

**THE FOLLOWING DOCUMENT HAS BEEN REPRODUCED FOR CONVENIENCE ONLY** and is a consolidation of the following:

1. Maple Ridge Watercourse Protection Bylaw No. 6410-2006
2. Maple Ridge Watercourse Protection Amending Bylaw No. 6468-2007

**Individual copies of any of the above by-laws can be obtained by contacting the Clerk's Department.**

## **THE CORPORATION OF THE DISTRICT OF MAPLE RIDGE**

### **BYLAW NO. 6410 - 2006**

A bylaw to protect watercourses in Maple Ridge.

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**WHEREAS**, Section 8(3)(j) of the *Community Charter* S.B.C. 2003 c. 26, enables Council to regulate in respect of the environmental and B.C. Reg. 144/2004 authorizing council, by bylaw to regulate and prohibit in relation to polluting, 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;

**NOW THEREFORE**, the Council of the Corporation of the District of Maple Ridge in open meeting assembled enacts as follows:

#### **CITATION**

1. This Bylaw may be cited for purposes as the "Maple Ridge Watercourse Protection Bylaw No. 6410 - 2006".

#### **DEFINITIONS**

2. In this Bylaw:

**"Construction Works"** includes clearing, site grading, excavation, and filling of land on land and also the construction of buildings, structures, services and other engineering works on lands and the landscaping of land.

**"Developer"** means the owner in fee simple of land on which Construction Works are undertaken and includes the owner's agent.

**"Deleterious Substance"** means any substance that, if added to any water, would degrade or alter or form part of a process of degradation or alteration of the quality of that water so that it is rendered or is likely to be rendered harmful to fish or fish habitat.

**"Drainage System"** means the system and network of streams, creeks, waterways, watercourses, waterworks, ditches, drains or sewers located in the District on private or public property.

**“Dry Season”** means the period commencing May 16 of any year up to and including October 14 of the same year.

**“Erosion and Sediment Control Facilities”** (“ESC Facilities”) means all works and measures included in an Erosion and Sediment Control Plan.

**“Erosion and Sediment Control Plan”** (“ESC Plan”) means the specifications, drawings, plans, phased construction schedules and design calculations of a professional civil or geotechnical engineer for works and measures to control and monitor the discharge of any Prohibited Material into the Drainage System that are designed in accordance with the requirements of this Bylaw and the Guidelines.

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**“Excessive Suspended Solids Discharge”** means an indirect or direct fluid discharge containing suspended solids exceeding 25 milligrams per liter (mg/l) into any Drainage System where it is measured at the immediate outlet or point of discharge into the Drainage System during normal dry weather operation and exceeding 75 mg/liter of suspended solids during the “wet season”.

**“Excessive Turbidity”** means a direct or indirect fluid discharge that exceeds 20 NTU into any Drainage System where it is measured at the immediate outlet or point of discharge into the Drainage System.

**“Guidelines”** means the most current edition of the “Land Development Guidelines for the Protection of Aquatic Habitat”, co-published by the Ministry of Environment Lands and Parks and the Department of Fisheries and Oceans, and the current Department of Fisheries (Federal) Urban Stormwater Guidelines and Best Management Practices for Protection of Fish and Fish Habitat.

**“Large Scale Building Permit”** which includes the following:

- building complexes such as apartment buildings, multiple residential duplex developments, or townhouses with more than 5 units;
- a building that is designated for industrial, commercial, or institutional use; or
- a large structure where the building lot coverage is equal to or larger than 2000 m<sup>2</sup>.

**“Manager”** means the Manager of Development and Environmental Services, the Manager of Inspection Services, or Manager of Engineering for the District of Maple Ridge and/or designate.

**“NTU”** means nephelometric turbidity unit as determined by the Guidelines.

**“Professional Engineer”** means a licensed professional civil or geotechnical engineer pursuant to the *Engineers and Geoscientists Act*, R.S.B.C. 1996 c. 116.

**“Prohibited Material”** means:

- (a) any sediment, earth, construction or excavation wastes, cement, concrete, or other substances which when mixed with water, will result in Excessive Suspended Solids Discharge;
- (b) any “Deleterious Substance” which would foul it;

- (c) “Excessive Suspended Solids Discharge”; or
- (d) “Excessive turbidity”.

“**Security Deposit**” means the security deposit to be provided pursuant to Section 20 of this Bylaw.

“**Significant Rainfall Event**” means any precipitation event, which meets or exceeds the intensity of 10 mm/hour, or 25 mm per day.

“**Subdivision Services Agreement**” means an agreement pursuant to S. 940(2) of the *Local Government Act*, R.S.B.C. 1996 C. 323.

“**Wet Season**” means the period commencing October 15 of any year up to and including May 15 of the next year.

### **PROHIBITION OF DISCHARGE**

- 3. No person shall cause or permit any Prohibited Material, or water containing Prohibited Material to be released, directly or indirectly into the Drainage System.
- 4. No person shall obstruct or impede the flow of any Drainage System.

### **EXEMPTIONS**

- 5. In an emergency as determined by the Manager or the Approving Officer, all maintenance work on the Drainage System undertaken by the District of Maple Ridge to deal with the emergency is exempt from the provisions of this Bylaw.
- 6. Despite Section 7 of this Bylaw, either an ESC Plan and a Security Deposit or both, may be waived by the Manager should the proposed Construction Works be shown to the Manager’s satisfaction to have no negative impact on the Drainage System taking into account the following factors:
  - (a) construction timing and schedule in relation to the Wet Season and the Dry Season;
  - (b) size and location of the proposed Construction Works with respect to the perimeter and sensitivity of the parcel of land on which the Construction Works will take place;
  - (c) the soil conditions on the said parcel;
  - (d) existing vegetation and growth;
  - (e) topographical conditions pertinent to drainage.

## CONSTRUCTION AND DEVELOPMENT

### 7. Every person

- (a) undertaking Construction Works to provide services required for subdivision approval including pursuant to S. 938, S. 939 and S. 940 of the *Local Government Act*;
- (b) applying for a Large Scale Building Permit;
- (c) applying for a Grading Permit from the Building department;
- (d) applying for a soil deposit permit, or a soil removal permit, or where otherwise authorized to deposit or remove soil on land exceeding a depth of 1 metre above or below existing ground elevations and covering an area exceeding 150 m<sup>2</sup>;
- (e) applying for a tree removal permit, or otherwise authorized to clear the trees on a parcel exceeding one hectare where more than ten (10) trees are removed and one or more of the following circumstances apply:
  - (i) the removal takes place after October 14 in any year, and before May 15 of the next year;
  - (ii) the area cleared is on a slope of greater than 10%;
  - (iii) the area cleared is in a Development Permit Area and has been identified with geotechnical concerns, a hillside area, adjacent to a Watercourse Protection Area, or within an Environmentally Sensitive Area, or
  - (iv) more than 35% of the trees on a parcel are to be removed,

shall in undertaking any of the enumerated activities in S. 7(a) through (e) inclusive, must comply with all the requirements of Schedule “B” and before commencing any activity, must submit an application in the form of Schedule “A” and a ESC Plan in conformance with this Bylaw and receive a permit in the form of a completed and issued Schedule “A” before any other permits, approvals or authorizations necessary for the activities enumerated hereon are given or issued.

8. Provided that this Section 7 does not apply to Construction Works enumerated on Schedule “C” as “Small Scale Building Projects”, Small Scale Building Projects may, pursuant to Schedule “C”, be required to provide “Added Protective Measures” as defined below:

### **Added Protective Measures**

An applicant/contractor will be required by the Building Department to retain a qualified environmental monitor to provide a single lot Erosion and Sediment Control Plan as demonstrated in the attached Schedule C for each lot where the following variables apply:

- a) Building permit applications for single family dwellings that require construction works to take place during the rainy periods (October 15 – May 15)
- b) Lots with slopes or final grades with an average slope greater than 5 % percent;

- c) Lots located adjacent to watercourses or lots located within a designated watercourse setback area.
  - d) Lots that were previously included in a subdivision and servicing development ESC plan where the designated developer has not yet been issued a final Certificate of Acceptance by the District.
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Where added protected measures apply, the environmental monitor may be required to:

- (i) Implement the ESC controls in accordance with Schedule “C”, submit a letter of understanding in accordance with Schedule “D” and a letter of appointment in accordance with Schedule “E” to the Building Department before any construction works begin to ensure adequate controls are in place and compliance with this bylaw; and
  - (ii) Monitor the site for the remainder of the construction works in accordance with the Watercourse Protection Bylaw requirements until an Occupancy Permit has been issued.
9. The ESC Plan and ESC facilities must be implemented, must be operational, and must be inspected by the Environmental Monitor, prior to commencement of all Construction Works or other activities enumerated in Section 7, and the ESC Plan must be carried out and complied with for the duration of all Construction Works and other activities enumerated in Section 7.

Any modification of the ESC Plan to suit field conditions for the purpose of achieving more effective pollution, turbidity or suspended solids control and treatment must be approved by the Professional Engineer referred to in S. 11(b), and submitted to the Manager within 2 days of making a modification.

#### **EROSION AND SEDIMENT CONTROL PLAN**

10. The District of Maple Ridge currently requires that subdivision and servicing applicants, and Large Scale Building Permit Applicants follow stormwater management practices set out in the following guides:
- (a) Current Department of Fisheries (Federal) Urban Stormwater Guidelines and Best Management Practices for Protection of Fish and Fish Habitat;
  - (b) Current Master Municipal Construction Design Guidelines MMCD.

Assurances must be provided to the District in writing by the Professional Engineer of record that the stormwater management plans comply with the guidelines in respect of but not limited to the velocity, volume, and water quality requirements of the DFO guidelines.

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Stormwater management plans may be required to be accompanied with a letter of assurance or calculations from the Engineer of Record that demonstrate compliance with the three tier rainwater management approach where possible, as outlines in the following guidelines:

- (c) current Ministry of Water, Land, and Air Protection’s Stormwater Planning Guidebook for British Columbia, and

- (d) current Greater Vancouver Regional District Stormwater Source Control Design Guidelines.
11. Where Construction Works consist of Subdivision and Surveying Works, the final grading of a site must meet the specifications of the grading design requirements set out in either the grading plan or comprehensive grading plan in accordance with the subdivision and servicing agreement. The developer named in a subdivision agreement is responsible for providing the following information, at the developer's cost, before the Building or Engineering Department consider authorizing a lot for building permit issuance or issuance of a Certificate of Subdivision Completion, whichever is the earlier of the two:
- (a) provide a comprehensive grading design to the Engineering Department that has been reviewed, signed, and sealed by a qualified Professional Engineer;
  - (b) a tentative schedule for implementation of the grading construction works in accordance with the comprehensive grading plan and ESC plan;
  - (c) written verification from a BC Land Surveyor that the Professional Engineer of record's approved grading plan is accurately constructed to within six (6) inches from the approved comprehensive grading plan and/or the approved regular grading plan.
12. An ESC Plan provided to the District must:
- (a) be prepared and designed in accordance with the Guidelines to prevent the discharge of Prohibited Material to the Drainage System;
  - (b) be certified by the professional civil or geotechnical engineer who has prepared it;
  - (c) be signed by both the Developer, and by the Environmental Monitor appointed, pursuant to Schedule "E";
  - (d) include detailed plans and design calculations prepared by the Professional Engineer, a phased construction schedule, and a Letter of Undertaking signed by the Environmental Monitor, which letter shall be in the form of Schedule "D" to this Bylaw;
  - (e) be accompanied by the Security Deposit where required; and
  - (f) be accompanied by the form of Environmental Monitor's Appointment (Schedule "E") signed by the Developer and the Environmental Monitor.
13. The Environmental Monitor appointed and named in the Letter of Appointment (Schedule "E") is responsible to and must ensure that the ESC Facilities operate properly to serve their purpose, and must modify or halt any Construction Works or other activities enumerated in Section 7 to ensure compliance with the ESC Plan and this Bylaw.
14. The environmental monitoring program shall be carried out in accordance with this Bylaw.

15. The ESC Facilities required by an approved ESC Plan shall be installed, inspected, maintained and operated by the Developer performing the Construction Work or undertaking any of the activities enumerated in Section 7, until the earlier of:
  - (a) a Certificate of Acceptance or final approval is issued by the Director of Development Engineering where Construction Works consist of subdivision and subdivision servicing;
  - (b) the issuance of an Occupancy Permit and certification by the Environmental Monitor that landscaping has been substantially completed where Construction Works comprise a building or structure;
  - (c) upon certification by the Environmental Monitor that all Construction Works involving solely soil removal or soil deposit, or both, have been completed pursuant to the approved ESC Plan;
  - (d) upon certification by the Environmental Monitor that all Construction Works involving tree removal has been fully completed in compliance with the approved ESC Plan.

#### **ADMINISTRATION AND ENFORCEMENT**

16. This Bylaw shall be administered by the Manager of Development and Environmental Services or designate.
17. The Manager, Bylaw Enforcement Officers, Director of Engineering Operations and all District employees under their direction shall have the right at all reasonable hours and without notice to enter upon and inspect any land or premise in the District to determine if the provisions of the Bylaw are being met.
18. If in the event of a breach of the provisions of this bylaw or works in contravention of an approved ESC Plan the Manager, Bylaw Enforcement Officer, Building Inspector, Plumbing Inspector, and/or Works Inspector may post a stop work notice on the sign provided in Section 19, and if there is no such sign then anywhere on the parcel on which such sign is required to be located. Upon the posting of such notice all Construction Works or other activities enumerated in Section 7, shall cease until the contravention has been remedied, and the Manager has authorized them to recommence.
19. Every parcel on which Construction Activity, or other activity enumerated in Section 7 is carried on requiring an ESC Plan must post a waterproof copy of the Erosion and Sediment Control Permit on a sign in a location visible from offsite and keep the same posted for the duration of the Construction Activity. The same sign must also clearly show the name and telephone number of the Monitor.

#### **SECURITY DEPOSIT**

20. The submission of an ESC Plan required by this Bylaw must be accompanied by a security deposit either in cash or by a clear unconditional and irrevocable letter of credit, as a condition of the issuance of a permit pursuant to S. 7, which letter of credit shall be

issued by a Canadian Chartered Bank or other financial institution satisfactory to the Manager, in an amount to be determined by the Manager, which amount shall be:

- (a) in respect of subdivision, a minimum of \$10,000.00, and if more than ten (10) lots are to be created, \$1,000.00 per lot up to a maximum of \$100,000.00;
- (b) in respect of buildings and structures, that are not single-family dwellings, 2.5% of the value of the Construction Works disclosed on the Building Permit application;
- (c) \$10,000.00 per lot in respect of Large Scale Building Application, in respect of tree removal and in respect of soil deposit or removal where an ESC Plan is required;
- (d) in the case where an applicant for a building permit is subject to Schedule “C” and “Added Protective Measures” are required, such applicants must submit a security deposit of \$1,500.00 per lot.

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- 21. A letter of credit provided as Security shall be in favour of the District and must be able to be presented and drawn down on a Canadian Chartered Bank or other financial institution located in the District, must be self-renewing, and shall not expire but shall be maintained throughout the duration of the Construction Works and until a Certificate of Acceptance or final building inspection approval or Occupancy Permit or certification, pursuant to S. 15 has been issued.
- 22. In the event of a breach of this Bylaw, in addition to a stop work notice (S. 18) or prosecution (S.25), the District may, but shall not be obligated, to draw down on the letter of credit and use the cash to remedy the breach and for such purpose the provision of cash or a letter of credit hereunder is deemed to include the grant of an unqualified and irrevocable licence to the District to enter onto the land subject of the ESC Plan and to do all such work as is necessary to remedy the breach.
- 23. Any letter of credit or cash held by the after the Developer is no longer obligated to maintain and operate ESC Facilities pursuant to S. 15, shall be paid to the Permittee, less any monies owing by the District arising from actions taken pursuant to S. 22.
- 24. Despite S.20, where Construction Works arise from approval to subdivide land, no security deposit payment to this Bylaws is required where a security deposit pursuant to a Subdivision Services Agreement is provided, and such agreement expressly provides that the security under it is given for the purposes of this Bylaw.

#### **OFFENCE**

- 25. Any person who:
  - (a) violates any provision of this bylaw or neglects or fails to do anything required to be done by this Bylaw; or

- (b) causes or permits any other person to violate any provision of this Bylaw or to neglect or fail to do anything required to be done by this Bylaw with respect to real property of which he or she is the registered owner, occupant, leasee or licensee;

commits an offence under this bylaw and is subject to the imposition of any and all penalties or remedies available to the District pursuant to this Bylaw or to other applicable bylaws or legislation.

**PENALTY**

26. Any person who commits an offence under this Bylaw in addition to being subject to any remedies or penalties specifically provided for in this Bylaw is also subject to prosecution and upon summary conviction be subject to a fine of not more than \$10,000.00 for each and every offence. Where the offence is a continuing one, each day that the offence is continued shall constitute a separate offence.

**SEVERABILITY**

27. If any section or lesser portion of this Bylaw is held invalid, it shall be severed and the validity of the remaining provisions of this shall not be affected.”

**REPEAL**

1. Maple Ridge Water Protection Bylaw No. 5807-1999 is repealed.

**READ** a first time the 27<sup>th</sup> day of June, 2006.

**READ** a second time the 27<sup>th</sup> day of June, 2006.

**READ** a third time the 27<sup>th</sup> day of June, 2006.

**RECONSIDERED AND ADOPTED** this 11<sup>th</sup> day of July, 2006.

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**MAYOR**

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**CLERK**

**SCHEDULE "A"**  
**Watercourse Protection Bylaw \_\_\_\_\_**

**EROSION AND SEDIMENT CONTROL PERMIT APPLICATION**

**Part 1. APPLICANT (holder of the ESC Permit once issued)**

**Developer:** \_\_\_\_\_ **Agent/Operator:** \_\_\_\_\_

**Address:**

**Telephone:**

**Part 2. EROSION AND SEDIMENT CONTROL ENVIRONMENTAL MONITOR**

**Name: Telephone:**

**Part 3. IDENTIFICATION OF LAND WHERE CONSTRUCTION WILL OCCUR**

**Legal Description:**

**Civic Address:**

**Size of Land**

**Parcel:**

**(approximate area) Expected Start date:** \_\_/\_\_/\_\_ **Finish:** \_\_/\_\_/\_\_

(boxes must be \_checked before submission)

\_ ESC Plan is attached that conforms to the District's drafting standards and includes the minimum requirements as set out on the reverse of this application

- Letter of Appointment is attached, signed by the ESC Environmental Monitor.
- Non-refundable fee paid (\$500).
- Security Deposit paid by \_ cash \_ cheque, or \_ letter of credit

I hereby declare that the above information is correct and true as well as all information provided on the ESC Plan attached and submitted herewith. I promise to construct the Erosion and Sediment Control Facilities in accordance with the Erosion and Sediment Control Plan. I am aware of the provisions of the Watercourse Protection Bylaw \_\_\_\_\_, and I will abide by all applicable provisions of said Bylaw and such other terms and conditions as may be imposed under this my application for an ESC Permit.

Dated \_\_\_\_\_

Signature of Applicant/ or Authorized Agent \_\_\_\_\_

*Office Use Only:*

**ISSUED BY THE District of Maple Ridge on \_\_\_\_\_ by**

**PERMIT NO.** \_\_\_\_\_ **(Authorized Signatory of District)**

**Schedule “A” Continued –**

**REVERSE OF EROSION AND SEDIMENT CONTROL PERMIT APPLICATION**

The ESC Plan must be prepared under the guidance of an individual who is appropriately qualified in the preparation of such plans, and must be checked, signed and sealed by a Professional Engineer registered in the Province of British Columbia.

## **Schedule “A”**

### **Watercourse Protection Bylaw 6410 – 2006**

The Erosion and Sediment Control plan should seek (i) to protect the soil surface from erosion where possible and (ii) capture all sediment on-site during each phase of the construction project. This includes requirements to control the amount, water quality, and velocity of runoff to ensure that no excessive sediment laden water is discharged, either directly or indirectly, into the Municipal Drainage System or into the watercourses. To facilitate compliance with the District of Maple Ridge, all applications that require an Erosion and Sediment Control (ESC) Plan must meet the following criteria.

#### **ESC Applicant and Monitoring Requirements**

1. A Professional engineer must review, sign, and seal the ESC plan to confirm the plan complies with the applicable Watercourse Protection Bylaw regulations and is consistent with the Federal Land Development Guidelines For the Protection of Aquatic Habitat. 2003. The ESC plan will be submitted as part of the engineering design drawings to the District. The ESC Plan must also be reviewed, approved, and signed by the designated environmental monitor for the site.
2. All ESC facilities and works described in the plan must be installed, constructed, and operational in accordance with the approved ESC drawings before any Construction Works begin. Preliminary inspection and sign off by the designated professional engineer and/or environmental monitor will be required to ensure the applicant has successfully installed the ESC facilities and controls in accordance with the ESC plan drawings.
3. A final inspection of the lot and a signed letter is required by the designated Environmental Monitor to ensure the developer has successfully completed the ESC plan requirements (which includes the construction of gravel access pads for each building lot, decommissioning of temporary ESC facilities, proper disposal of any waste materials, and stabilization of any exposed soils) before the District issues a final Certificate of Acceptance, Occupancy Permit, or any other relevant approval.
4. It is the responsibility of the Developer and/or site contractor to ensure the effective maintenance and operation of the erosion and sediment control measures on site including all roads and ESC facilities within a subdivision until a Certificate of Acceptance, Occupancy Permit, or any other relevant approval has been issued by the District.
5. The developer shall retain an environmental consultant to sample and analyse the water being discharged from the site. Where there is an exceedance of the allowable TSS, turbidity levels, or pH, the design engineer is to be consulted and corrective measures are to be implemented immediately.
6. Environmental Monitors will be required on site to inspect at least once a day during construction in rainy periods (October 15 – May 15), at least once a day during or after a significant rainfall event (>25mm rainfall per day or 10mm rainfall per hour), and once a week during dry periods to carry out inspections and alterations if necessary. A record of site inspections must be submitted to the District bi-monthly during the rainy period and monthly during dry period (May 16- October 14)

## ESC Plan Information Requirements

An erosion and sedimentation control plan must contain sufficient information to describe the site development, the proposed impacts, and the system(s) intended to control erosion and prevent off-site damage / impact from sedimentation. The plan must include:

1. Contact information / ownership form and a 24 hour emergency contact phone number for the Professional Engineer and Environmental Monitor responsible for the site.
2. A site location map attached with location and width of existing or proposed access(es) to the property.
3. Layout of the site and lot(s) that promotes use of pervious infiltration areas wherever possible.
4. Property lines and other legal designations of the subject property with location(s) of any existing/proposed lots, buildings, services, or connections to existing services from the site.
5. A phased Erosion and Sedimentation Control (ESC) plan, drawing(s), and maintenance schedule that emphasize use of erosion source control as the primary method for dealing with erosion and sediment runoff. Design specifications for ESC facilities must comply with the requirements of the DFO Land Development Guidelines for the Protection of Aquatic Habitat 2003. The plan must include a map show the location and/or description of the following:
  - a) primary erosion and sediment site source controls including:
    - the location of sediment control ponds that are designed to comply with DFO Site Runoff Water Quality Requirements
    - location of outfalls and appropriate mitigation controls
    - existing contours and proposed drainage flows
    - gravel pads and wheel wash facilities at all access points,
    - construction vehicle staging area(s) with gravel pad placement for each lot
    - location of silt fences,
    - location of soil stockpile areas (to be covered up),
    - location of perimeter and infiltration ditches,
    - location of watercourse setback area and watercourses or waterbodies.
    - temporary fencing around designated watercourse protection areas.
  - b) A multi-staged plan which shows the measures for erosion and sediment control during clearing and grubbing, the installation of services, and final works to be completed during the Maintenance Period;
  - c) The ESC plan must include a schedule for the maintenance and final decommissioning of ESC facilities, ponds, and source controls for each of the phases. This will include proposed re-vegetation and stabilization measures for restoring disturbed or exposed soil areas.
6. A letter to the District signed by the designated environmental monitor confirming that the proposed Erosion and Sediment Control facilities have been properly installed, inspected and that they operational in accordance with the approved ESC Plan. The ESC facilities will be maintained on a regular basis by the engineer of record or the environmental monitor until a Letter of Acceptance, Occupancy Permit, or the relevant approval has been issued to the developer by the District.

## **DEFAULT EROSION AND SEDIMENT CONTROL REQUIREMENTS**

### Default Best Management Practice Requirement

Surface runoff shall be dealt with in compliance with the District's Watercourse Protection Bylaw requirements within each lot using default best management practices listed below in addition to guidelines and methods found within the federal Land Development Guidelines for Protection of Aquatic Habitat, 1993. The following is a list of default source controls and best management practices required for each site and/or lot where applicable:

1. A gravel access pad (4.5 m wide and comprised of a minimum of 6 inches depth and 100 mm diameter angular rock) for each proposed lot at the point of entry onto the lots from the roadway. They shall be constructed and maintained to minimize the migration of sediment onto the roadways.
2. Physically mark clearing boundaries on construction sites and ensure temporary fencing is placed around the watercourse protection areas and any designated environmentally sensitive areas or features, as determined by the Environmental Monitor or by the District of Maple Ridge.
3. Install and maintain perimeter ditches, swales, and interceptor ditches on plans that divert runoff away from cleared areas during phased approach and divert runoff into staged primary and auxiliary sediment traps or sediment ponds where appropriate, prior to discharge off site.
4. Install and maintain filter fabric bags inside any catch basins, on all road frontage catch basins and lawn basins collecting runoff from the construction site.
5. Vehicle/machinery access to and from the lot(s) shall be limited to the access pad, staging area, or prepared working road to minimize soil disturbance.
6. Wheel wash facilities will be required for all lots during the rainy periods (October 15 – May 15).
7. Roadways (fronting the respective lots) are to be swept free and cleaned on a regular basis (once a day or more frequently during rain events). Flushing of the roadway is prohibited.
8. Excavated/imported soils are not to be stockpiled/unloaded on road allowances, curbs, or sidewalks and if soils are stockpiled within the boundary of the lot, then the stockpiles shall be covered with polyethylene sheeting and weighted down. Breaks in the cover should be repaired immediately.
9. Concrete truck wash and construction wash of exposed aggregate surfaces is not to be directed into any storm sewer system or catch basin.
10. Waters captured within the building foundation, sediment ponds, or when flushing sediment facilities and controls, shall be removed by appropriate sediment and stormwater management controls or by pumper trucks to ensure surface runoff and sediment discharge levels do not exceed municipal requirements.
11. Temporary graded areas, such as housing lots, must be protected from erosion through the use of straw, mulch and/or polyethylene tarps in non traffic areas and a gravel cap in zones of construction traffic. Final graded or landscaped areas must have the appropriate permanent surface protection or landscaping in place as soon as possible.
12. Where slopes exceed three metres in height and are steeper than five percent, or where soil types consist predominantly of clays or fines, immediate surface protection using polyethylene sheeting or tarps must be used from October 15<sup>th</sup> to May 15<sup>th</sup> or when rain events are expected. Surface protection should be well anchored to resist wind and prevent major leakage. Breaks in the cover should be repaired immediately.
13. All bare and exposed areas that will be left dormant for longer than 30 days are to be seeded and stabilized with native vegetative species prior to October 15<sup>th</sup> where possible.
14. Every construction site where an ESC Plan has been issued must have a waterproof copy of the ESC plan, emergency contact information for the site owner, the designated professional engineer, and the designated environmental monitor for the site in a location visible from outside the construction site, for the duration of the construction project.

15. The contractor shall provide on-site disposal facilities at all times. These disposal facilities shall be removed and disposed on a regular basis and at authorized disposal areas.

The owner and/or all contractors associated with the project shall be responsible for ensuring compliance with the Watercourse Protection Bylaw at all times and shall be held responsible for any contravention of the Bylaw.

*Sediment and Erosion control features may be inspected by the District at any time as per the approved ESC plans to ensure compliance with the Watercourse Protection Bylaw .*

Applicant name (please print) \_\_\_\_\_

Applicant signature \_\_\_\_\_

Address: \_\_\_\_\_

Emergency Contact Phone Number: \_\_\_\_\_

**Read the fine print:** By signing this form the applicant is committing to installing and maintaining these sediment and erosion control measures in the field until final approval has been issued by the District. A contravention may result in Stop Work Orders, Tickets, and the District can use the environmental security deposit provided by the applicant to remedy the situation at the owner's expense. Where there is a continuation of an infraction, fines will be issued. Following issuance of a Stop Work Order, all Construction on the site shall cease except for those works necessary to achieve compliance until the site has been issued approval to continue from the District.

## **Phased Construction Scheduling**

Appropriate sequencing of construction activities can be an effective way to reduce the negative impacts of the proposed development. It should also be recognized that a phased construction schedule must reflect an iterative or adaptive approach whereby information, impacts (or potential impacts), and control may need to be changed at each phase in order to meet municipal sediment control requirements. Table 1 gives a detailed breakdown of the recommended construction sequence for this site.

**Table 1.** Recommended scheduling for construction works.

<b>Construction Activity</b>	<b><u>SCHEDULING SEQUENCE</u></b>
<p><b>Construction access</b> Construction entrance, construction routes, equipment parking and individual lot access areas.</p>	<p>First land-disturbing activity. Stabilize bare areas immediately with gravel pads, gravel staging area, street sweeping, and temporary silt fencing or appropriate ground cover as land disturbances take place.</p>
<p><b>Sediment traps and barriers</b> Sediment traps, silt fences, and check dams and inlet and outlet protection.</p>	<p>Install principal erosion source controls and sediment traps after construction site is accessed. Install additional temporary traps as needed during grading.</p>
<p><b>Runoff control</b> Diversions, perimeter ditches or dykes, water bars, outlet protection.</p>	<p>Install key ESC facilities and sediment basins after principal sediment traps and before extensive lot site grading.</p>
<p><b>Runoff conveyance</b> Stabilize stream-banks (if applicable), setback areas, tree protection, channels, ditches, inlet and outlet protection, temporary slope drains.</p>	<p>If necessary, stabilize stream-banks and setback areas to protect against construction activities. Install additional principal runoff conveyance systems with runoff control measures if necessary. Install remainder of system after grading.</p>
<p><b>Land clearing and grading</b> Site preparation - cutting, filling and grading, sediment traps, barriers, diversions, drains, surface roughening.</p>	<p>Begin major clearing and grading after principal sediment and runoff control measures are installed. Clear borrow and disposal areas only as needed. Install additional temporary protection measures as grading progresses. Maintain respect for riparian setback areas, environmentally sensitive areas and ESC facilities.</p>
<p><b>Surface Stabilization</b> Temporary and permanent seeding, mulching, tarping (poly), sodding, rip rap.</p>	<p>Apply temporary or permanent stabilization measures immediately on all disturbed areas (exposed soils) when cutting / filling is delayed or completed within time limits.</p>
<p><b>Building construction</b> Buildings, utilities, paving.</p>	<p>Install any additional necessary erosion and sedimentation control practices as work takes place. Maintain all sediment control facilities daily or after each rain event.</p>
<p><b>Final stabilization</b> Top-soiling, permanent seeding, riprap, Landscape boulevard, restoration, or landscaping requirements.</p>	<p>Last construction phase. Stabilize all disturbed areas except for areas of active construction. Remove and stabilize all temporary control measures. Complete all lot surface treatment and landscaping requirements.</p>

**SCHEDULE “B”**  
**SECTION 7**

All persons undertaking activities enumerated in Sections 7(a) through (e) inclusive, shall comply with the following:

**Access, Staging Areas, and Soil Protection**

- (a) Excavated/imported soils are not to be stockpiled/unloaded on roadways, curbs, or sidewalks. If soils are stockpiled within the boundary of the lot, then the stockpiles shall be covered with polyethylene sheeting and weighted down.
- (b) Stockpiled material (native and non-native soils) will not be placed closer than 2 metres from sediment and erosion control facilities (catch basins, conveyance trenches/ditches, swales or others).
- (c) Provide access area and a staging area for heavy construction vehicles in the form of a paved driveway or gravel pad (4.5m wide, minimum 6 inches depth and 100 mm diameter angular rock). The gravel pad must be large enough to cover the staging and cleanup areas where heavy construction vehicle traffic is expected such as lumber trucks, excavators, dump trucks, or pumper trucks.
- (d) Vehicles/machinery shall not be permitted to park/drive upon boulevard areas (i.e. areas between the curb and sidewalk comprised of soils and/or grass sod).
- (e) No major grade changes are allowed for building applicants (must be less than 0.5 metres difference from existing grade) and/or re-contouring of landscape exceeding 100 square metres of the entire lot without permission and a fill permit from the Building Department.
- (f) Cover up or stabilize all exposed soils during rain events, when rains are expected, or when a construction area is not being immediately used for more than 2-3 days (weekends) with polyethylene / tarps and weighted down.
- (g) Re-vegetate disturbed areas as soon as practically possible and within 30 days of completion of construction works.

**Erosion and Sediment Control Primary Measures**

- (h) Provide temporary fencing around watercourse protected areas, environmentally sensitive areas and retain existing vegetation and ground cover where possible.
- (i) A silt fence(s) must be located on the lowest point of the lot abutting a road and around disturbed slopes within 50 metres of a watercourse, ditch, or body of water.
- (j) Divert runoff away from disturbed areas and roadways by use of perimeter ditches and diversion swales to onsite sediment controls or vegetated areas.

- (k) To facilitate velocity reduction / water detention and sediment retention all drainage ditches installed within the boundaries of the site will be lined with clean rock or other acceptable and permeable material and cross-bermed with check-dams and silt fences at 3 and 5m intervals.
- (l) Collect sediment runoff into on site sediment traps, sediment ponds, or into vegetated areas within the property to take advantage of natural infiltration of soils where appropriate.
- (m) waters captured within a building foundation shall be pumped into the excavated sump or extracted by a pumper truck, not onto surrounding exposed soils or roadways;
- (n) Cutoff swales, perimeter drains, and the sump shall be lined with drain rock. A perforated riser pipe (surrounded with drain rock) within the sump shall be connected to the lead that discharges to the stormwater sewer system; for additional details, please refer to the Corporation of the District of Maple Ridge's drawing titled "Single Lot Development Erosion And Sediment Control Guidelines"

#### **Maintenance**

- (o) Roadways (fronting the respective lots) are to be swept free and cleaned of accumulated soils, fines/sediments on a regular basis (at least once a day during rain events). No flushing of these soils on the road is permitted.
- (p) Concrete truck wash and construction wash of exposed aggregate surfaces is not to be directed into any drainage system or catch basin.
- (q) The contractor and/or the designated environmental monitor must inspect the site on a regular basis to ensure all traps, sediment ponds, silt fences, access pads, and any other erosion or sediment control facilities are maintained on a regular basis to ensure compliance.
- (r) Maintain a tidy site during construction and the contractor shall provide on site disposal facilities at all times. Disposal of waste shall be maintained on a regular basis.
- (s) Remove all temporary control measures and construction materials at the end of the project and dispose of this material at an appropriate disposal site. Ensure site has been properly cleaned up, vegetated, and stabilized after construction works are complete.

**SCHEDULE “C”**  
**(S. 7(b))**

**SMALL SCALE EROSION AND SEDIMENT CONTROL FOR BUILDING SITES**

Despite S. 7(b) of this Bylaw, building permit applicants for small additions, landscaping, decks, in ground pools, accessory buildings and structures, single family dwellings, and duplexes need not provide an ESC Plan but must comply with the erosion and sediment control requirements for small scale applications as set out in this Schedule “B”.

In addition, such building permit applicants that require “added protective measures”, must provide a designated environmental monitor for the duration of the construction works until an Occupancy Permit has been issued and a security deposit for a term of one year in an amount not less than \$1,500.00 per building application, but not to exceed \$100,000.00 or the aggregate. Except in the term and amount a security deposit so provided shall comply with Sections 20 and 21 of this Bylaw and the District now deal with the security deposit in the same manner as set out in Section 22 and Section 23 of this Bylaw.

## Schedule “C” for Small Scale Building Projects

### Watercourse Protection Bylaw 6410 – 2006

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**Sediment and Erosion control** for *Small Projects* (small additions, landscaping, decks, in ground pools, accessory buildings and structures, single family dwellings, and duplexes less than 2000 metres<sup>2</sup> will require the following measures to be implemented before construction works begin and maintained for each property until an Occupancy Permit has been issue by the Building Department. Responsibilities include the following:

#### **Access, Staging Areas, and Soil Protection**

1. Excavated/imported soils are not to be stockpiled/unloaded on roadways, curbs, or sidewalks. If soils are stockpiled within the boundary of the lot, then the stockpiles shall be covered with polyethylene sheeting and weighted down.
2. Stockpiled material (native and non-native soils) will not be placed closer than 2 metres from sediment and erosion control facilities (catch basins, conveyance trenches/ditches, swales or others).
3. Provide access area and a staging area for heavy construction vehicles in the form of a paved driveway or gravel pad (4.5m wide, minimum 6 inches depth and 100 mm diameter angular rock). Pad must be large enough to cover the staging and cleanup areas where heavy construction vehicle traffic is expected such as lumber trucks, excavators, dump trucks, or pumper trucks.
4. Vehicles/machinery shall not be permitted to park/drive upon boulevard areas (i.e. areas between the curb and sidewalk comprised of soils and/or grass sod).
5. No major grade changes are allowed (must be less than 0.5 metres difference from existing grade) and/or re-contouring of landscape exceeding 100 square metres of the entire lot without permission and a fill permit from the District.
6. Cover up all exposed soils during rain events, when rains are expected, or when a construction area is not being immediately used for more than 2-3 days (weekends) with polyethylene / tarps and weighted down.
7. Stop heavy construction work activity and use of heavy construction vehicles on site during heavy rain events at the discretion of the contractor and/or monitor.

## **Erosion and Sediment Control Measures**

8. Management of erosion and sediment on site must include the following mitigation:
  - Retain existing vegetation and ground cover where possible.
  - A silt fence must be located on the lowest point of the lot abutting a road and around disturbed slopes within 50 metres of a watercourse, ditch, or body of water.
  - Divert runoff away from disturbed areas and roadways by use of perimeter ditches and diversion swales to onsite sediment controls or vegetated areas.
  - To facilitate velocity reduction / water detention and sediment retention all drainage ditches installed within the boundaries of the site will be lined with clean rock or other acceptable and permeable material and cross-bermed with check-dams and silt fences at 3 and 5m intervals.
  - Collect sediment runoff into on site sediment traps, sediment ponds, or into vegetated areas within the property to take advantage of natural infiltration of soils where appropriate.
  - waters captured within the building foundation shall be pumped into the excavated sump, not onto surrounding exposed soils or roadways;
  - Re-vegetate disturbed areas as soon as practically possible and within 30 days of completion of construction works.
9. Cutoff swales, perimeter drains, and the sump shall be lined with rock; a perforated riser pipe (surrounded with drain rock) within the sump shall be connected to the lead that discharges to the stormwater sewer system; for additional details, please refer to the Corporation of the District of Maple Ridge's drawing titled "Single Lot Development Erosion And Sediment Control Guidelines" (Attachment A);

## **Maintenance**

10. Roadways (fronting the respective lots) are to be swept free and cleaned of accumulated soils, fines/sediments on a regular basis (at least once a day during rain events). No flushing of these soils on the road is permitted.
11. Concrete truck wash and construction wash of exposed aggregate surfaces is not to be directed into any drainage system or catch basin.
12. The contractor and/or the designated environmental monitor must inspect the site on a regular basis to ensure all traps, sediment ponds, silt fences, access pads, and any other facilities are maintained on a regular basis.
13. Maintain a tidy site during construction and the contractor shall provide on site disposal facilities at all times. Disposal of waste shall be maintained on a regular basis.
14. Remove all temporary control measures and construction materials at the end of the project. Ensure site has been properly cleaned up, vegetated, and stabilized after construction works are complete.

### **Added Protective Measures**

15. An applicant/contractor will be required by the Building Department to retain a qualified environmental monitor to provide a single lot Erosion and Sediment Control Plan as demonstrated in the attached Schedule C for each lot where the following variables apply:
- a) Building permit applications for single family dwellings that require construction works to take place during the rainy periods (October 15 – May 15)
  - b) Lots with slopes or final grades with an average slope greater than 5 % percent;
  - c) Lots located adjacent to watercourses or lots located within a designated watercourse setback area.
  - d) Lots that were previously included in a subdivision and servicing development ESC plan where the designated developer has not yet been issued a final Certificate of Acceptance by the District.

The environmental monitor will be required to

- (i) Implement the ESC controls in accordance with Schedule C and the Watercourse Protection Bylaw requirements and submit a letter of compliance to the Building Department before any construction works begin; and
  - (ii) Monitor the site for the remainder of the construction works and submit a final letter of inspection in accordance with the requirements of Schedule “D” of the Watercourse Protection Bylaw 6410-2006 before an Occupancy Permit will be issued.
16. Where **added protective measures** are required, an environmental security deposit of \$1,500.00 per lot will be required at the time of application to ensure that Municipal Drainage systems are not impacted during construction.
17. At the request of the Building Department, the applicant may be required to submit a **Large Scale Building Application** (Schedule B) and the applicable security deposit to the Building Department where any of the following variables apply:
- a) Lots with complex drainage issues, geotechnical issues, or where there is a significant presence of sensitive soil types (i.e. Haney Clays)
  - b) Lots with a proposed disturbed area > 2.5ha (1 hectare)
  - c) Lots where the majority of property has a natural or graded slope >15% percent
  - d) Lots that require a grading permit from the Building Department; or
  - e) Where a builder has construction works proceeding on five or more lots that are located adjacent to one another within a subdivision area.

The owner and/or all contractors associated with the project shall be responsible for ensuring compliance with these requirements, in addition to the requirements of the Watercourse Protection Bylaw at all times and shall be held responsible for any contravention of the Bylaws. A contravention may result in fines and/or a Stop Work Order. It also includes the responsibility to report to the District within two days if there are any changes with respect to the appointment of the designated environmental monitor of record.

*Sediment and erosion controls may be inspected by a municipal inspector or bylaw enforcement officer as per the approved plans.*

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Applicant signature

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Applicant name (please print)

Address: \_\_\_\_\_

**Read the fine print:** By signing this form the applicant is committing to installing and maintaining these sediment and erosion control measures in the field until final approval has been issued by the District. A contravention may result in Stop Work Orders, Tickets, and the District can use the environmental security deposit provided by the applicant to remedy the situation at the owner's expense. Where there is a continuation of an infraction, fines will be issued. Following issuance of a Stop Work Order, all Construction on the site shall cease except for those works necessary to achieve compliance until the site has been issued approval to continue from the District.



7. Sample and analyse the water being discharged from the site during each site visit where applicable. The total suspended solids (TSS) level must not be greater than 25 mg/L during dry weather and less than 75 mg/L during the wet season, turbidity levels must not be greater than 20 NTU, and pH of the water discharged from the site should fall between 6 and 9.0. Effluent outside this range must be neutralized prior to discharge.
8. Consult the design engineer where there is an alteration of the ESC plan or where facilities are failing to comply, within 24 hours and ensure corrective measures are implemented immediately.
9. Notify the Corporation of the District of Maple Ridge of any outstanding deficiencies or infractions (i.e. outstanding for more than 1 day) on or off site for bylaw enforcement. If the infraction on site has not been remedied within 24 hours after contact with the District of Maple Ridge, a cease work order must immediately take place. The District may fine the responsible owner and/or use the applicant's environmental security funds to remedy the situation.

**Environmental Monitor:**

Signature: \_\_\_\_\_

Name: \_\_\_\_\_

Company: \_\_\_\_\_

Emergency Contact Phone Number \_\_\_\_\_

**Owner/Developer:** In executing this Letter of Understanding, I covenant that I have authority to and do hereby unconditionally authorize the named Environmental Monitor to carry out the above mentioned responsibilities and modify or halt any construction activity as necessary to ensure compliance with the Watercourse Protection Bylaw.

Signature: \_\_\_\_\_

Name: \_\_\_\_\_

Company: \_\_\_\_\_

Emergency Contact Phone Number \_\_\_\_\_

**SCHEDULE "E"**

**ESC MONITOR'S LETTER OF APPOINTMENT**

**TO: District of Maple Ridge**

**DATE:** \_\_\_\_\_

**ATTENTION: ESC Plan PROJECT NO.** \_\_\_\_\_

We/I \_\_\_\_\_, confirm that we/I have been retained  
(Environmental Monitor's name)

by \_\_\_\_\_ for the District Project No. \_\_\_\_\_  
(Developer's name printed)

to provide inspection, maintaining, monitoring and reporting services in accordance with the requirements of the District's Watercourse Protection Bylaw 6410 - 2006. This includes the requirement as well as the unconditional authority to modify and/or halt any construction activity necessary to ensure compliance with the said Watercourse Protection Bylaw 6410 - 2006. It also includes the responsibility to report to the District if there are any changes with respect to the appointment of the designated environmental monitor of record.

**Environmental Monitor:**

Signature: \_\_\_\_\_

Name: \_\_\_\_\_

Company: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

**Professional Seal (if applicable)**

**Developer:** In executing this Letter of Appointment I covenant that I have authority to and do hereby unconditionally authorize the named Environmental Monitor to modify or halt any Construction Works as necessary to ensure compliance with the Watercourse Protection Bylaw 6410 - 2006. It also includes the responsibility to report to the District within two days if there are any changes with respect to the appointment of the designated environmental monitor of record.

Signature: \_\_\_\_\_

Name: \_\_\_\_\_

Company: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_