

# Erosion and Sediment Control (ESC) at Residential Building Construction Sites



## Please Note

On September 9, 2013, Coquitlam adopted a new Stream and Drainage System Protection Bylaw (No. 4403, 2013), replacing the previous bylaw (No. 3447, 2001). Please see the insert in this brochure for more information.

Erosion and Sediment Controls (ESC) are techniques used by crews at construction sites to ensure that fish-bearing streams are kept clean and protected. This brochure provides you with the best methods to help you reduce the amount of sediment-laden water and erosion generated on site during construction. By following some or all of these procedures, you can assist in ensuring a clean, healthy environment and help support aquatic wildlife.

Preventing erosion and sedimentation is important at all construction sites. In addition to environmental impact, uncontrolled erosion and sediment discharge can have a financial impact on construction costs. Please remember that it costs both time and money to repair the effects of erosion, to replace poorly installed methods and to repair damage to the environment and surrounding properties.

## Erosion and Sediment Control at Residential Building Construction Sites



### Impact of Sediment on Fish and Fish Habitat

Sediment suspended in water settles on the bottom of our creeks and can smother fish eggs. Suspended sediment can also suffocate fish, reduce visibility and affect the productivity of plants and bugs in the creek reducing the amount of food available to aquatic life.

All surface drainage that enters into the municipal storm system, including all storm drains, catch basins and ditches lead directly into local streams and fish-bearing waterways.

### How You Can Help

- Install ESC measures prior to any site activities;
- Do not discharge sediment-laden water from a construction site;
- Cover soil stockpiles with poly and/or surround them with silt fencing;
- Use a clean gravel site access pad of 4.5 metres in width at all accesses to site;
- Install swales on lot grading, on an as needed basis;
- Do not drain concrete cement wash-water into the City's drainage system.

### Erosion and Sediment Control (ESC) Activities

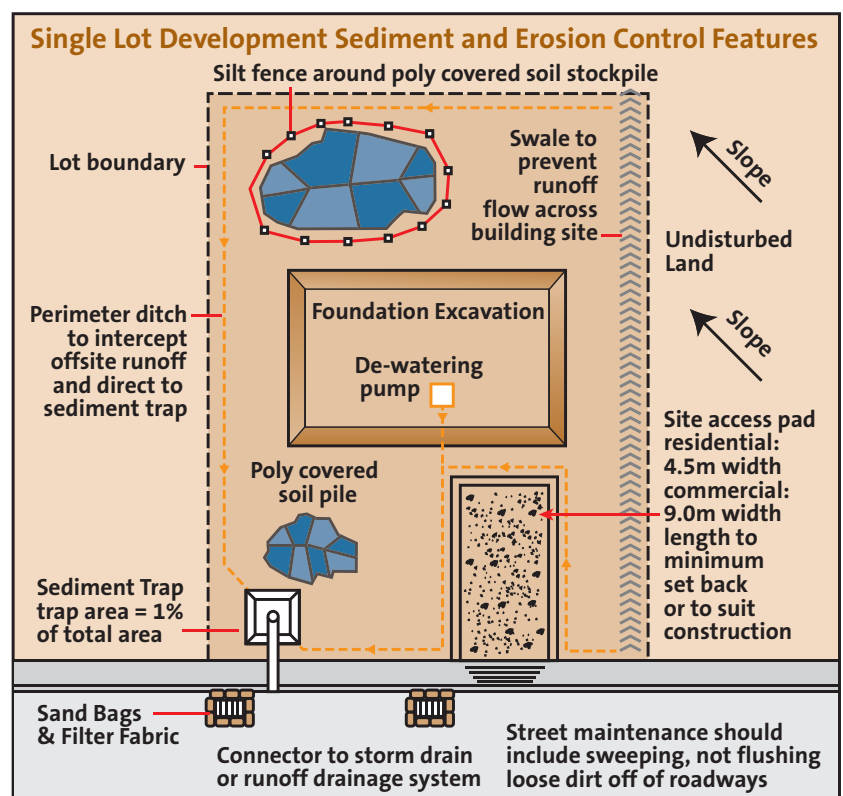
ESC measures must be managed properly. Methods to improve these controls include the following:

- Completing work during favorable weather conditions whenever possible;
- Inspecting sites regularly and checking ESC measures throughout the work period, especially during and after heavy rainfall, to ensure continued performance and compliance;
- Keeping exposed soil to a minimum by covering any exposed soil with erosion control matting, straw or poly-sheeting throughout the duration of construction;
- Regularly maintaining ESC measures for them to function properly;
- Regularly removing accumulated sediment from catch basins, sediment traps, silt fences and other ESC measures.

**Problem:** Sediment-laden water being discharged into the City's storm system.

**Solution:** Install sediment traps, or sumps, which operate like small sediment control ponds and allow sediment to settle from the water. Once the water is free of sediment, it can then be emptied into the drainage system. This can be done by placing a pump in the trap and discharging clean water into the storm system. Or, the sump can be built with a PVC riser covered with drain rock or filter fabric to allow the water to filter into the storm system. Remove/clean out the sediment in the sump.

*Please note: Silt fencing will not filter sediment from water. It will only act as a dam slowing down water flow and trapping sediment.*





**Problem:** The disposal of concrete wash-water on site.

**Solution:** Concrete or cement wash water is basic and can alter the pH of the surrounding environment and result in the death of aquatic life. This water must not be discharged into the storm drainage system. It must be collected and disposed of appropriately or taken off-site for disposal.

*Please note:* Filtering concrete wash-water will **not** remove the components that kill fish even if the wash-water is crystal clear. The poisonous components are still there, dissolved in a form that we cannot see and the pH is still high enough to kill fish within a matter of minutes.



**Problem:** Rainwater transporting sediment-laden water from exposed areas on site.

**Solution:** Silt fencing can be used to control surface runoff. Install it around the perimeter of the construction site. Cover exposed soil with straw, erosion-control matting or poly-sheeting. Remember to landscape your site as soon as possible after construction or while the trades are finishing to minimize the potential for ongoing soil erosion.

*Please note:* Silt fencing will not filter sediment from water. It will only act as a dam slowing down water flow and trapping sediment.



**Problem:** Sediment is on the roadway and entering the catch basin.

**Solution:** Install filter fabric in the catch basin and side inlet to prevent sediment from entering the storm system. Also, keep sediment off the road by sweeping or installing a gravel access pad on site to prevent vehicles from tracking dirt onto the roadway.

*Please note:* Filter Fabric is a non-woven geotextile that allows water to pass through it.



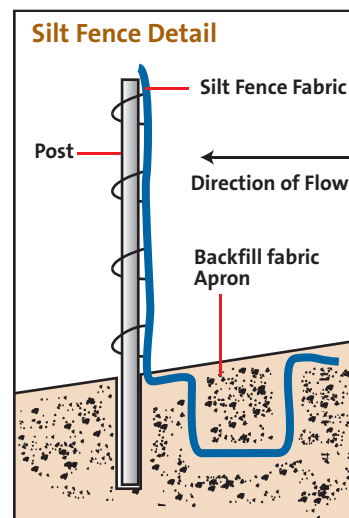
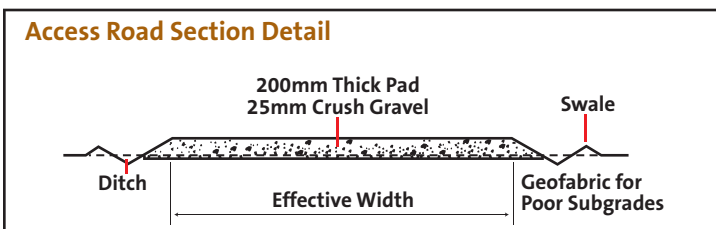
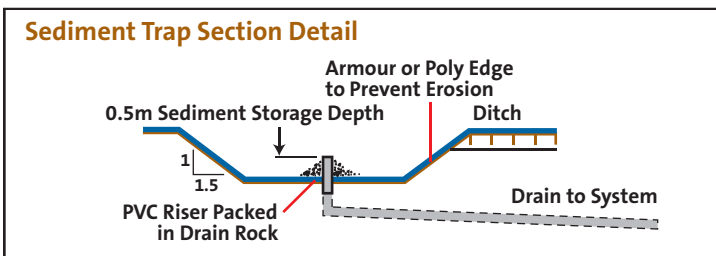
**Problem:** Exposed piles of soil (stockpiles) on site.

**Solution:** Stockpiles should be covered with poly-sheeting. Use silt fencing around the base of stockpiles to prevent sediment-laden runoff and erosion.



**Problem:** Sediment-laden water in perimeter ditches or swales.

**Solution:** Install check dams made of drain rock or hay bales in perimeter ditches to slow down the flow and allow sediment to settle out of the water.





Preventing erosion and sedimentation is important at all construction sites.

### Bylaws and Regulations

There are laws and penalties to protect fish-bearing streams. Construction on single or two-family dwellings in the City of Coquitlam must follow certain guidelines for ESC. These include:

#### **Stream and Drainage System Protection Bylaw No. 4403, 2013**

This bylaw prohibits the discharge of harmful substances (paint, oil, chemicals, cleaners, chlorinated water, concrete wash water, etc) into the City's drainage system. It also prohibits the release of any sediment to the system that results in pH values outside of the range of 6.5 to 8 or turbidity levels in excess of 25 Nephelometric Turbidity Units (NTU), or 100 NTU during and for 24 hours following a Significant Rainfall Event ( $\geq 25\text{mm}/24$  hours).

#### **Federal Fisheries Act**

This federal act prohibits the discharge of harmful substances into fish bearing waterways or water that may enter fish bearing waterways.

**Discharges into the storm drain are prohibited under the Federal Fisheries Act, with fines of up to \$300,000 for first time offences.**

***Please note:** This bulletin is provided as a reference guide only. It is the responsibility of the applicant to ensure compliance with all applicable bylaws and legislation. For more information, please refer to the City of Coquitlam Bylaw No. 4403, 2013 and the Department of Fisheries and Oceans Land Development Guidelines for the Protection of Aquatic Habitat.*

### Where Can I Call If I Have Other Concerns or Need More Information?

For further information, contact Engineering Customer Services at 604-927-3500.

City of Coquitlam  
3000 Guildford Way  
Coquitlam, British Columbia  
V3B 7N2

[coquitlam.ca/esc](http://coquitlam.ca/esc)

# Erosion and Sediment Control

## Mandatory & Additional Best Management Practices

On September 9, 2013, Coquitlam adopted a new Stream and Drainage System Protection Bylaw (No. 4403, 2013). In addition to providing general discharge prohibitions to ensure protection of the City's waterways and drainage system, this new Bylaw also regulates erosion and sediment control (ESC) issues related to construction and development sites.

Development permits approved on or after September 9, 2013 will adhere to the new Stream and Drainage System Protection Bylaw in its entirety. Development permits that were approved prior to September 9, 2013 will follow the old Stream and Drainage System Protection Bylaw (3447, 2001), except the sections which pertain to "Prohibition of Discharge". All sites and permits must adhere to Section 3 of the new Bylaw (4403, 2013) which outlines the new "Prohibition of Discharge" requirements regardless of when a permit was issued.

The new bylaw introduces changes to: water quality discharge criteria, administrative requirements, fees and security, monitoring/reporting requirements and minimum Best Management Practices.

**Mandatory** Erosion and Sediment Control Best Management Practices are the minimum standard for all developments, including single family or duplex residential development, to demonstrate due diligence under the Bylaw. **Additional** Best Management Practices must be considered for inclusion in the Erosion Sediment Control Plan for developments other than Single Family/Duplex. The following list provides a summary of mandatory and additional Best Management Practices. *(For complete details on these Best Management Practices, please see the Erosion and Sediment Control Best Management Practices document available from Engineering and Public Works or visit [coquitlam.ca/esc](http://coquitlam.ca/esc)).*

### Mandatory Best Management Practices

- Gutter down-spout connection.
- Formal access pad/access parking restriction.
- Formal perimeter control installed along the downslope perimeters, i.e., site boundaries with the potential to generate surface runoff which may cross property boundaries and/or enter existing drainage infrastructure.
- Temporary drainage swale and sump.
- Storm sewer inlet protection, e.g., catch basin or lawn basin inlets.
- Disturbed surfaces/stockpile protection.
- Road surface sweeping.

### Additional Best Management Practices

- Project Planning/Phasing, e.g., vegetation retention, project phasing, scheduling, wet weather operating procedures.
- Temporary Sediment Control Detention Facilities, e.g., sediment control pond, portable tanks, active filtration systems, temporary sediment traps, single family/duplex sediment traps.
- Sediment Barriers, e.g., silt fencing, straw wattles, wood mulch berms, rock mulch berms, straw bale barriers.
- Incidental Water Management, e.g., infiltration to vegetated surfaces or contained areas, dewatering bag.
- Polymer/Flocculent Additives, e.g., passive/active flow-through treatments, batch treatment.
- pH Mitigation, e.g., compressed CO<sub>2</sub> gas diffusion.

The Bylaw and all supporting forms and documents are available on the City of Coquitlam website at [coquitlam.ca/esc](http://coquitlam.ca/esc)

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