



Schedule "A"
DISTRICT OF MAPLE RIDGE
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 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 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
 - proposed contours and 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 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 (Oct 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 15th to May 15th 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 15th 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. A contravention may result in Stop Work Orders, Fines, and/or where there is a continuation of an infraction, the District will use the environmental security deposit provided by the applicant to remedy the situation at the owner's expense.

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. Where the holder/holders of an ESC Permit has failed to maintain the validity of the ESC Plan or meet the provisions of the Watercourse Protection Bylaw, a municipal manager or designate may serve on such persons a Cease Work Order in addition to a ticket up to \$1,000 per day or a fine of up to \$10,000 dollars. Following issuance of a Notice to Comply, 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.

<u>CONSTRUCTION ACTIVITY</u>	<u>SCHEDULING SEQUENCE</u>
<p>Construction access 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>Sediment traps and barriers 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>Runoff control 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>Runoff conveyance 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>Land clearing and grading 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>Surface Stabilization 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>Building construction 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>Final stabilization 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>