agree to adhere to ESC Facilities and best practices per the detailed ESC Plan accepted by the City under the ESC Permit; 4. I will immediately notify the City and appropriate federal, provincial, and municipal agencies in the event of release of Prohibited Material to the Drainage System during or in relation to Construction Works, and take remedial steps to remove such Prohibited Material to the satisfaction of the City or to the applicable standards set out in the applicable environmental laws. 	
SIGNATURE OF APPLICANT	DATE

Personal information is collected by the City of Port Moody pursuant to Section 26 of the British Columbia *Freedom of Information and Protection of Privacy Act, R.S.B.C. 1996, c. 165*. Information collected will be used solely for the fulfillment of requirements for an Erosion and Sediment Control (ESC) Permit application.

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Considered at the October 24, 2023, Regular Council meeting

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Attachment 3
 100 Newport Drive, Port Moody, B.C., V3H 5C3, Canada
 Tel 604.469.4500 Fax 604.469.4550
 www.portmoody.ca

SCHEDULE B Letter of Undertaking

City of Port Moody Stream and Drainage Bylaw, 2023, No. 3426

Pertaining to Building Permit # _____ and/or Development Permit # _____

and/or works on City lands in the City of Port Moody, at [address]_____.

I/we _____ confirm that I/we commit to undertake the management and implementation of the accepted Erosion and Sediment Control (ESC) Plan OR Simplified ESC Plan (Single- or Two-Family Developments) including:

- inspection of the Construction Works to certify that they are being constructed in accordance with the accepted ESC Plan OR Simplified ESC Plan;
- periodic inspection of the works to certify that the standards of discharge established by this Bylaw are not exceeded;
- ensuring appropriate and timely measures are taken if site discharge exceeds the standards of discharge established by this Bylaw; and
- inspection of the receiving waters of the Drainage System before, during or after the Construction Works to determine whether Prohibited Material was discharged.

The ESC works required by an ESC Plan shall be inspected, maintained and operated for the duration of the Construction Works by the Owner and/or contractor performing the work as set out in the ESC Plan.

Erosion and Sediment Control (ESC) Supervisor:		
NAME:		Professional Seal If applicable
LANDOWNER:	<input type="checkbox"/> YES <input type="checkbox"/> NO	
QUALIFIED PROFESSIONAL:	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A	
COMPANY:		
PHONE NUMBER:		
EMAIL:		
ADDRESS:		
SIGNATURE:		
DATE:		

Personal information is collected by the City of Port Moody pursuant to Section 26 of the British Columbia *Freedom of Information and Protection of Privacy Act, R.S.B.C. 1996, c. 165*. Information collected will be used solely for the fulfillment of requirements for an Erosion and Sediment Control (ESC) Permit application.

Questions regarding this collection of information can be directed to the City of Port Moody Election Office by email at foi@portmoody.ca or by mail to 100 Newport Drive, Port Moody, B.C. V3H 5C3.

Considered at the October 24, 2023, Regular Council meeting

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Attachment 3
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 Tel 604.469.4500 Fax 604.469.4550
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SCHEDULE C Letter of Appointment

City of Port Moody Stream and Drainage Bylaw, 2023, No. 3426

Pertaining to Building Permit # _____ and/or Development Permit # _____
 and/or capital works on City lands in the City of Port Moody, at ____ [address] _____,
 I/we _____ confirm that I/we have retained:

Owner/ Authorized Agent:		Additional Owner(s) if applicable:	
NAME:		NAME:	
COMPANY:		COMPANY:	
PHONE NUMBER:		PHONE NUMBER:	
ADDRESS:		ADDRESS:	
SIGNATURE:		SIGNATURE:	
ESC Designer:			
NAME:		Professional Seal If applicable	
COMPANY:			
PHONE NUMBER:			
ADDRESS:			
QUALIFIED PROFESSIONAL:	<input type="checkbox"/> YES <input type="checkbox"/> NO		
SIGNATURE:			
ESC Supervisor:			
NAME:		Professional Seal If applicable	
COMPANY:			
PHONE NUMBER:			
ADDRESS:			
QUALIFIED PROFESSIONAL:	<input type="checkbox"/> YES <input type="checkbox"/> NO		
SIGNATURE:			
DATE COMPLETED: _____			
Personal information is collected by the City of Port Moody pursuant to Section 26 of the British Columbia <i>Freedom of Information and Protection of Privacy Act, R.S.B.C. 1996, c. 165</i> . Information collected will be used solely for the fulfillment of requirements for an Erosion and Sediment Control (ESC) Permit application. Questions regarding this collection of information can be directed to the City of Port Moody Election Office by email at foi@portmoody.ca or by mail to 100 Newport Drive, Port Moody, B.C. V3H 5C3.			



Attachment 3
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SCHEDULE D Detailed Cost Estimate

City of Port Moody Stream and Drainage Bylaw, 2023, No. 3426

Section A of Schedule D must be completed along with an appended detailed cost estimate outlining the purchase, installation, maintenance, removal, and monitoring of Erosion and Sediment Control (ESC) Facilities during the duration of Construction Works associated with the subject ESC Permit.

SECTION A. Cost Estimate	
NAME OF PERSON SUBMITTING COST ESTIMATE:	_____
COMPANY NAME (IF APPLICABLE):	_____
RELATIONSHIP TO PROJECT:	<input type="checkbox"/> LANDOWNER <input type="checkbox"/> CONTRACTOR <input type="checkbox"/> DEVELOPER <input type="checkbox"/> ESC SUPERVISOR
PROJECT ADDRESS:	_____
PHONE NUMBER:	_____
EMAIL ADDRESS:	_____
DETAILED COST ESTIMATE ATTACHED:	<input type="checkbox"/> YES <input type="checkbox"/> NO
DATE COST ESTIMATE COMPLETED:	_____

Personal information is collected by the City of Port Moody pursuant to Section 26 of the British Columbia *Freedom of Information and Protection of Privacy Act, R.S.B.C. 1996, c. 165*. Information collected will be used solely for the fulfillment of requirements for an Erosion and Sediment Control (ESC) Permit application.

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Considered at the October 24, 2023, Regular Council meeting

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SCHEDULE E

Water Treatment Chemical Checklist

City of Port Moody Stream and Drainage Bylaw, 2023, No. 3426

A Water Treatment Chemical means any substance which is intentionally introduced to water to alter the physical or chemical properties. The City reserves the right to reject any permission request to use any chemical or process, or require a more stringent process, if determined necessary.

Section A of Schedule E must be completed along with any necessary supporting documentation.

SECTION A. Water Treatment Chemical Details			
No.	Best Management Practice(s)	Attached Yes/No	Comments (optional)
1.	Intended use plan detailing the dose rates, operating conditions, and how the aquatic toxicity will be kept below the threshold values of the product, for each proposed chemical.		
2.	Safety Data Sheets (SDS) for each proposed chemical.		
3.	Product sheets, and other relevant information such as residual tests (coagulants and flocculants only).		
Based on my review of the information submitted with this application, I recommend using these chemical(s) under the intended use plan.			
NAME OF QUALIFIED PROFESSIONAL		COMPANY	
SIGNATURE OF QUALIFIED PROFESSIONAL		DATE	

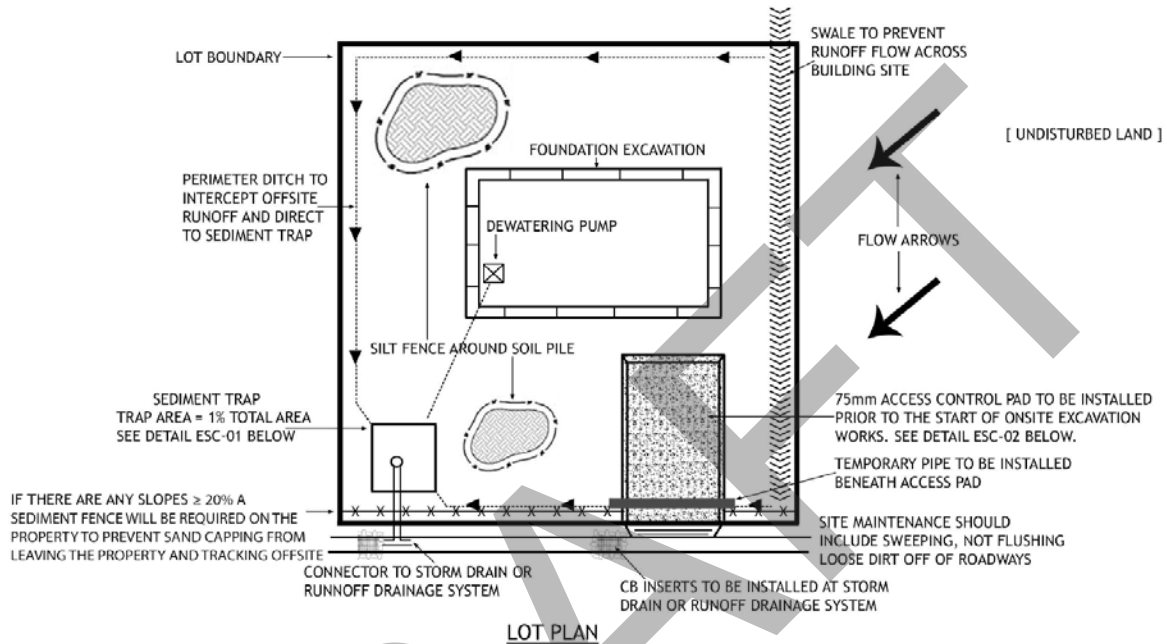
Personal information is collected by the City of Port Moody pursuant to Section 26 of the British Columbia *Freedom of Information and Protection of Privacy Act*, R.S.B.C. 1996, c. 165. Information collected will be used solely for the fulfillment of requirements for an Erosion and Sediment Control (ESC) Permit application.

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SCHEDULE F

Simplified Erosion and Sediment Control (ESC) Plan

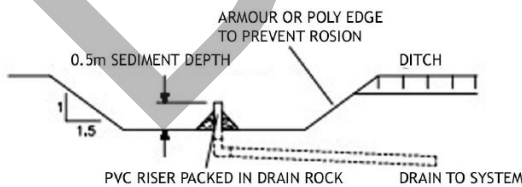
City of Port Moody Stream and Drainage Bylaw, 2023, No. 3426



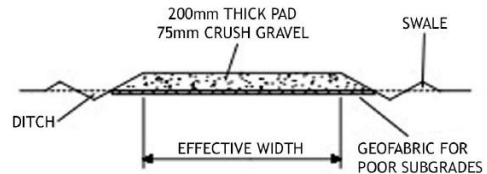
NOTES:

1. SEDIMENT TRAP TO BE INSTALLED IN THE LOW SIDE OF THE SITE NEAR THE DRAINAGE SYSTEM TIE IN.
2. ANY STOCKPILE MATERIALS TO BE COVERED AND ENCIRCLED BY SEDIMENT FENCE.
2A. IF STOCKPILE IS KEPT ON EXISTING ASPHALT SEDIMENT FENCE IS TO BE REPLACED WITH A COMPOST WATTLE.
3. CAP EXPOSED SOILS ONCE THE FOUNDATION IS BACKFILLED WITH WASHED SAND OR STRAW.
4. PERIMETER PROTECTION MEASURES TO BE INSTALLED PRIOR TO INITIATING ONSITE CLEARING.
5. ACCESS CONTROL FACILITIES/ MEASURES TO BE INSTALLED AT ENTRY/ EXIT POINTS PRIOR TO INITIATING ONSITE CLEARING OR AT THE INITIAL STAGE OF CLEARING. ALL VEHICLE MOVEMENT TO AND FROM SITE TO BE RESTRICTED OR CONTROLLED AT ENTRY/ EXIT POINTS.
6. STORM DRAIN INLET PROTECTION MEASURES AT OR WITHIN EXISTING CATCH/ LAWN BASINS TO BE INSTALLED PRIOR TO INITIATING ONSITE CLEARING.
7. CONCRETE WASH WATER NEEDS TO BE COLLECTED AND EITHER DISPOSED OFFSITE AT AN APPROVED DISPOSAL FACILITY OR NEUTRALIZED TO pH 6.5-8.0. THIS NEEDS TO BE VERIFIED BY A CERTIFIED ESC INSPECTOR AND RESULTS SENT TO CITY FOR REVIEW PRIOR TO WATER BEING DISCHARGED TO CITY STORM / DRAINAGE SYSTEMS.
8. NEWLY CONSTRUCTED CATCH/ LAWN BASINS TO BE PROTECTED AS SOON AS INSTALLED.

DETAILS:



DEAIL ESC-01: SEDIMENT TRAP SECTION



DETAIL ESC-02: ACCESS ROAD SECTION

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Best Management Practices Matrix

Table 1 below outlines the minimum Best Management Practices (BMPs) to be followed when implementing a Simplified ESC Plan for different stages of construction.

Table 1. Minimum BMP and Audit Requirements During Different Stages of Construction

Stages of Construction		Best Management Practices
1. Site Clearing & Grubbing		
1.1 Site Clearing		A, B, D
1.2 Site Grubbing		A, B, C, D
2. Installation of Services		
2.1. Installation of Services On-Site		A, B, C, D, E, F, G
3. Building Construction		
3.1 Excavation, Shoring, and Foundation		A, B, C, D, E, F, G, H,
3.2 Construction		A, B, C, D, E, F, G
4. Final Grading and Landscaping		
4.1 Final Grading		A, B, D, E
4.2 Landscaping On-Site		A, B, D, E
Abbreviations		Examples
A	Perimeter Protection	Silt fencing, vegetation, gravel berm
B	Access Control	Gravel access pad, paved driveway
C	Stormwater Management / Drainage Control	Swales, dewatering pump/hose, sump, sediment trap
D	Storm Drain Inlet Protection	Silt sacks, silt socks
E	Road Sweeping	Manual or mechanical sweeping
F	Laydown Area	Rock pad, concrete pad
G	Exposed Soil Management	Polyethylene sheeting, straw, vegetation
H	Concrete Washout Facilities	Bucket, container, pit